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THE

# Canadian Agriculturist,

OR

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

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No. 14.

## On the Growth of Red Clover.

Clover, with Timothy, will, in all probability, continue to constitute in Canada, the principal material for soiling cattle or for the making of hay. These two grasses therefore are of the greatest importance in our system of agriculture, and whatever throws light on their improved culture, must be regarded with special interest by our farmers generally. In the older countries of Europe it is a common complaint that clover is deteriorating, both as to quantity and quality; and such soils are said to be *clover*. The only effectual remedy is to extend the rotation of cropping, or to bring clover in less frequently, say at intervals of five or six years, instead of three or four, and to apply artificial manures specially suited to the wants of the plant. In this country we do not hear of a complaint of this nature, still in some parts of the older settled districts, the clover crop appears of late years to have been under the average; and some change of culture is evidently required. In most cases deeper ploughing with longer intervals between the occurrence of the same crop, would unquestionably be found of great benefit. A deeper tilth would have the advantage of fixing the plant more firmly in the soil, and consequently making it less liable to be thrown out by spring frosts; the greatest injury, perhaps, to which the clover is subjected in this climate.

Dr. Voelcker, Chemist to the Royal Agricultural Society of England, made a few years since a number of very accurate and original experiments on the growth of Red Clover; and from the details of the results, as published in the society's journal, we condense the following for the consideration of our readers.

"We are far from asserting" (remarks the Professor) "that there is evidence enough to show that the failure of clover, when grown too frequently on the same land, is altogether due to the want of a sufficient supply of certain organic compounds in the soil. At the same time, we think that the facts of agricultural and horticultural practice, as well as the evidence of direct experiment, must lead to the conclusion, that the view that the organic compounds of the soil are only valuable to plants as a source of carbonic acid, requires modification. It is, indeed, probable, that some plants derive a considerable amount of their substance from carbonic compounds other than carbonic acid, and that others depend for their carbon mainly, if not exclusively, upon carbonic acid."

Such crops as, in the course of cultivation, are subjected to pretty natural conditions of growth, and which accumulate the greater portion of their substance during the period at which the sun's rays are known to be most powerful in influencing the decomposition of carbonic acid by plants, appear to depend chiefly on that source for their carbon. Those, on the

other hand, which are grown under somewhat abnormal conditions, and which store up a large amount of succulent products of a comparatively low degree of elaboration, are probably partly dependent on the carbon compounds, yielded by the soil. The leguminous crops, again, though coming generally more within the former than the latter category, still seem to be dependent, for luxuriant growth, more or less upon a supply within the soil of complex organic compounds.

It would appear, however, that whatever may be the precise result to which investigation may lead, in regard to the questions here involved: it may, at any rate, be pretty safely affirmed, that we shall not arrive at the true explanation of the phenomena upon which depend some of the most striking advantages of a rotation of crops, until we are better able than at present, to define the relations of the different crops to the different sources of carbon and of nitrogen.

The practical conclusions from this interesting enquiry may be very briefly stated:—

When land is not what is called "clover sick," the crop of clover may frequently be increased by top-dressings of manure containing potash, and suerphosphate of lime: but the high price of potash, and the uncertainty of the action of manures upon the crop, render the application of artificial manures for clover a practice of doubtful economy.

When the land is what is called "clover sick," none of the ordinary manures, whether artificial or natural, can be relied upon to secure a crop.

So far as our present knowledge goes, the only means of insuring a good crop of red clover is to allow some years to elapse before repeating the crop upon the same land.

### Specific Gravity of Roots.

It is well known to farmers that turnips, beets, &c., differ considerably in their feeding properties, arising from the different varieties cultivated, the character of the soil, manures, climate, &c. Some very important experiments were made by Professor Sullivan, upon the varying specific gravity of our cultivated roots, the results of which were published in the

*Dublin Agricultural Review*, a year or two since. He observes:—

"One of the most striking differences in quality, which roots exhibit, is that of relative amount of solid matter,—a difference which may be determined by ascertaining their specific gravity; the roots containing the least water being densest. I therefore determined to try whether the property of density could be propagated. For this purpose I selected three roots of white Silesian beet of nearly the same size, (2lbs, 6oz to 2lbs, 7oz,) but exhibiting as great a difference in specific gravity as possible."

The roots whose specific gravities were there determined, were planted, and allowed to produce seed, which was sown, and the roots produced from them examined. The following table gives the weight of roots grown from parent seed, and per centage of solid matter:—

Weight of roots.	Specific gravity of parent root 1,070 . . . 1,050 . . . 1,030.	Per centage of solid matter.
14 to 20 oz. . . . .	Max. . . . . 18.53 . . . . . 15.91 . . . . . 10.11	Min. . . . . 17.40 . . . . . 14.62 . . . . . 9.12
32 to 46 oz. . . . .	Max. . . . . 17.74 . . . . . 15.35 . . . . . 10.64	Min. . . . . 15.55 . . . . . 13.65 . . . . . 9.20
48 to 60 oz. . . . .	Max. . . . . 16.15 . . . . . 15.47 . . . . . 8.75	Min. . . . . 14.80 . . . . . 13.89 . . . . . 7.57.

The professor reasons cautiously, as a chemist ever should, upon these results; but we heartily concur with him in deeming them worthy of a tended repetition. That like produces like is well known agricultural axiom; and we opt with the professor, that if we can by a judicious selection of roots for seed increase the density of the produce, we may also succeed in developing some particular constituent of more importance than the other. We shall watch the progress of discovery and improvement in the directions, with particular interest.

### Harvest Prospects.

The accounts of the state of the grain crop in Canada are, perhaps, more than ordinarily conflicting at the present time. The late spring frosts in some localities, seriously injured the wheat plant, while in others the drought has been very severe on the spring crops. In several sections the reports of the crops generally, including hay, are pretty satisfactory, and others highly encouraging. The midge, we are sorry to find, is doing its destructive work in some places, but not, we hope, to an alarm

extent. As yet we hear no particular complaint of rust. Considering the lateness of the spring, and the ungenial weather that has more or less characterized the growing season almost to the present time, the crops, upon the whole, may be regarded as better than at one period could have been reasonably anticipated: and we still think that if Providence favors us with favourable weather for the next few weeks, the crops, though late, will not fall short of an average.

We learn from the *Mark Lane Express* of June 24th, that the wheat crop in the United Kingdom, notwithstanding the late genial weather, could not reasonably be expected to reach an average. Owing to the wetness of the last summer and autumn, wheat-sowing was performed under most disadvantageous conditions, and the severity of the winter and early spring militated seriously against the healthy progress of the plant; besides, a much smaller breadth was sown with winter wheat than usual. The most recent accounts from France afford no hope that wheat in that country will reach an average; and the same may be said of parts of Germany, Russia, and other great grain countries of Europe. Although the accounts from several sections of the United States may be regarded as favourable, the unhappy differences of that country must already, we should think, tend to diminish the amount of production, and add these unfortunate circumstances to come another year, it is much to be feared that the products both of the field and workshop will experience a serious diminution. In the present condition of the world we see no prospect of prices ruling low: and there is every reason to believe for our Canadian farmers to get in as large a breadth of wheat as possible the coming autumn, and in the best practicable condition, with a reasonable prospect of remunerative returns.

**The Horse when Dead.**

Dr. Playfair the distinguished chemist, a short time since gave an estimate of the value of a dead horse. It seems that in London, the average weight of those slaughtered is about 1000 lbs; the average value about 46 shillings.

This weight and the chief purpose to which the different parts are applied, and their value, may be stated as follows:

llbs.		
Hide	1 1/2	8d to 1s. a lb..... Hair cloth, &c.
Hide	30	8s..... Leather.
Tendons	6	.....Glue.
Flesh	224	boiled, 23s..... Dog's meat, &c.
Blood	60	..... Prussiate of Potash, &c.
Heart & Tongue	.....	..... A mystery.
Intestines	50	..... Covering Sausages, &c.
Fat	27	3s. 4d.....
Bones	7 1/2	4s. 6d. per cwt..... Knife handles, &c.
Horns	6	8s. to 10s. per cwt..... Butons, &c.
Hoofs	5	2s. to 10s. per cwt..... Old Iron.

**Pea Harvester.**

EDITORS AGRICULTURIST.—As the subject of "Pea Harvesters" seems to occupy attention to a considerable extent, permit me, as I wish all my-brother farmers to do, viz., express my opinion, if nothing more, on the subject.

Now my opinion is simply this, that it will be some time before the labyrinth of pea-vines will be unravelled by anything more successfully than by the "old scythe."

My system is something like this,—if the peas fall towards the east. (as they generally do) take your scythe to the south-west corner of the field, and mow towards the east until the swathe with all the vines under it will make a wad of the desired size, then step back, rolling it all along with you to the starting point, then step over to the left, and go on the same way, making the rows north and south.

A man will roll about 1 acre per day, and do it much cleaner than by any other method known to me.

I am pleased to see a prize offered for a "Pea Harvester" and would be highly gratified to see a creditable machine for that purpose at the coming Exhibition at London.

MOSES A. KITCHEN.

Bloomsburg, C. W.,  
July, 1861.

**The World's Exhibition in London next Year.**

We learn that the Royal Agricultural Society of England have resolved to hold their annual county show next summer in London, so that it will become in a measure linked with the International Exhibition. The Prince Consort has consented to become its President for the year, and 26 acres of the Regent's Park have been granted for the purpose of the exhibition. The Highland Society of Scotland have agreed to suspend their show for 1862; and throw their energies into that of the metropolis.

The *Mark Lane Express* of June 24th observes:—

Two members of the Council of the Royal Agricultural Society—Mr. Thomson, M.P., and Mr. Brandreth Gibbs—have been appointed to act on the Central Committee for the class of agricultural machinery and implements, to see to a due representation being made, to encourage the production and preparation of suitable objects for exhibition, and to settle the distribution of space among applicants. It is highly desirable, therefore, that the two displays as regards agricultural machinery should harmonize well together.

Stepping from the Exhibition building in Kensington, after feasting their eyes upon commercial products and the result of the arts and manufactures of all countries, the visitors may have a taste of horticulture in the adjoining building, and pass on to live stock and farming implements in Regent's Park. The man who cannot gain some useful hints and practical information from this unprecedented combination of competitive display, must be boorish in the highest degree.

Canada, Tasmania, and South Australia, it should be remembered, will be at this London exhibition in strong force, with their implements, samples of grain and pulse, and other seeds. The Cape Colony, Victoria, New South Wales, and Queensland, great wool-producing districts, will be there; good judges all of sheep and cattle, and with long purses ready to purchase anything that meets their approval for symmetry or blood. British Columbia, a young colony, but progressive, active and thriving, will be there also on the look-out for stock, and not unfitly represented in its agricultural produce.

Continental farmers from France and Germany, Belgium, and Russia will be there, scrutinizing with the glance of connoisseurs every good and bad point. Indeed it will be difficult to say what representatives of countries will be absent, except, perhaps, the fratricidal Americans, who, alas! are more intent at present on the bowie-knife and the rifle than thinking of displaying their labor-saving machines, their bread-stuffs, cured provisions, and their general agricultural progress. And yet, not very long ago there was a more hopeful prospect in view; for at the annual meeting of the State Agricultural Society of New York, a resolution was passed, calling the attention of American manufacturers of agricultural machinery, to the exhibition of industry of all Nations to be held in London next year. The leading agricultural journal there expresses the hope that their manufacturers will not allow the coming opportunity to escape them of representing abroad, fairly, whatever progress they may have made during the past ten years in the department of effort.

In all the British colonies a prominent inter-

est has been given to the representation of agricultural industry at the International Exhibition, and even in most of the Foreign States some eminent man connected with agriculture is associated with the executive commissioners. In Canada, the commission appointed acts in conjunction with the Provincial Board of Arts and Manufactures and the Boards of Agriculture of Upper and Lower Canada, to superintend the judicious expenditure of the large sum, £8,000, voted by the Legislature. Canada reaped so much credit and advantage from its exertions in connection with the past exhibitions at London and Paris, that it has every encouragement to repeat its efforts. In France the Minister of Agriculture and Commerce is charged with the execution of the decree for the transmission of French products, to the Exhibition. In Belgium, among the directing commission charged with the organization and control of the representation of Belgian products we notice the name of M. Bellefroid, Director-General of Industry and Agriculture. Indeed, there is scarcely a Continental State or British Colony that does not intend to send some official intimately connected with agricultural improvement.

There are several vegetable products that will be shown of the greatest interest, in a commercial point of view, to this country: among the chief of these are timber, fibres, and paper materials.

We shall, judging from the accounts already received, have a magnificent collection of timber, of which we stand so much in need at present. British Columbia, Canada and the Lower Provinces, British Guiana, the Cape Colony, Western Africa, Tasmania, New Zealand, and Queensland will come out especially strong in this article. Not specimens of exceptional character only will be sent, but such as will fairly represent what the colonial hard woods really are, showing their density, durability, and other properties that may recommend them to the engineer and ship-builder, when cut at the proper season and otherwise under favourable circumstances.

For vegetable fibres in a manufacturing point of view, adapted for cordage and textile uses, there is also an increasing demand in this country. Our wants for home consumption and export are extensive; and we do not care to be so largely dependent on foreigners for our cotton, hemp, and flax. The new fibrous substances introduced and utilized have shown that there is abundant room yet for belief that materials every way suited for spinning may be found that will come in aid of existing materials; while the attention now given in our own colonies to the production of the well-known staples for our textile manufactures, holds out the promise of better supply for the future.

It has come now to be understood, even beyond scientific circles, that rags are valuable to paper manufacturers only because they contain

vegetable fibre—cotton rags of the fibre of  
cotton plants, linen rags of the fibre of the  
straw, the leafy covering of the ears of the  
oat, the stalk of the sugar-cane, and other  
substances, have been drawn upon, dispensing  
with the agency of the cotton-spinner in the  
manufacture of paper, and dealing in the first  
instance with the vegetable fibre, without sub-  
jecting it to the necessity of being woven, and  
worn out, and given to the rag-mer-  
chant. In America, by the application of some  
valuable process of steam-digestion, the fibre of  
various forms of vegetation is at once rendered  
fit for the paper mill. Most of our colonies  
possess this fibrous vegetation in infinite quan-  
tities.

From the lessons to be learnt at the Interna-  
tional Exhibition and the metropolitan annual  
of the Royal Agricultural Society next  
year, results may spring fraught with great  
benefit, not only to Great Britain, but to many  
other countries; and the decennial stock-taking  
of our agricultural progress cannot fail to be  
satisfactory and creditable.

From the above, and similar remarks in other  
quarters, it will be seen that the Colonies of the  
British Empire are making preparations for the  
upcoming exposition of the world's industry,  
and that Canada is expected to take her  
share in this great movement. References  
have been frequently made to the distinguished  
victory which we won at these Exhibitions, first  
in London, in 1851, and then in Paris, in 1855;  
the benefits that we derived therefrom must  
have been many and great. The eyes of the  
civilized world were upon us, and Canada, in-  
stead of being regarded as a vast region covered  
by the greater part of the year with ice and  
snow, was seen to possess agricultural and min-  
eral resources, that really astonished the millions  
who witnessed the result. What, we ask, is now  
being done towards placing this Province in the  
proper position, in London, next Spring? As  
we hear of nothing being done in the matter  
by the public bodies, which, only, are capable of  
doing the work thoroughly and successfully. The  
Legislature was petitioned last session by the  
Board of Agriculture, and of Arts and Manu-  
factures of both sections of the Province for  
financial aid, in making the necessary prepara-  
tions; but nothing was done. The Board of  
Agriculture of Canada have had the matter under con-  
sideration, and will no doubt do as much as  
their limited means will allow. But the Boards  
of Agriculture and Manufactures cannot move at all  
without special aid from government. The

articles that come within their province are  
more or less costly, and require considerable  
time and care to prepare. In nine short months  
the Exhibition will be opened, and we cannot,  
therefore, afford to lose a moment. The time  
that yet remains will be found too short to do  
justice to ourselves, unless the matter is taken  
up at once, and prosecuted with unflinching per-  
severance. To allow the approaching oppor-  
tunity to pass unimproved, rather than expend  
a few thousand dollars in the needful prepara-  
tions, will be regarded by the reflecting portion  
of the community as unwise economy. Canada  
is expected to take her place among the frater-  
nity of nations in the metropolis of the empire,  
next May, and if, unfortunately, she should be  
absent, she will be called upon, from various  
quarters, to state "*the reason why.*" Such an  
occurrence in the recollection of former preced-  
ents would brand us in the eyes of the world  
with the mark of retrogradation.

### Breeding Stock.

This subject is less understood by people in  
this country than is almost any other which falls  
under their observation. The breeding and  
rearing of stock, especially animals of high and  
pure blood, is, however, attracting increased  
attention from the scientific and enlightened  
agriculturist; and when the farmer succeeds in  
obtaining animals possessing the qualities sought  
for, it is not unfrequent that many are disap-  
pointed in the progeny of even the purest and  
most renowned pedigree. Even among the en-  
lightened it is more than intimated that animals  
possessing really superior qualities owe their  
excellence mainly to the care bestowed upon  
them in regard to feed, &c. Hence arises the  
question, why comes this disappointment, and  
why such discrepancies of opinion? All are ac-  
customed to rely upon *experience*, and many  
have *experienced* a grievous disappointment in  
not finding the young to resemble the sire of the  
dam, as the case may be, as closely as they had  
hoped; and, without being able to account for  
this fact in accordance with any laws known to  
them, and only knowing that *they* have failed of  
the expected improvement in their animals,  
they have naturally come to deny, or at least  
doubt, what others have promulgated, and hence  
have abandoned the enterprise which is thus  
checked by the influences of these failures. The  
English breeders seem to understand the *causes*  
of these failures, and, of course, how to avoid  
them. These *causes* are plainly indicated in the  
"Veterinary Journal," and it would be well if  
this information was more generally disseminated

in this country. The reason there given is this: The mother's system is influenced and changed by the young she carries in her womb, and if the male parent be of a different breed, her blood is contaminated, and she rendered similar to a mongrel for the remainder of her life. This assertion may startle many, but it is claimed that no physiological *fact* is more susceptible of proof than this, and a few instances noticed by Dr. Harvy, Physician to the Aberdeen Royal Infirmary, would seem to demonstrate such a *fact*. He speaks of a young chestnut mare, seven-eighths Arabian, that belonged to the Earl of Moreton, which was covered by a quagga, a species of wild ass from Africa, and marked somewhat after the manner of the zebra. The mare was covered but once by the quagga, and after the pregnancy of eleven months and four days gave birth to a hybrid, which had distinct marks of the quagga in the shape of its head, black bars on the legs, shoulders &c. Two years after, also the third and sixth years respectively, the same mare was covered by a very fine black Arabian horse, and produced three foals, all of which bore unequivocal marks of the quagga.

Another case similar to the foregoing one: A mare belonging to Sir George Ousely was covered by a zebra, and gave birth to a striped hybrid. The next year this mare was covered by a thorough-bred horse, and the next succeeding year by another horse. In this instance also both the foals were striped, and in other regards partook of the zebra. It is a matter of common observation that when a mare has borne a *mule* she is never after fit to breed colts, as they will have large heads, and otherwise resemble the mule. Each of the mares alluded to were, in the first instance, covered by animals of a different *species* from themselves; but other cases fully as conclusive where they had only bred from horses of different *breeds* in successive years, and yet the offspring partook of the characteristics of the horse by which the *first* impregnation was effected.

Mr. McGillivray speaks of several colts in the royal stud at Hampton Court, that were sired by the horse *Actæon* that did not resemble *Actæon*, the paternal parent of the foals, but did bear a resemblance to the horse Colonel, from whom the mares had brought colts the year previous to their being covered by the horse *Actæon*. Again, of a colt, the property of the Earl of Suffield, which was got by the horse Laurel, that it was strongly intimated by the jockeys at New-Market that he *must* have been got by the horse Camel. This resemblance was, however, accounted for by the fact that the mare had been previously impregnated by Camel.

Similar instances have also been observed in regard to other species of animals. Mr. McG. mentioned the following: "A pure Aberdeenshire heifer was served with a pure Teeswater bull, to whom she had a *first cross calf*. The

following season the same cow was served with a pure Aberdeenshire bull; the produce was cross calf, which at two years old had very long horns, the parents both hornless. Another A pure Aberdeenshire cow was served with cross bull, i. e., an animal produced between first cross cow and a pure Teeswater bull. This bull she had a cross calf. Next season she was served with a pure Aberdeenshire bull; the calf was quite a *cross* in shape and color. The same gentlemen, who is good authority, say "many more instances might be cited. Almost all cattle and horses they are of every day's occurrence."

This mode of impairing the purity of the blood of animals has been styled *crossing* the system of the mother. Dr. Harvy also records numerous instances of similar results as have occurred in the *human* family, but these are not to be included in this article. It is inferred that the reason why so many inferior animals are to met with, the progeny of parents of pure lineage, is almost wholly owing to the blood of the mother having been previously contaminated by the cross-bred young she has carried. Of the modus operandi of this contamination there is explanation given which is generally satisfactory but it seems probable that inasmuch as the *ear blood* must circulate through the veins of both mother and offspring, the system of the dam comes modified and rendered in a greater or lesser degree similar to her mongrel young. Surely that in view of the vast interest involved in this subject, "the theory thus vindicated by these other eminent breeders," renders this subject worthy the special attention of all those interested in agricultural pursuits in our country. *Country Gentleman*.

### The Mutual Relations of the Vegetal and Animal Kingdoms.

[The following paper was read by Mr. J. Hobson, of Long Sutton, Lincolnshire, at the last monthly meeting of the London or Country Farmer's Club, on June 3rd.]

When the subject on the card was first suggested, it was in the hope that some accomplished member of the Club, specially qualified such a task, would give us the benefit of researches on a theme of such unbounded interest. Failing that, when the committee handed me with the charge of this paper, from every time I became deeply sensible how unqualified I was to grapple with a subject of such gigantic proportions, and I should be peculiarly unfortunate if any one present whom I am a stranger (for none else are in the ger) should expect anything from this paper original in science or novel in practice do not pretend to advance anything which is easily accessible to any of my brother farmers.

as who spend our lifetime among the objects in the study of natural history—the whole dome of Nature is unrolled before us, "written" to use the impressive words of Lord Bacon, in the only language which hath gone forth from the ends of the world unaffected by the confusion of Babel." Permit me with all deference to state, that, in my opinion, we men of practice have been far too exacting, in insisting on direct and immediate practical issue to every inquiry. Liebig tells us "it is not at all the province of science to seek out the means of increasing produce or augmenting incomes. Science inquires not after what is profitable; this belongs to the experimental art, with which she has been confounded. The business of science is to seek for causes, and, like a light, to illumine the surrounding darkness. Science confers power, not money: and power is the source both of riches and of poverty—of riches when it proceeds and of poverty when it destroys; it is kindled by use, and revived by supply. "When the line of demarcation shall be better understood, and the philosopher in his high walk of science, and the practical man in his humbler sphere of application, shall arrive at a thorough understanding and mutual co-operation, will such an impetus be imparted to agricultural progression, as the pure matter-of-fact (if outside these walls such a genus be still existence) never yet dreamt of. The old cry 'Cui bono?' is fast fading away, and I trust that its dying echoes will not linger long among the farmers. The wonder is that its counsel should so long have withstood the test of advancing science. Who shall be rash enough to predict what will be the limit of practical application in any investigation, however remotely remote? And here, gentlemen, on the very threshold of our inquiry, we are exposed to the old conflict. Though I do not suppose we are likely to plead guilty to every count in the charge of severe criticism preferred to us in the last book of the great German Liebig, still, I think we must all, how unwillingly, acknowledge that much of it is alleged against us, as a body, carries with it the conviction of truth, and claims the most and dispassionate consideration, with which to deliver Agriculture as speedily as possible from such a notoriously anomalous position, as fatal at once to its present security, and to its hindrance to its future progress. While we complacently take credit, for what in the language of courtesy is called "applied science," how little do we realize what a vast increase it would produce, with what amazing results it would be attended, if in regard to Agriculture it could be said to be *literally* true, and fully appreciated and energetically applied. These great principles which science, by patient, and laborious research, has proved at the foundation of a rational system of agriculture! Let any one take notes, by the

way, as he traverses the length and breadth of the land, and see how the exception establishes the rule.

It is, I take it, one of the great objects of this Club, not so much to introduce what is new, as to examine and discuss what is known and approved by the few, and so far as it will endure the test of enlightened practical experience, to recommend it by its sanction for general adoption. No wonder that any observant mind should become bewildered and almost lost, amidst the vast variety of small and vegetable life which surrounds it. The objects before us are illimitable, and all we can hope for, to-night, will be just to glance almost promiscuously at some few of those beautiful analogies and connections which exist between the animal and vegetable kingdoms, proving their entire dependence upon each other—their adaptation and mutual relations, with a view to practical agriculture, "showing the whole living kingdoms of Nature to be parts of one vast plain, the work of one Almighty and Omniscient Creator." Although our humble task to to-night will be chiefly to examine and exhibit some few of those brilliant discoveries which are become the common property of every intelligent mind, and, although I shall quote freely (for our security) the very words of those who are entitled to speak with authority, rather than weaken the force of original statements or recorded experience by any vain attempt at transposition of my own; still I crave and peculiarly need your indulgence, not only on account of the limited powers and very slender resources I have at command, but also for deviating in some measure from that *directly* practical view, which I know to be the chief end and aim of these discussions. And here I trust I may look for your substantial aid to develop, more forcibly than I may be enabled to do, some of those practical applications from the storehouse of your experience, of which the subject may seem to you to be susceptible. "Vegetables, constitute that produce of the earth which is essential to the existence and requisite to the comforts of mankind." "In the pre-Adamite earth there was a period revealed by geologists when no traces of plants or animals, or of their organic remains, were to be found—termed 'the azoic period,' or lifeless. It is a strange and interesting circumstance, that we can arrive at a *beginning* of animal and vegetable creation, and contemplate the state of the globe before the first pulsation of organic life stirred within its precincts, creation consistingly progressing from the inferior to the superior forms of organic life, leading to the conclusion that the first created of living beings could not have ranked higher in the scale of physical organization than a zoophyte, or animated plant, as the term imports—a creature which holds position in the scale of being intermediate between the animal and vegetable, partaking of the natures of both, and wholly devoid of the higher organs of sense:

such as sight and hearing. "The great column of being," says Hugh Miller, "with its base set in the sea, and inscribed, like some old triumphal pillar, and with many a strange form at once hieroglyphic and figurative, beins—as the ornately sculptured capital, which imparts beauty and finish to the *whole*—reasoning, responsible man.

There is surely a very wonderful harmony manifested in the proportions of that nice sequence, in which the invertebrates, the fishes, the reptiles, marsupials, the placental mammals, and, last of all, man himself, are so exquisitely arranged. Of one of our domestic tribes no trace has yet been found in the rocks. Like the cod family among fishes, or the roseaceæ among plants, it seems to have preceded man by but a very brief period. I refer to the sheep—that clothes civilized man everywhere, in the colder latitudes, with its fleece—that feeds him with its flesh—that gives its bowels to be spun into the catgut with which he refits his musical instruments, and whose skin converted into parchment, served to convey to later times the thinking of the first blow of the human intellect across the dreary gulf of the middle ages." "Vegetation inconceivably exceeding in vastness all that we now know," says Arnott, "grew and faded alternately upon this globe during many ages, while they were apparently useless in creation. It was allowed to run waste, because it was waste that the Omniscient Operator wanted as the raw material of the manufacture which he had in hand. Soft, deep, damp soils and hot steaming skies brought forth herbs and trees with a luxuriance that baffles our imagination, now that it has passed away from the senses. These were deposited in layers along broad valleys, covered over, hot-pressed, and caked into coal, that it might keep till it should be required as fuel for the *coming man*. When the fuel was stratifying and crystalizing and caking, man was designed and promised; the coal measures promised him. For men these stores were provided, because he only can use them: no species of animal except the human has sufficient skill to light a fire." The gorilla, whose company has been so much sought after by the philosopher and the multitude, likes well enough to warm himself by the negro's fire; but, with all his vaunted sagacity, he skulks away from its dying embers, for he knows not how to add "fuel to the fire." Well it is so. Otherwise, what terrible destruction might be brought about! If any be disposed to doubt the practical issue of this part of our inquiry, taking man as the *great central figure* of our theme, let him conceive, if he can, the fatal paralysis which would seize upon the world, driving back the tide of its advancing civilization, and especially would it be disastrous to England, with her manufactures, her commerce, and her agriculture—if these two elements of power, coal and iron, were blotted out of the stony book of creation. Then would she look in vain for them in their most wonder-

ful combination—the *steam engine*. Millions of men and horses would utterly fail to undertake the giant's daily task; millions of acres of valuable land must be *misapplied* to their maintenance. The remains of a vast and extinct vegetation made a substitute for the labour of the living animal, and man, released from the drudgery, incessant toil, is better fitted to fulfil his noble destiny as an intelligent and morally responsible creature. Agriculture is only just beginning to feel the impulse which she must one day receive through the mighty energy of steam. "There is a ceaseless round of force mutation throughout nature," says the *Cornhill Magazine*, "each one generating or changing into the other. So that force which enters the plant as heat, light, &c, is stored up in its tissues, making it organic. This force, transferred from the plant to the animal in digestion, is given out by muscles in their decomposition, and produces motion, or by its nerves, and constitutes nerve force—force stored up in the body—resistant to chemical affinity; this force proceeds directly from the solar rays." These influences have important bearing upon the feeding of stock—the growing of corn, especially in our short seasons, when the climatal influence of light & heat are below the average, and so incapable of thoroughly ripening the grain. Has the exuberance and weakness of straw, frequently observed over a large wheat growing area, anything to do with the stimulating treatment of high farming and special manuring, on the one hand? or is it attributable to a constant use of phosphates, and a too monotonous rotation of cropping, on the other? or is it (as has been ably suggested) from a constitutional change in the soil, from physical and physiological causes? Will deep stirring by steam culture prove feasible or otherwise to early ripening? The beautiful harmony that exists between the animal and vegetable kingdoms has not a more striking important illustration than is to be seen through the medium of the atmosphere. Let us study Maury's fine descriptive words: "to him who studies the physical relations of the earth, sea, and the air, the atmosphere is indeed something more than a shoreless ocean, at the bottom of which he creeps along. It is an envelope covering for the dispersion of light and heat over the surface of the earth; it is a sewer, which, with every breath we exhale, we off a vast quantity of dead matter; it is a laboratory for purification, in which that matter is recomposed and wrought again into various and healthful shapes; it is a machine drawing up all the rivers from the sea, and conveying their waters from their fountains, into the ocean, to the sources in their mountains; it is an inexhaustible magazine, marvellously adapted for many benign and beneficent purposes. The proper working of this machine depends upon the well-being of every plant and animal that inhabits the earth." "It is well known,"

Dr. Carpenter, "that when an animal is confined in a limited quantity of air, it soon vitiates it, or renders it unwholesome; so that free ventilation by which the foul air is replaced by fresh, is one of the most important means of the preservation of health."

Now this change in the air is effected by its oxygen, which is the element that chiefly supports the life of all beings, and by the substitution of carbonic-acid gas set free from the lungs of animals. Thus the blood is purified, and is rendered more capable of maintaining the life of the system, by receiving one of an opposite character, and the change is manifested in its aspect as well as its properties, the dark purple blood of the veins being converted into the bright scarlet fluid of the arteries. It is the office of plants to decompose this carbonic-acid gas, taking the solid carbon in its tissues, setting free the oxygen, and so restoring the purity of the air.

Will you indulge me for a minute in a poetical illustration which I turned up some twenty years ago, and thought a gem: "The carbonic acid gas with which our breathing fills the air to-morrow will be speeding north and south, striving to make the tour of the world. The date trees that grow round the fountains of Nile will drink it in by their leaves; The firs of Lebanon will take of it to add to their verdure; the cocoa-nuts of Tahiti will grow riper in age; and the palms and bananas of Japan will change it into flowers. The oxygen we are breathing was distilled for us some short time ago by the magnolias of the Susquehanna, and the cedars that skirt the Orinoko and the Amazon: the giant rhododendrons of the Himalayas are indebted to it, the roses and myrtles of Cashmere, the cinnamon trees of Ceylon, and forests more than the Flood, buried deep in the heart of Africa, far behind the mountains of the moon. The rain which we see descending was thawed out of icebergs which have watched the stars for ages, and lotus-lilies sucked up from the Nile, and exhaled as vapor, the snows that are lying on the tops of our hills." Thus we see

"the two great kingdoms of nature are made to co-operate in the execution of the same plan, each ministering to the other, and preserving that due balance in the constitution of the atmosphere which adapts it to the welfare and activity of every order of beings, and which would soon be destroyed were the operations of one of them to be suspended. And yet man, in his ignorance and his thirst for worldly gain, has done his utmost to destroy this beautiful and harmonious plan. It was evidently the intention of the Creator that animal and vegetable life should everywhere exist together, so that the beneficial influence which the former is constantly exerting upon the air, whose purity is so essential to its maintenance, should be counteracted by the latter."

These principles involve the question of life and death to thousands every year. Take a

witness from the Registrar-General's report: "In Scotland last year, in eight of the *largest* towns, mortality was at the rate of 286 in every 10,000, in smaller towns 221, in rural districts only 170." An apartment for a prison in England (would that it were all the world over) has an allowance of 1 000 cubic feet of air; but in the confined dwellings of Glasgow closes, the average is 175 cubic feet. No wonder, then, at Mr. Edwin Chadwick's remarkable observation, that more than 200,000 deaths occur every year in Great Britain from preventible causes, or, in other words, that, were proper sanitary measures adopted, fully one-half the usual number of deaths would be spared;" and Lord Stanley tells us, in eloquent words (I have not time to quote at length), that *that* is the least part of the result. "The real and lasting injury," he says, "lies in the deterioration of race, in seeds of disease transmitted to future generations, in the degeneracy and decay which are never detected till the evil is irreparable." Begg, when speaking of the both system, styles it "a rude monachism, existing vastly to the destruction of morals, and is the opprobrium of Scotland;" and of the female bothies he says, "nothing more atrocious ever existed in rural life." I trust that practically-remedial results will follow the renewed agitation of this painfully-important subject, not only before the court of Parliament, but also before an *enlightened public opinion*, at length thoroughly aroused to the discharge of its grave responsibility in the cause of humanity, morality, and true national policy. The comparison of the process going on in the body, to a furnace with a limited supply of air, is not only an illustration, but a real truth. Messrs. Laws and Gilbert, to whom agriculture is deeply indebted for laborious research and accurately conducted, skilful experiments, give us the following curious and interesting results in relation to respiration and the feeding of animals, bringing to our view a striking instance of the mutual adaptations which are traceable in the practical operation of natural laws: "Under given circumstances, the *leguminous* crop will give a much larger yield of nitrogen than the *cereals* grain; and an increase of produce of the latter is not obtained, except at the cost of more nitrogen in the manure than is obtained in this increased produce, whilst in point of fact, in the practice of rotation in this country, the growth of the leguminous, corn or fodder crop, with its large per-centage and actual amount of nitrogen, is itself frequently either the direct or indirect source of nitrogenous manure, by which the increased cereal is obtained; and, again, this cereal, obtained at a cost of, but with its lessened produce of nitrogen, is found in practice to be of equal, or of a more highly-feeding value than the more highly nitrogenized leguminous product, which perhaps has been expended to produce it. It would thus appear, therefore, that the demands of the *respiratory function*,

which, again, more than any other regulate the consumption of food, would in point of fact not be satisfied in the use of the leguminous diet, unless by an expenditure or consumption of an amount of nitrogen beyond that which the due balance of the constituents of food would seem to require; whilst, on the other hand, in the use of cereal grain, its better proportion of respiratory food in the direct use of the highly-nitrogenized leguminous seeds, or in the better balanced diet of the cereal grains, in either case the end is attained only at the cost of nitrogen, in the one case by a larger amount of it in the food than the due balance of constituents would seem to require; whilst, in the other, this due balance has not been attained without a loss of nitrogen during growth. The claims of health and natural instinct generally leave little doubt which alternative should be adopted, in the case of human food at least; and it becomes us, therefore, to investigate and understand the practical bearings of these curious and interesting facts, for upon the principles they involve depend much, for their success, those fundamental practices of the farm—the feeding of stock, for their double products of meat and manure, and the adaptation of our rotations.”

(Concluded in next number.)

## Agricultural Intelligence.

### Fortunes Made by Farming.

It is a common, and, we think, correct conviction that large fortunes are seldom made by farmers. There are, however, exceptions. Agriculture, as a pursuit, probably yields about the average rate of profit on the capital employed as compared with that of commercial undertakings, when the losses, which are often heavy, attending the latter, are deducted. There is generally much less risk in farming than in manufactures and commerce; and industrious, economical habits, guided by a sound judgment, will scarcely, in any instance, fail in securing a comfortable competency. There are thousands of farmers in Canada who are now comparatively wealthy, who came to this country twenty or thirty years ago almost without a shilling. The following instances of success in farming are taken from an article furnished the *Boston Cultivator*, by that well known agriculturist, Mr. John Johnston, of Geneva:

Some sixty years ago, a man came to Western New York from New England or New Jersey, I am not certain which, his axe and a little

loose change being about all the property he had. He worked several years for different farmers, and then bought land for himself. I now has a farm of 600 acres or more, has given two sons each a good farm, and pays taxes two hundred thousand dollars of personal property. He has never had any business but farming.

I know another man whose father left him a farm of about 200 acres, something over thirty years ago, with some encumbrances on it in the shape of legacies to other heirs, who now has over 400 acres of land, and fifty thousand dollars at interest. He also has done no business but farming.

Several men have worked for me, who, though they had nothing when they came, are now rich off. A young Scotchman worked for me over thirty years ago who had but three cents when he began, but who now has a good farm of 40 acres, well stocked, and he is free from debt. He knew how to do the mechanical part of farming thoroughly, but knew nothing of speculation. I could name others who have acquired fortunes wholly by farming.

A farmer of small means should be very economical and still very liberal. He should be economical in dress for himself and his family, and his dwelling and furniture; he should be liberal in feeding his stock, manuring his land, and supplying labor to work his land. I have seen many farmers who were kept always poor by trying to do too much work for the number of laborers employed, whereas if they had hired double labor it would have paid abundantly. This is a very common mistake.

### Exportation of Horthorns from the United States to England.

The following information from a recent number of *Bell's Messenger*, an old weekly agricultural paper of good authority, published in London, will prove interesting to our readers generally, more especially to those that are practically engaged,—and we have now many such in different sections of the Province,—in the improvement of the breeds of cattle. We have now on this continent commenced repaying England, in kind, for what we have long been receiving from her; and this importation will be conclusive evidence that the soil and climate of this portion of North America are admirably suited, under proper management, to the big development of the world renowned Short-horn. We have breeders in Canada who, if they spare their animals, might follow Mr. T. as an example with a like success:

On the 29th ultimo we had an arriv-

Dukes and Duchesses" from the United States. Most of our readers will remember that in 1853, Mr. Thorne, and Messrs. Becar and Morris, from the United States, were present at the great Tortworth sale, and carried away the Duchesses 4 and 66, for 600 and 700 guineas respectively, besides other animals of the Oxford tribe, bred by the Earl Ducie, and originally from Mr. Bates. Subsequently Messrs. Becar and Morris sold the whole of their herd to Mr. Thorne, who, the course of a very short time sold £6,000 worth of drafts from it. Mr. Thorne had previously spent upwards of £20,000 in the formation of his herd. Both of the Tortworth Duchesses and their produce thus fell into his hands; they have, however, hitherto bred mostly bulls, so that the number of the Duchess tribe now in America is not very large. The arrangement which some of them have come back to this country has been negotiated by Mr. Strafford. He sent the Tortworth Duchesses across the Atlantic, and it was only fair that he should do his best to bring their produce back. The following notes respecting them will interest our readers:

The "5th Duke of Thorndale," hired by Mr. Angston, M. P., died upon the voyage. The 3rd Duke of Thorndale, calved in April, 1858, was bought by Mr. C. Howard, of Biddenden, and Mr. Robinson, of Clifton Pastures; is a grandson of the 700 guinea cow, Duchess, and of pure Duchess blood. The "4th Duke of Thorndale," calved February, 1859, is a son of the 700 guinea cow, and own brother to the Duke to the celebrated Duchess 77, which took many prizes last year; Mr. Bales, of Northwick, had secured him. Mr. McIntosh, of Haring Park, Essex, has purchased the "3rd Duke of Thorndale," calved August 28, 1858, and a son of Duchess 64, the 600 guinea cow—a cow bred in the States, to which his sire, and Turk, the 2nd prize bull at the Chelmsford meeting, was put by Mr. Thorne. The Duke of Oxford and Imperial Oxford look full promise; they are respectively grandson and son of Oxford 13th, a cow of Mr. Bates' breed—sold as a calf at the Kirkleavington sale for guineas. One of these has been engaged by Mr. Lawford, Linslade, Bedford. The only daughter, a choice heifer, 4th Lady of Oxford, daughter of Oxford 13th, has been sold to Mr. McIntosh.

Some of our short-horn breeders who have seen the animals since their arrival have expressed their admiration at their character and condition, and have spoken in very complimentary terms of Mr. Thorne's management. As the best proof of the opinion which is entertained on this point, we understand that every animal has been sold, a fact which must be highly gratifying to Mr. Strafford, as well as to Mr. Thorne.

### The Bath and West of England Agricultural Show at Truro.

The Annual Exhibition of this long established Society was held this year in the picturesque little town of Truro, in Cornwall, the beginning of June; and it appears to have been a great success. Cornwall is said never before to have known such a complete gala week, and the Society received at the gates nearly £3,000! The week was commenced by a procession to the station to meet the President and Council; a short adjournment was then made to the Town Hall, and, after Divine service, and an appropriate sermon by the Rev. Chancellor Philpotts at the Parish Church, the procession was re-formed to the Show yard, and the exhibition opened in due form. Never, says the *Mark Lane Express*, was a district more apt to learn the lesson offered it, and rarely has the Society been so well repaid for the courage which it evinced in "breaking fresh ground." The entries in the agricultural department were nearly as numerous as in former years in more central and populous portions of the country; viz: cattle, 134; sheep, 234; horses, 89; pigs, 42; sent by 143 exhibitors, from 11 different counties. Their quality, on the whole, was pronounced excellent. The implement department was excellent, most of the principal manufacturing firms being represented. It is a peculiarity of this Society that no premiums are awarded for implements and machines, which are simply exhibited and put in working order for the inspection of visitors; leaving each observer to form his own conclusion. The *Mark Lane Express* thinks that this system is defective, and that it will not continue many years. The Society adopted it, we believe, some three or four years ago, principally at the request of several leading manufacturing firms. Certainly it would not do for this side of the Atlantic. Till very recently Cornwall, which forms the south west corner of England, had no railway communication with the rest of the country, and was consequently isolated. The subjoined remarks of Mr. Smith, the Chairman of the Cornwall Railway, will be read with interest in Canada; showing, as they do the intimate connection that

subsists between railways and an advancing agriculture:—

In returning thanks for the railway companies, Mr. George Smith, the chairman of the Cornwall Railway, said:—"Our railway system bears upon agriculture at this end of the peninsula more directly and more importantly than is generally understood. The western part of Cornwall is fruitful in agricultural resources. It is rich in its soil, favoured with an unexampled climate (so far as England is concerned), and is capable of producing early vegetables beyond any other part of England. Now, the cultivation of the soil I know very little of; the improved cultivation of the soil I know still less of; for these are points which do not come before me practically; but as a merchant I know, as you all well know, that in spite of the most arduous labor, and the exercise of the greatest skill, without a market you do nothing. The market is the thing wanted. You all want to bring agricultural produce within the reach of the millions of our country, and I beg to say that these efforts of the railway companies enable you to do all this to an extent never imagined. It is telling upon the value of land, and tending to develop the resources of our soil in a way Cornwall never dreamt of before. I had a paper put into my hands just now, containing two or three figures. I'll just trouble you with some. From the 4th of December last to the 23rd March, just four months, there passed over the West Cornwall Railway, and was transferred at the Truro station of the Cornwall Railway for transit to the other parts of the country, 6,985 crates of brocoli, weighing in the aggregate not less than 866 tons 11 cwt., and I beg to say that the land conveyance of nearly 900 tons of brocoli in some three or four months from the west of England to the millions of London and the North was an impossibility until the appearance of the locomotive. Again, from the 22nd of April to the 7th of June—a period of six weeks only—there was conveyed and transferred in a similar way, 8,566 baskets of potatoes, weighing 439 tons. Four hundred and thirty-nine tons of early potatoes transferred from the west of Cornwall in about six weeks, to a good market in the large and populous districts in the kingdom is no bad illustration of the aid railways extend to agriculture. We are not a fishing company here. But all Cornishmen are interested in fish, and just allow me to mention that from the 9th of March to the present day the West Cornwall Railway brought, and there was transferred at Truro 34,500 baskets of fish, weighing no less than 889 tons. Has this nothing to do with the prosperity of Cornwall? Will land here eventually be worth ten times as much as now? Will land within twenty miles of London continue as valuable as now? These are important questions the great equalizer, the railway, will aid

you to solve, but it seems tolerably clear that the railway has had, and is destined to have, an important influence on agricultural prices and profit. And, therefore, in acknowledging your kind compliment to the railway company, it is impossible for those who have for the last twenty years labored to bring about this state of things to avoid a little self-gratulation. Allow me, for a moment, to utter a few words which may counteract an impression my figures may have caused. The markets of the metropolis and the north still demand, and demand infinitely more than you can possibly supply. Talk of 800 tons of brocoli, what would 80,000 tons be to them? They would soon eat them all. If you send ten times as many potatoes, all will be devoured. If you send ever so much more fish, all will be eaten up. You are not supplying London, you can help the market in a very limited way; not to London out of twenty tastes your early potatoes; you can go on with your work of producing heavier crops and reclaiming waste land, if you can find markets for ten times as much as you have hitherto raised. We will convey for you, and earn, for the encouragement of such humble individuals as myself, fresh praises as renewed encouragement from the Bath and West of England Society."

FRENCH AGRICULTURE.—As on all former occasions of walking abroad in the immediate neighborhood of Boulogne, I was again struck with the close resemblance these cultivated heights bear to those on the opposite cliffs of Thanet, except in the husbandry. The French farmers set peas and horsebeans together. Sections of this medley crop are cut green, and given to horses, cows, and sheep. The remaining portions are permitted, if there be green weather, to grow of any other kind, to stand till September. The gold wurzel (which they invariably call "the root," never using the Swedish term) is common enough in their fields; but no attempts are made to cultivate Dutch or Swedish turnips. I gave a universal reply to inquiries on this subject that there is not sufficient humidity in the climate to favor its growth; the root never reaches the due proportions. Hence the lean mutton, the wretchedly bad mutton of France—and equally disagreeable, disreputable beef, well larded with bacon (!) for want of a healthy portion of fat. Besides all this, the absence of turnip, the mother of the dung heap, which is the mother of everything else, leaves the farms destitute of compost. I suggested oil-cake, but the answer was "Nobody likes fat meat in our country; why should we waste our money on oil-cake grease?" I question their theory of deficient humidity; but I have heard this alleged both in Germany and in France as the cause of the deficiency, even at the Royal Palaces, never being able to make a smooth and verdant lawn, such as

maintain everywhere and anywhere in our own beautiful England. The grass dries up, and grows rank and coarse as the fibres of a door-mat. The beautiful Tapis Vert (green carpet) sloping from the Palatial terrace at Versailles, is but a wiry, dry field of bad grass. The lawns at Schœnbrunn and Potsdam are both superior to it. The Duke of Nassau has certainly succeeded admirably in his lawn at Biberich; but, independently of close proximity to the "abounding river," he employs the most expensive artificial irrigator.—*Musgrave's By-Roads and Battle Fields in Picardy.*

**THE PRESERVATION OF CORN.**—A joint-stock company has been formed in Paris for the preservation of wheat and other descriptions of grain, under the direction M. Dayer, a professor at the School of Arts and Manufactures. The system of preserving corn is founded on the principle that it is the excess of water contained in wheat which is the principal cause of the fermentation and of the production of insects which destroy the grain. Consequently, by placing in pits wheat sufficiently dry, that is containing less than 16 per cent of water, one is certain to preserve it without any loss of weight or alteration to the quality. The War Department, which feeds 500,000 men, and which, according to the existing regulations, must always have a large supply of corn on hand, has studied M. Dayer's system since the year 1856, both in France and Algeria, under the direction of commissioners appointed especially on account of their knowledge of the subject. The results obtained are highly satisfactory; 576 quintals of wheat were divided into two portions, and one of them placed in the pits at Asnières, near Paris, on the 30th of April 1856, and the other on the 22d of May of the same year. The corn remained there for 25 months without being sired. The specific weight of the first portion on being placed in the pits was 6 kilogrammes 60 the hec'otitre, and when withdrawn it was 76 kilogrammes 39. The second portion weighed 78 kilogrammes 80 the hectolitre on being deposited in the pits, 78 77 when removed. The quantity was 576 quintals when deposited in the pits, and 575 quintals 93 when withdrawn, showing an insignificant loss of weight of only kilogrammes. When the wheat was withdrawn it was not only in as good condition as when deposited but the color was better.

**FOWLER'S STEAM PLOUGH IN THE WEST INDIES.**

A trial of Fowler's steam-plough took place on a cane field on Plantation Houston to-day; a large number of gentlemen were present, among whom we observed the Governor, the Hon. J. Smith, &c. &c. The trial to-day was made with one of Fowler's balancing ploughs. The apparatus consisted of the plough, which was constructed as to move either way without aid; a steam-engine, furnished with a groove-drum, which was placed in a punt, and connected with it was another punt containing a

boiler. On the opposite headland was placed another drum or anchor, corresponding with the one attached to the engine. Around these drums was placed an endless rope, which was placed around another drum on the implement, by means of which the endless rope was adjusted. The plough worked backwards and forwards between the two drums. The soil was a stiff loam, and the surface of the beds very irregular, but, notwithstanding this disadvantage, the plough did its work in a very satisfactory manner. We shall reserve our opinion on the merits of this implement, and of its suitability to the purposes of tillage in this colony, until a future opportunity, when it has had a fuller trial. Even if this plough should not fully answer the expectations that have been formed of it, it will enable our practical farmers to adopt some modification of it that will be completely successful. We hail the experiment made to-day as a favorable beginning that will lead to great results.—*Demerara Colonist of 6th May, 1861.*

**WHEAT GROWING COUNTRIES—AVERAGE YIELD.**—A late number of *N. Y. Tribune* contains an interesting article on Wheat Culture, and the product of the leading cereal in different countries. From the figures given it seems that ours is not the greatest wheat producing country; France and Britain exceeding it in average yield. Our last year's crop is assumed to be one hundred and eighty million bushels, but the average is probably only one hundred and twenty millions—and, as our system of agriculture is exhausting the best lands, a diminution of the yield is anticipated. The average yield of other countries is stated as follows:

France,.....	191,432,248
Britain,.....	145,300,000
Two Sicilies,.....	64,000,000
Canada,.....	60,470,131
Spain,.....	46,914,800
Austria,.....	27,735,568
Sardinia,.....	19,975,000
Russia, ex. only,.....	18,921,776
Belgium,.....	13,350,000
Portugal,.....	5,540,000
Turkey, ex. only,.....	4,629,000
Holland,.....	3,000,000
Denmark,.....	3,000,000
Sweden and Norway,.....	1,200,000

"Here is an annual production of over six hundred and six million bushels. If the crops of this continent are included, the total may be safely assumed to be two hundred millions, as the unascertained product of Russia and Turkey must be very large. No better evidence of the primary value of the wheat plant to the human family could be given than such an exhibition as this. It proves that where the highest civilization has been attained, there the greatest production is realized."—*Rural New Yorker.*

### Army Worm—Extent of its Ravages.

Frightful indeed are becoming the ravages of this insect pest amongst the growing crops of Illinois. The cool weather of the past month has been favorable to their multiplication and growth, and they are now sweeping with all the destructiveness of a prairie fire some of the fairest and most promising portions of our State. Meadows and pastures, wheat, oat, rye and corn fields, gardens, yards, trees and shrubbery—in fact every green thing is disappearing before them. In many localities it is thought that the wheat crop is so far advanced that the stripping of the leaves alone will not materially injure it. In many instances corn can be replanted and the second crop probably will escape them. But if their ravages could be stopped to-day, the loss already occasioned by them could only be estimated by millions of dollars.

From exchanges and from our own correspondents we learn that their sad work is being prosecuted to a greater or less extent over the following territory. With slight comparative damage in McDonough county, commencing with Adams county in the west, we trace them eastward through Cass, Sangamon, Platt, Champaign and lower part of Vermillion counties. They do not so far as we have heard yet work to any great extent north of this line. South from Adams, down the Mississippi they take Pike, Calhoun, Madison, St. Clair and Jackson—eastward of this line and south from the other their numbers seem to be innumerable in Coles, in Clark, Effingham, Cumberland and Christian counties. There are several of the interior counties of Southern Illinois, that we have no reports from, and the same may be said of the extreme south-western portion of the State. We have little doubt, however, though we hope it may not be true, that their destructive presence is being felt in all the State below latitude 40° 20'.

On the Missouri side they are reported in Boone, Howard, and Pike counties. The northern portion of Kentucky, and the southern portion of Indiana, are also being overrun with them.

Ditching, dragging logs over them and turning hogs in upon them are the expedients being tried to effect their destruction, but to little purpose. In extreme cases meadows have been burned over to stay their progress, but they are still marching on, spreading desolation in their pathway. It is fortunate they appear so seldom—it is peculiarly unfortunate they are to scourge us this year.—*The Prairie Farmer, June, 13.*

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### Horticultural.

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#### Toronto Horticultural Society.

The Second Exhibition of the season was held in the Society's Garden, on the 11th inst. Un-

fortunately the weather throughout the day was unpropitious, there being a strong, cold wind, and dense clouds, which detracted much from the enjoyment of these beautiful grounds, and diminished greatly the number of visitors.

The flowers and vegetables were arranged in a copious tent, and although the number of entries was considerably shorter than usual, the quality of the productions generally was highly creditable to our cultivators, whether professional or amateur. The state of the weather would tend of course to diminish the amount of the articles sent for exhibition, and we were informed that some unfortunate misunderstanding had prevented three or four of the usually largest contributors on these occasions sending any thing at all. It is earnestly to be hoped that the like will not occur again, but that all who practise and wish well to the beautiful and important art of Horticulture, will rally round a society which by already done much, and if properly supported, will do a vast deal more, in refining the public taste, increasing the comforts, and rendering more attractive the dwellings of the people. The Society's Garden is already a lovely spot, and supported by the citizens as it deserves, will in a few years favourably compare with similar things in much older countries.

The Hon. S. B. Harrison, as usual, contributed a number of stove and green-house plants, denoting by their growth and beautiful appearance the attention and skill of the cultivator. A large leaf of the *Victoria Regia* from the same conservatory,—of one year's growth, understood, attracted much attention. The flowers and vegetables, considering the unfavorable character of the season, were really good, and if the gardeners and amateurs in the vicinity of Toronto had generally contributed only a small portion of the good things which they are known to possess, the extent of the Exhibition would have been commensurate with its high character for quality. Among the contributors obtaining prizes may be mentioned; S. Turner, Gardener to Judge Harrison, Messrs. Fleming and Leslie; J. C. Small, Esq., the indefatigable Secretary; F. W. Coate, Esq., J. Forsyth, the Normal School Grounds, R. Desires, Higgin, Gardener to Hon. G. W. Allan, Brown, Gardener to W. H. Boulton, Esq., Tilman, Gardener to S. Heward, Esq., J. J.

ries, J. Granger, G. Tattle &c. The Judges of Plants and Flowers were Messrs. J. A. Bruce, Gray, and T. Buchanan, of Hamilton; of Fruits and Vegetables, Messrs. Robert Beard, and B. Defries, of Toronto.

### The Pear Blight.

EDITOR AGRICULTURIST.—Can you give any information on the cultivation of Pear Trees, more especially on the prevention of the blight, etc. I got some trees from a nursery at Toronto, some time ago, and some of my Pear trees are attacked by the blight. As I am but a novice fruit culturer, you will confer a favour on one of your readers if you would give some information on the above subject. A. E.

Hope, July 1861.

[REMARKS.—We find the subject of diseases of the Pear treated pretty fully in Downing's "Fruit and Fruit Trees of America," and as the remarks of that distinguished horticulturist will doubtless be interesting to many of our readers, we do not possess his book, we here subjoin some.—Eds.]

DISEASES. As a drawback to the, otherwise, successful cultivation of this fine fruit, the pear tree is unfortunately liable to a very serious disease, called the *pear tree blight*, or *fire blight*, appearing irregularly, and in all parts of the country; sometimes in succeeding seasons, and, sometimes, only after a lapse of several years; attacking, sometimes, only the extremities of the branches, and, at other times, destroying the whole tree; producing occasionally, little damage to a few branches, but often, also destroying, in a few years, or two, an entire large tree; this disease has been, at different times, the terror and disaster of pear growers. Some parts of the country have been nearly free from it, while others have suffered so much as almost to deter persons from extending the cultivation of this fine fruit. For nearly an hundred years, its existence has been remarked in this country, and until very lately, all notions of its character and origin have been so vague, as to lead to little practical assistance in removing or remedying the evil.

Careful observation for years past, and a detailed comparison of facts with accurate observers, in various parts of the country, have led us to the following conclusions;

1st, That what is properly called the pear-blight is, in fact, two distinct diseases. 2nd, that the one of these is caused by an insect, and the other by sudden freezing and thawing of the sap in unremovable autumns. The first, we shall therefore call the *insect blight*, and the second, the *sap blight*.

THE INSECT BLIGHT. The symptoms of the insect blight are as follows: In the month

of June or July, when the tree is in full luxuriance or growth, shoots at the extremities of the branches, and often extending down two seasons' growth, are observed suddenly to turn brown. In two or three days the leaves become quite black and dry, and the wood so shrivelled and hard as to be cut with difficulty with a knife. If the branch is allowed to remain, the disease sometimes extends a short distance further down the stem, but, usually, not much further than the point where the insect had made its lodgment. The insect which causes this blight, was first discovered by the Hon. John Lowell, of Boston, in 1816, and was described by Professor Peck, under the name of *Scolytus pyri*. It is very minute, being scarcely one-tenth of an inch long, and it escapes from the branch almost as soon as, by the withering of the leaves, we are aware of its attack; hence, it is so rarely seen by careless observers. In the perfect state, it is a very small beetle, deep brown, with legs of a paler colour. Its thorax is short, convex, rough in front, and studded with erect bristles. The wing covers are marked with rows of punctured points, between which are also rows of bristles, and they appear cut off very obliquely behind.

This insect deposits its egg some time in July or August, either behind or below a bud. Whether the egg hatches at once, we are not aware, but the following spring the small grub or larva grows through the sap wood or tender albumen, beginning at the root of the bud, and burrows towards the centre of the stem. Around this centre or pith, it forms a circular passage, sometimes devouring it altogether. By thus perforating, sawing off, or girdling, internally a considerable portion of the vessels which convey the ascending sap, at the very period when the rapid growth of the leaves calls for the largest supply of fluid from the roots, the growth and the vitality of the branch are checked and finally extinguished. The larva about this time, completes both its transformation, and its passage out, and in the beetle form, emerges, with wings, into the air, to seek out new positions for laying its eggs and continuing its species. The small passage where it makes its exit, may now more easily be discovered, below or by the side of the bud, resembling a hole bored with a needle or pin.

It is well to remark here that the attack of this blight insect is not confined to the pear, but in some parts of the country we have observed it preying upon the apple and the quince in the same manner. In the latter tree, the shoots that were girdled, were shorter, and at the extremities of the branches only; not leading, therefore, to such serious consequences as in the pear.

The ravages of the *insect blight*, we are inclined to think, do not extend much below the point where the insect has deposited its egg, a material point of difference from the *frozen-sap blight*, which often poisons the system of the

whole tree, if allowed to remain, or if, originally, very extensive.

The remedy for the insect blight is very distinct. It is that originally suggested by Mr. Lowell, which we and many others have pursued with entire success, when the other form of the disease was not also present. This remedy consists, at the very first indications of the existence of the enemy, in cutting off and burning the diseased branch, a foot below the lowest mark of discoloration. The insect is usually to be found at the bottom of this blackened point, and it is very important that the branches be removed early, as the *Scolytus* is now about emerging from his burrow, and will speedily escape us, to multiply the mischief elsewhere. If there is much appearance of the insect blight, the tree should be examined every noon, so long as there are any indications of disease, and the imputed branches carried at once to the fire.

II. THE FROZEN SAP BLIGHT. We give this term to the most formidable phase of this disease that affects the pear tree. Though it is, by ordinary observers, often confounded in its effects with the insect blight, yet it has strongly characteristic marks, and is far more fatal in its effects.

The symptoms of the frozen sap blight are the following. First; the appearance, at the season of winter or spring pruning, of a thick, clammy sap, of a sticky nature, which exudes from the wounds made by the knife; the ordinary cut showing a clean and smooth surface.

Second; the appearance, in the spring, on the back of the trunk or branches, often a considerable distance from the extremities, of black, shrivelled, dead, patches of bark.

Third; in early summer months, the disease fully manifests itself by the extremities shrivelling, turning black, and decaying, as if suddenly killed. If these diseased parts are cut off, the inner bark and heart-wood will be found dark and discoloured some distance below where it is fresh and green outside. If the tree is slightly affected only, it may pass off with the loss of a few branches, but if it has been seriously tainted, the disease, if not arrested, may, sooner or later, be carried through the whole system of the tree, which will gradually decline, or entirely perish.

To explain the nature of the disease, we must first premise that, in every tree, there are two currents of sap carried on, 1st, the upward current of sap, which rises through the outer wood, (or *alburnum*.) to be digested by the leaves; 2nd, the downward current, which descends through the inner bark, (or *liber*.) forming a deposit of new wood on its passage down.

Now let us suppose, anterior to a blight season, a very sudden and early winter, succeeding a damp and warm autumn. The summer having been dry, the growth of trees was completed early, but this excess of dampness in autumn, forces the trees into a vigorous second growth, which continues late. While the sap vessels are

still filled with their fluids, a sharp and sudden freezing takes place, or is, perhaps, repeated several times, followed, in the day time, by bright sun. The descending current of sap becomes thick and clammy, so as to descend with difficulty; it chokes up the sap-vessels, freezes and thaws again, loses its vitality, and becomes dark and discoloured, and, in some cases, poisonous, as to destroy the leaves of other plants which applied to them. Here, along the inner bark, it lodges, and remains in a thick, sticky state, all winter. If it happens to flow down till it meets with any obstruction, and remains in any considerable quantity, it freezes again beneath the bark, ruptures and destroys the sap-vessels, and the bark and some of the wood beneath it shrivells and dies.

In the ensuing spring, the upward current of sap rises through its ordinary channel—the outer wood or *alburnum*—the leaves expand, and, for some time, nearly all the upward current being taken up to form leaves and new shoots, the tree appears flourishing. Toward the beginning of summer, however, the leaves commence sending the downward current of sap to increase the woody matter of the stem. This current, it will be remembered, has to pass downward, through the inner bark, or *liber*, along which, still remain portions of the poisonous sap, arrested in its course the previous autumn. This poison is diluted and taken up, by the new downward current, distributed toward the pith, and along the new layers of *alburnum*, thus tainting all the neighboring parts. Should any of the adjacent sap-vessels have been ruptured by frost, so that the poison thus becomes mixed with the still ascending current of sap, the branch above it immediately turns black and dies, precisely as if poison were introduced under the bark. And very frequently it is accompanied with precisely the odour of decaying and bitter vegetation.

The foregoing is the worst form of disease, and it takes place when the poisoned sap, stagnated under the bark in spots, remains through the winter in a thick semi-fluid state, so as to be capable of being taken up in the descending current of the next summer. When, on the other hand it collects in sufficient quantity to freeze again, burst the sap vessels, and afterwards dry out by the influence of the sun and wind, it leaves the patches of dead bark which we have already described. As part of the woody channels which convey the ascending sap probably remain entire and uninjured, the tree or branch will perhaps continue to grow the whole season and bear fruit, as if nothing had happened to it, drying down to the shrivelled spot of bark the next spring. The effect in this case, is precisely that of girdling only, and the branch or tree will die after a time, but not suddenly.

From what we have said, it is easy to infer that it would not be difficult on the occurrence of such an autumn—when sudden congelation takes place in unripened wood—to predict

ght season for the following summer. Such several times been done, and its fulfillment be looked for with certainty, in all trees that had not previously ripened their wood.

also, it would, and does naturally follow trees in a damp, rich soil, are much more liable to the frozen sap blight than those upon drier soil. In a soil over moist or too rich, the pear is liable to make late second growth, its wood will often be caught unripened by early winter. For this reason this form of blight is vastly more extensive and destructive in the deep, rich soils of the western states, than in the dryer and poorer soils of the east. This will always be the case in over rich soils, unless the trees are planted on raised beds, or their luxuriance checked by root-pruning.

Again, those varieties of the pear, which have the habit of maturing their wood early, are very rarely affected with the frozen sap-blight. But late growing sorts are always more liable to it, especially when the trees are young, and the excessive growth is not retarded by fruit-bearing. Every nurseryman knows that there are certain late growing sorts which are always more liable to this blight in the nursery. Among these we have particularly noticed the *Passe Colmar* and the *Forelle*, although when these sorts become bearing trees, they are not more liable than many others. The *Seckel* pear is celebrated for its general freedom from blight, which we attribute entirely to its habit of making short jointed shoots, and ripening its wood very early.

To distinguish the blight of the frozen sap that caused by the *Scyolus pyri*, is not difficult. The effects of the latter cease below the spot where the insect has perforated and made its burrow in the branch. The former dissects gradually down the branch, which, when dissected, shows the marks of the poison, the discoloration of the inner bark and the extending down some distance below the real marks of injury. If the poison becomes largely diffused in the tree it will sometimes die outright in a day or two; but if it is slightly present it will often entirely recover. The presence of black, dry, shrivelled bark on the branches, or soft sappy wood, as well as the appearance of thick clammy exudation in winter or spring pruning, are the reliable signs of the frozen sap blight.

The most successful remedies for this disastrous blight is very evident are chiefly preventive. It is, of course, impossible for us to prevent the occasional occurrences of rainy, warm seasons, which have a tendency to urge the trees into late second growth. The principal means of escaping the danger really lies in studiously avoiding a damp soil for the trees. Very level or hollow surfaces, and heavy autumnal rains are apt to lie and saturate the ground, should also be shunned. Any top dressing or enriching, calculated to stimulate the tree into late growth, is pernicious. A rich, dry soil, is, on the whole, the best, because there the tree will make a good crop in time to ripen fully its wood, and will

not be likely to make second growth. A rich moist soil, will, on the contrary, serve continually to stimulate the tree to second growth. It is in accordance with this that many persons have remarked, that those pear trees growing in common meadow land, were free from blight in seasons when those in the rich garden soils were continually suffering from it.

The first point then should be to secure a rich but dry, well drained soil. Cold aspects and soils should be avoided, as likely to retard the growth and ripening of the wood.

The second is to reject, in blighted districts, such varieties as have the habit of making the wood late, and choosing rather, those of early habit, which ripen the wood fully before autumn.

Severe summer pruning, should it be followed by an early winter, is likely to induce blight, and should therefore be avoided. Indeed, we think the pear should always be pruned in winter or early spring.

As a remedy for blight actually existing in a tree, we know of no other but that of freely cutting out the diseased branches, at the earliest moment after it appears. The amputation should be continued as far down as the least sign of discoloration, and consequent poisoning is perceptible, and it should not be neglected a single day after it manifests itself. A still better remedy, when we are led to suspect, during the winter, that it is likely to break out during the summer, is that of carefully looking over the trees before the buds swell, and cutting out all branches that show the discolored or soft sappy spots of bark that are the first symptoms of the disease.

Finally, as a preventive, when it is evident, from the nature of the season and soil, that a late autumnal growth will take place, we recommend laying bare the roots of the trees for two or three weeks. Root pruning will always check any tendency to over-luxuriance in particular sorts, or in young bearing trees, and is therefore a valuable assistance when the disease is feared. And the use of lime in strong soils, as a fertilizer, instead of manure, is worthy of extensive trial, because lime has a tendency to throw all fruit trees into the production of short-spurs, instead of the luxuriant woody shoots induced by animal manure.

In gardens, where, from the natural dampness of the soil or locality, it is nearly impossible to escape blight, we recommend that mode of dwarfing the growth of the trees—conical standards, or *quenouilles*, described in the section on pruning. This mode can scarcely fail to secure a good crop in any soil or climate where the pear tree will flourish.

After the blight, the other diseases which affect the pear tree are of little moment. They are chiefly the same as those to which the apple is liable, the same insects occasionally affecting both trees, and we therefore refer our readers to the section on the apple tree.

There is, however, a *slug worm*, which occasionally does great damage on the leaves of the pear tree, which it sometimes entirely destroys. This slug is the *Selandria cerasi* of Harris. It appears on the upper side of the leaves of the

pear tree from the middle of June to the middle of July. It is nearly half an inch long when fully grown, olive-coloured, tapering from the head to the tail, not much unlike in shape a miniature tadpole. The best destructive for this insect is Mr. Haggerston's mixture of whale oil soap and water, thoroughly showered or sprinkled over the leaves. In the absence of this we have found ashes or quicklime, sifted or sprinkled over the leaves, early in the morning, to have an excellent effect in ridding the trees of this vigilant enemy.

### The Curculio.

A late number of the Horticulturist contains a communication from an old and well known cultivator of Cincinnati, reviewing and criticising the different modes which have been adopted for destroying or eluding this troublesome insect. He says, "some shake the trees. I believe this would be a safe remedy if they would begin at daylight, and shake the trees till night, not even leaving the trees to eat their meal." We entirely agree with him. Where the insects are not abundant, a less frequent or continued shaking might answer. But this "shaking" must not be confounded with the greatly superior process of *jarring* the insects on sheets and *destroying* them. Many have merely tried the first remedy occasionally, and from its failure have denounced the latter, supposing them to be nearly identical. There is scarcely any resemblance between them. Shaking repels or drops only a portion of the depredators; many remain fast in the tree. Go to a tree that contains twenty curculios, as is sometimes the case where they have been unmolested; *shake* it, and perhaps one-third, or possibly one-half, will fall; *jar* it with the hand or strike it with a mallet wound with cloth, to prevent bruising, and perhaps one half of the remainder will; strike it sharply with the back of an axe, and every one will come down. All this we know from experience. (To prevent bruising, a limb should be sawed near the body of the tree, leaving a stump an inch long to receive the blow.) Now it will be observed that there will be enough left after the shaking to puncture all the fruit, or even after the soft jarring, which is sufficient reason why these modes have failed, or but partially succeeded. The daily or twice daily jarring must be continued for several weeks, in order to kill the new comers which daily appear. By intermitting two or three days the fruit may be all stung, which is another cause of failure. It is not necessary to cite the many instances we have witnessed where the jarring and killing process has prove completely effectual. Shaking alone, without killing, which appears to be the mode alluded to by the correspondent of the Horticulturist, can accomplish but little, unless constantly repeated, as the insects will soon find their way back to the trees.

The next mode which this correspondent alludes to, is the use of "various washes, fumigations of horrible odors," and "offensive manures under the trees." He thinks the might succeed, but adds, "I should not wish to live in the house, nor make the family a minute visit," where these odors filled the air. "They would not meet the approval of the Curculio, they would not meet mine."

He recommends planting trees so as to be over water; but this would be inconvenient, or often impossible, and the editor remarks that has repeatedly failed.

He especially recommends paving under the tree. This would prevent a future crop being destroyed, as the larvae could not escape into the earth, and must consequently perish on the surface. It will not kill the insects of this year nor cure the fruit already stung, and is precisely similar in its results to the pig-and-poult remedy, and to Ellwanger & Barry's mode of beating the earth smooth and sweeping up the fallen infested fruit—all three destroy the year's worms, and save next year's supply. The jarring and killing method, saves the crop this year, and has therefore by one year, the start of the other three. These four remedies are the only ones of any value. The pig-and-poultry, and the jarring process combined, constitute the most efficient cure for the evil." *Country Gentleman.*

## The Dairy.

### Cheese-Making in Switzerland.

The manner in which the Swiss peasants combine to carry on cheese-making by their united efforts deserves to be noted. Each parish in Switzerland hires a man, generally from the district of Gruyère, in the Canton of Freyburgh, to take care of the herd and make the cheese; a cheeseman, one pressman, or assistant, and a cow-herd are considered necessary for every five cows. The owners of the cows get credit for them in a book daily for the quantity of milk given by each cow. The cheeseman and assistants milk the cows, put the milk altogether, and make cheese of it, and at the end of the season each owner receives the weight of cheese proportionable to the quantity of milk his cows have delivered. By this co-operative plan, instead of the small-sized, unmarketable cheese only, which each could produce out of his three or four cows' milk, he has the same weight of large, marketable cheeses, superior in quality because made by people who attend to no other business. The cheeseman and his assistants are paid so much per head of the cows in money for the cheese. A similar system exists in the Free Jura.—*Notes of a Traveller.*

## The Apiary.

### Swarming of Bees.

An unusual occurrence took place on Sunday at the Camp on the Curragh of Kildare. A rate of the 20th Regiment took a can and a re of iron, with which he commenced beating on the can for the purpose of causing some bees to swarm about the camp to swarm. Shortly after he commenced the noise, the bees gathered upon the side of his face, extending in a thick cluster from the top of his head to half down his arm, between his shoulder and elbow. He called out for assistance, and was placed in a chair, when the fire was obtained, which was held over his head, covered with a sheet, with a view of endeavoring to get the bees to enter the hive, but in the hour of three o'clock, when our correspondent saw him, there was little prospect of their removing, and, the day being extremely hot, it was conjectured they would not take to the quarters which were provided for them earlier than six or seven o'clock in the evening. The soldier was removed to the guard-room, out of the air, for the purpose of preventing any further assailants gathering about him, and to give shelter from the overpowering rays of the sun from which he was suffering greatly in consequence of the state to which the sudden and generous assemblage upon him had reduced him. The above paragraph, which we extract from *Wentham's Journal*, is an amusing illustration of the prevalent ignorance of bee-management. It is told that the noise of the can was produced for the purpose of causing the bees to swarm; instead of which it was doubtless for its usual efficacy in causing the swarm to settle. The circumstance of the bees settling on the side of his face was doubtless owing to the fact that the queen, perhaps heavy with eggs, or possibly injured in her wings, had alighted on him as the nearest prominent object. The mode of proceeding was erroneous in the extreme: by striking the swarm over with a sheet the bees were rendered quiet, and, being shaded, were supposed to move. Had the side of the hive been held against the man's face so that the edge touched the cluster of bees, and had the rest of the swarm been sprinkled with water, the bees would have ascended rapidly into the hive; or had any bee-master been present, he might have separated the clustered bees with his hands, secured the queen, and placed her in the hive, when the bees would speedily have departed. As to the danger of the occurrence, there was positively none. Bees, unless injured, are not stinging at the time of swarming, so that the probability of other "assailants" attacking the man existed only in the fertile imagination of the narrator.—Ed. of the *Field*, London.

If the failures of life arise from pulling in a horse as he is leaping

## Veterinary.

### On the Roman Bath as applicable to Training Race-Horses.

The most wonderful discoveries have lately taken place in every branch of science, and the most extraordinary inventions and improvements in every item connected with the luxuries and the comforts of mankind: general education has civilized and enlightened the great working classes. The islands are looking up: even our domestic animals have improved in quality, and twenty per cent. in point of size, from poultry and pigs to sheep, cattle and horses, owing to care and attention in breeding during the last century; and nothing has retrograded but seamanship, emasculated by the introduction of steam: sailors are numerous, but seamen are scarce. Lloyd's list of wrecks proves the melancholy fact; but there is one profession on an humble scale which has made no progress, no improvement for one hundred and fifty years—I mean the training of race-horses; and, at the same time, I must add my testimony that a more respectable or a better class of tradesmen do not exist than the majority of English trainers, who, from being in constant communication with gentlemen, imbibe liberal ideas, and prove themselves worthy of the highest trust and responsibility.

Thanks to Mr. Urquhart (to whom this country is more indebted than to any living man) for the introduction of Turkish *alias* Roman baths: a new era has arisen, the present barbarous system of preparing horses to race by drastic purgatives, hot clothing, hot stables, and four and five miles sweats will be ameliorated, and we may look forward with confidence to a revolution, by the aid of hot-air baths, which will enable a trainer to bring his horses to the post in first-rate condition, without subjecting them to a destructive apprenticeship.

There was always a difficult problem to be solved. How is a trainer to prepare a horse to race? *alias* to get his inside clean and his muscles in full vigour, without the assistance of strong purgatives, and galloping long distances under a weight of heavy woollen clothing. I do not deny the necessity of giving horses the strongest exercise, wisely adapted to their age and condition. It is proved that you can lighten a horse's frame as well by the operation of a hot air bath as by a four-mile sweat; and the question arises—which is the best practice to get them into condition? My belief is, that a smart two-mile or three mile gallop, with the horse stripped, carrying a light weight, and a hot-air bath afterwards, is more beneficial to a horse's lungs, and, no doubt, to his legs and sinews, than a four-mile gallop under heavy clothes.—Try it on a jockey; let him take his usual walk

of nine miles under sweaters; and the next time walk half the distance, and then a hot-air bath; I fancy he will find himself a lighter, a stronger, and a wiser man after the second process. Owing to the exhaustion of a four or five-mile sweat a horse is only fit to walk the following day; and many horses are annually disabled by this severity; but after a hot-air bath a horse is fit and ready for any task. I therefore pronounce the hot-air bath a most powerful and valuable auxiliary. With this assistance you may bring an infirm horse to the post which would break down in two orthodox four-mile sweats. With respect to the sound horses, why should we not try to keep them sound?—is not prevention better than cure?

The Roman bath invigorates a horse's frame, gives increased action to his liver, improves his appetite, cleanses the pores of suppressed perspiration, and fortifies the skin from extreme heat and cold; the joints become more supple, the sinews more elastic, and the heart, lungs, and kidneys being freed from fat, horses are able to take the strongest exercise without suffering from internal fever. Rheumatism, sore shins, and cutaneous eruptions are speedily subdued by hot air. Under this system, no horse ought to be exercised in heavy clothes. In my opinion, it is always objectionable to give a horse a sharp or a very long gallop when he is clothed; and looking to hot air as an agent, we may keep our horses sound for thrice the estimated period of their present efficacy; the veterinary surgeon and the saddler will send in diminished bills;—this will balance the expenses of the bath, and will save large sums of money to the proprietors of race-horses.

Of all animals in the world there are none better endowed by nature to endure the vicissitudes of climate than a horse. From the burning deserts of Arabia to the coldest regions of Europe, Asia, and America, they enjoy the most perfect health and vigour. Why are we, then, to treat them in this temperate clime like exotic plants? If, from the day a foal is dropped, he is never shut up with his dam in a close hovel, except during a severe frost; if the same practice be adopted after he is weaned till he is taken into the stable to receive his education, there is very little risk of his catching cold, cough, or any disease; all those indispositions arising from young stock being confined in a close, unwholesome box, and then being suddenly exposed to cold winds.

When the yearling colt is removed to a well-built, warm stable, you would suppose that, if he enjoyed perfect health during his days of liberty, in the open air, rolling on the wet grass—if this mode of life agreed with him, and added daily to his growth and strength, that, as far as fresh air was concerned, you would allow him all the advantages which nature can bestow. From a life of freedom, housed in an open box, inhaling pure, fresh air, he is confined with his head

tied up to a manger in a close stable, the windows jealously opened by day, as if the air injurious to his health, and carefully shut, the average of thirteen hours during the greater part of the year. As a foal he roughed it in a paddock during the cold winds of February; eighteen months afterwards he is clothed, shut up in a warm, close room. Before this he is reconciled to his first lessons of service; a woollen rug is strapped round him, to add to his naturally inflamed state of his blood; and to crown his misfortunes, from having always had free access to water, the trainer restricts him to two draughts per diem; it signifies not whether the weather is hot or cold, the regulations, like the laws of the Persians, are inviolable. The trainer drinks ten times as much if his throat is dry, but he never calculates; his horses may be more thirsty than usual if the thermometer in his dusty stable rises to 90. It has been proved over and over again that horses in a stable have free access to water, will not drink as great a quantity as when it is offered to them twice a day (excepting in dry weather); because the horses, having more sense than their masters, drink a whole pail to lay in a stock to meet the exigencies of an erish thirst, and the interior demands which nature may require in the long interval of detention. This saves trouble, but it is in direct antagonism to the principle of training men to fight, who are never allowed to be thirsty.

Thus the raw material, in the shape of a healthy, well-grown colt, eighteen or nine months old, is introduced to the care and mercies of the breeder. After the usual practice of leading him about, lunging him, backing his proud spirit bends to the yoke; from exercise he is abruptly called upon to meet his paces, and within fourteen weeks he is tried older horses, from six hundred yards to a mile. A trainer may justly complain as to these early preparations. He generally quietly acquiesces, owing to a natural inclination to find out a trump, or to be enabled to separate the wheat from the chaff. As far as these trials are concerned, the experiment can no more be made at half the risk of destroying the colt in other words laying the seed of future unfitness, by using the hot-air bath for absorbing internal fat and superfluous flesh, without having recourse to strong medicine or long preparatory gallops.

At two years old the trainer considers it necessary to clothe the unfortunate colt more than on the principle that he becomes more temperate as he advances in age (a novel doctrine); and is not satisfied until he makes the horse comfortable by a flannel or a woollen hood which goes out to exercise. A showman has the right to dress up his dancing dogs or his horses at a fair—that is quite admissible; but to make a horse susceptible of cold—it is by

for a sore throat. A hood is excusable in a railroad van; for all other purposes it is only good for trade. Ask a trainer why he uses it: he will receive an unmeaning answer.

If their predecessors quarrelled with fresh air, they stopped up the keyholes for the pure love of ammonia, which propagated the disease of roaring, and made a great many horses blind, there is one redeeming point—they took out their horses twice a day to exercise, for eight months the year, which gave two opportunities for ventilating a putrid stable. This practice was a rogue for many years after I went to Newmarket, and highly approved; it is now changed, because it disturbs the domestic felicity of a trainer.

You would imagine that during the height of summer the horses would be out at daybreak, when the dew makes the grass pleasant to their feet, and that the work would be over, and the harness made up, and horses fed by seven o'clock. It is not at all; instead of exercising their horses in the cool of the morning, and taking them out a second time at 6.30 p.m. to walk them for an hour, when the stables might be thoroughly aired, the trainers consider it a more judicious plan to commence work at 7 in the morning, and to keep the horses out till ten o'clock, frequently the hottest time in the day, before the breeze springs up. By this policy they evade the trouble of saddling their horses a second time.

When oxygen is a scarce article in the stable, ammonia gets the ascendancy, horses suffer from lassitude, loss of appetite, and a dull countenance of disease. This is expected, as a matter of course, and parried with calomel and opium.

When a horse's coat breaks in October, and the horses are deeply engaged, a cough is heard, coughing runs like wildfire through the stable. What is this owing to? The stable temperature charged with ammonia, the warm flannel bandages, hoods, and deleterious medicine have won the battle; every horse's skin regnated with suppressed perspiration was a septicum of disease, and they have caught it from the trainers have so studiously engendered. We know more horses coughing in a stable Newmarket than in all the cabs from Hyde Park Corner to Somerset House, simply because the cab-horses stand for fourteen hours in the open air, and race-horses are shut up for twenty hours in a hot stable. The laws of nature cannot be defied with impunity.

(To be continued.)

### Bone Spavin.

Our readers are constantly asking us to prescribe treatment for the cure of bone spavin; all, from the tenor of their communications, seem to imagine that this disease can, when under the operation of remedial measures,

be removed. Bone spavin, as we have previously described, is brought on by sprain, which centres its injurious influence in the hock joint, between the two plate bones, viz.: the scaphoid and cuneiform. Their natural motion being to rotate one over the other, the bones become inflamed, blood is determined to the part where nature, in her efforts to cure, throws out a bony tumor, which fixes together the two bones above mentioned, thus constituting the disease commonly bone spavin.

TREATMENT.—We know of no treatment which is able to remove a bony tumor from the hock. Its removal may be partially, but not completely effected; consequently, all the remedial means resorted to can only modify the extent of the malady.

1st. Firing has been resorted to in many cases with success; but as far as our experience goes, we consider that the long rest necessary to be allowed after firing exerts a curative influence, which remedies the disease quite independent of the operation.

2d. Blistering is liked by most horse-men as a remedy for spavin, and doubtless it is to be preferred to firing, as it leaves no blemish; whilst the latter does. When an animal is selected that a blister may be applied for the cure of lameness caused by the presence of spavin, the hair over the seat of the disease should be clipped closely off, when the denuded part must be bathed well with hot water, after which it must be wiped dry and rubbed until the friction used has drawn the blood to the surface. The blister, consisting of the biniodide of mercury or cantharides, is now to be rubbed over the skin on the inside of the hock; after which operations the animal is said to be blistered.

The application of a blister, only once, is insufficient in most cases to remedy spavin; three or four blisterings, at intervals of a month, being generally required.

SETONS.—the introduction of a seton over the seat of spavin is good treatment, and has been adopted with marked success by the writer. The mode by which this operation can be performed with the greatest facility is as follows: First. The skin, about an inch and a half above the spavin, should be grasped between the finger and thumb, and cut through with a pair of scissors made for this purpose. Second. The seton-needle, with a piece of tape attached to it, should be inserted into the cut surface, and passed over the spavin to about an inch below it, and at the place where the needle points and incision must be made through the skin; the tape is now brought over the spavin, is knotted at each end, and the operation is completed.

SUBCUTANEOUS OPERATIONS.—It is the practice of some veterinarians to make an incision on the inside of the hock below the seat of spavin, and insert into the aperture thus made, a plug of tow saturated with turpentine or some

liquid caustic. This operation is by no means novel, as the old farriers similarly operated years ago, and in our opinions is a practice much to be deprecated, since it produces in all cases, severe inflammation, and in some, extensive sloughing.

The division of the posterior tibial nerve—that one situated midway between the leg-bone (tibia) and point of the hock (os calcis)—of course removes all sensation below the part operated upon, and consequently, as far as external observation goes, cures spavin; but although the sensation is removed, the vital action still remains intact, and any injury may occur to the foot of this neurotomed leg without the subject of it manifesting its existence, and yet all the baneful workings of inflammation may be set up, and in a short time the hoof horn will, as it often has, slough off.

The treatment we are wont to prescribe is, during the early period of spavin to introduce a seton, and to allow it to remain in for five weeks, and afterwards blister twice, and at an interval of three weeks between each application. These remedial means have succeeded in many instances, and therefore are recommended to the readers of *THE FIELD*.—*The Field, London.*

### Examination for Soundness.

“Will you warrant him sound?” is one of the first and most important questions we ask regarding the horse we are about to purchase.—And a puzzling and difficult question it often is to the conscientious seller; for there are few horses which have been at full work for a year or two that, in the strict acceptance of the term, are really sound. They may be competent for the duties required of them, usefully, lastingly, and most valuable, but, nevertheless, they very commonly have some screw loose, some defect, some disease, something which the well-skilled and educated practitioner detects as a departure from health, and accordingly pronounces as unsoundness. It may be serious or slight, of long standing or of yesterday, permanent or temporary. In some fortunate instances it is so trifling that rest and judicious treatment may speedily remove it. Such are slight corns, caused by bad shoeing, lameness from a prick, thrushes from careless management of the feet, or simple thrombus from bleeding. These being deviations from natural structure, or from health, constitute for the time unsoundness, just as much as incurable spavin or broken wind. The sensible veterinarian consulted, however, respecting such cases, whilst stating the existence of the particular form of unsoundness, is also justified in explaining to his clients the temporary and curable nature of the unsoundness. This is to the advantage of both buyer and seller.

With some people a veterinary opinion is regarded in a very extended point of view, and innocently considered as a sort of general guar-

antee that the animal is all that is represented and equal to all that is expected of it. The result of the question; the purchaser must obviously exercise his own judgment as to the general suitability of the animal, must determine himself the all important points of style, action, colour, and the like. To the veterinarian it only belongs to declare whether, to the best of his judgment, the projected purchase is sound. To decide this question aright is sometimes, however, extremely difficult, and the wonder is at the mistakes, which occasionally occur, of wrongly rejecting sound, and erroneously passing unsound horses, are not greatly more common. In the stir and bustle of a fair, there is brought before the busy veterinarian horse after horse, none of them, in all probability, having ever been seen by him before. Time is precious, sellers press for a favourable verdict, using many expedients—innocent and the reverse—to show off their animals to the best advantage, whilst purchasers expect the veterinarian to protect them from imposition and secure them sound beast. Circumstances such as these require the best skill, adroitness, and knowledge of the veterinarian. Assuredly, here he has need of Argus's hundred eyes, of skill, education and experience, and withal of imperturbable coolness and readiness. Amongst a certain class of dealers he is regarded as fair game, as every dodge, artifice, and device is occasionally evoked for his deception. Woe to the inexperienced, unpractical sprig of a veterinary who falls in with some of the Yorkshire or Lincolnshire dealers! Unless to his competent theoretic education he adds a sound practical knowledge, with some nerve and sharpness, the chances are that he is cajoled or dragooned into placing his name, with the usual appended flourish of professional capitals, to a certificate which enables an unsound horse to be profitably passed on.

The author of the excellent and entertaining article on “horse-keeping and horse-dealing,” the May number of *Cornhill*, very properly advises that, before closing the bargain, the horse should be examined by a competent and experienced veterinarian. This is most essential with the lighter breeds, and especially if purchased from strangers, or those on whose opinion or word implicit reliance cannot be secured. Farmers purchasing horses for agricultural purposes frequently dispense with the professional opinion, and take from the seller a warranty, either in writing, or distinctly expressed in presence of witnesses. In examining horses it is best and most convenient to pursue a regular and methodical plan. Having a horse brought up to you, examine first his nose to satisfy yourself as to age. Notice that his eyes be clear, and that the iris contracts and expands according to the amount of light striking the hand under the lower jaw, assure yourself that there are no lumps or swellings indicative of bastard strangles or other glandular

complaints. As the hand is thence passed down the neck, ascertain that the jugular veins are in the centre. Occasionally we have seen horses with the vein on one side perfectly obliterated. Inflammation following blood letting is the common cause. There is seldom any permanent inconvenience, for the other vessels on the same side soon become enlarged, the circulation is as usual carried on, and the only untoward effect is swelling of the head when the animal is treated. See that the shoulders be equally prominent; for in young farm horses the muscles of the shoulder-blade are occasionally strained, and some in consequence wasted. By hand and eye ascertain that the knees are well formed and free from blemishes. The front surface should be broad and the prominence which projects backwards distinct and large, affording sufficient support and attachment for the well-developed tendons which pass up the limb. The skin should move freely over the front surfaces of the legs, and be free from all scars and marks.—These and any other indications of the animals being good must be viewed with great suspicion, especially in the case of tottering or shaky limbs. The plausible excuse of injuries from rubbing the manger and other such ingenious explanations must be taken for what they are worth.—*North British Agriculturist.*

## Transactions.

Abstract of Reports of Agricultural Societies received in the year 1860.

(Continued from page 414.)

### NORTH YORK.

COUNTY SOCIETY.—One hundred and ten members; amount of subscriptions, £10; deposited by township branches, £54 20; government grant, \$479 98; receipts at fall show, \$43; total received, £187 09. Paid township branches, \$144; paid balance due treasurer from previous account, \$48; paid premiums, \$376; expenses, \$51 82; balance in treasurer's hands, \$66 57. The Directors say in their report:—

"It is gratifying to know that great improvements have taken place within a few years in agricultural operations within this county. A commendable spirit of enterprise and emulation seems to have taken hold of the leading agriculturists, which shows itself in the use of the most approved farm implements—in the neatness and thoroughness of cultivation—the more careful selection of seeds, and, to some extent, in the introduction of better farm stock, both in cattle and sheep.

These improvements, and this enterprise and emulation, your Directors flatter themselves are mainly attributable to the existence of agricultural societies. Your Board is of opinion that further improvements must be made before the productive qualities of our soil are fully developed; and they would recommend a thorough system of under drainage, believing that the most gratifying results would follow the adoption of that system, upon a great portion of our farm land in this country."

### TOWNSHIP BRANCHES.

EAST GWILLIMBURY.—One hundred and forty-eight members; amount of subscriptions, \$151; balance from previous year, \$44.32; government grant, \$64.50; total received, \$259.82. Paid in premiums, \$165; expenses, \$25.77; balance in treasurer's hands, \$69.05.

KING.—Two hundred and seventy-five members; amount of subscriptions, \$275; balance from previous year, \$99.78; share of grant, \$130; entries, \$16; total received, \$520.78. Paid in premiums at shows and ploughing match, \$368.50; expenses, \$28.95; balance in treasurer's hands, \$123.33.

WHITCHURCH.—Amount of subscriptions, \$106; balance from previous year, \$22.55; total received, \$128.55. Deposited with County Society, \$102; paid premiums due from previous year, expenses, &c., \$24.40; balance in hand, \$2.15. This society merged its funds with those of the County Society for the year, for the purposes of a joint exhibition.

### EAST YORK.

COUNTY SOCIETY.—Seventy-eight members; subscriptions, \$133; balance in hand from previous year, \$190.30; deposited by Township Branches, \$280; receipts at Fall Show, &c., \$141.16; Government grant, \$479.98; total received, \$1224.44. Paid Township Branches, \$235; paid premiums, at ploughing match and shows, \$654; expenses, \$71.02; balance in Treasurer's hands, \$264.42. The ploughing match and shows were held in conjunction with the Scarboro' Branch Society, which merged its funds for the year with those of the County Society.

### TOWNSHIP BRANCHES.

MARKHAM.—Two hundred and nine members; amount of subscriptions, \$257; balance from previous account, \$209.46;

entries at ploughing match, \$54; total received, \$520.46. Paid in premiums, \$340.25; expenses, \$79.84; balance in Treasurer's hands, \$100.37.

SCARBORO.—One hundred and eight members; amount of subscriptions, \$158; balance from previous account, \$32.12; received from County Society as net proceeds of joint ploughing match and show, \$95; total receipts, \$285.12. Paid County Society, appropriation towards ploughing match \$40; deposited with County Society, \$140; expenses, \$6; balance in Treasurer's hands, \$99.12. The Society did not draw its deposit, or share of the public grant, from the funds of the County Society, but left the whole as its contribution to the joint ploughing match and fall show.

#### WEST YORK.

COUNTY SOCIETY.—One hundred and fifteen members; amount of subscriptions, \$125; deposited by Township Branches, \$580; grant from County Council, \$80; Government grant, \$479.98; donation for special prizes, \$20; entry fees, \$5.75; proceeds of exhibition held in conjunction with Toronto Electoral Division Society, \$107.84; total receipts, \$1398.57. Paid Township Branches, \$868; paid premiums, \$472.50; expenses, \$57.99; balance in hand, 8 cents.

#### *Extracts from Report.*

“The tract of country composing this electoral division, although not containing more than about 200 square miles of land, consists of nearly every variety of soil, from a light sand to rich alluvial deposit and stiff clay. There is no rocky land, properly so called; but there is some of a gravelly nature, and some liberally strewn with drift boulders. The greater part is of level formation; but some portions, particularly in the vicinity of the River Humber, are more or less abrupt and hilly. Probably the greater extent may be described as of a loamy character of soil, and nearly the whole may be considered available for profitable farming purposes. Land in the immediate vicinity, or within the limits of the corporation of the City of Toronto, at present used merely for farming purposes, does not bear the high speculative value as available for building or villa lots which it did two or three years ago, but may be still estimated as worth from \$200 to \$2000 per acre. Outside of these limits, that is to say from 3 to 25 miles distant from

the limits of the city, land which is not at present applicable, and has no prospect in future of being applicable to any other than purely farming purposes,—unless in particular situations to market gardening,—may be stated as worth from \$50 to \$200, according to quality and situation, or leaving out of view the most favored localities, from \$50 to \$100 per acre.

The general method of cultivation or rotation followed is not yet of a very advanced kind. It varies considerably, but as near as it can be described in a few words may be said to consist of a naked fallow, with more or less manuring, sown with fall wheat, the barley or other spring grain, with grass seeds then meadow or pasture for two years, and then fallow again, as before. Root or other fallow crops, except in a few cases, unless peas may be included in this class, are not yet cultivated in sufficient quantity to be taken into consideration in the general rotation.

Under such a system of cultivation, with greater or less variations according to circumstances, the crops obtained during the past year may be roughly estimated as follows:—

FALL WHEAT.—Notwithstanding the extraordinary frost which occurred in June and which damaged the crop more or less and the depredations of the midge, the yield was from 12 bushels in the poorest fields to 40 bushels in the best, per acre. The average, say fully 20 bushels.

SPRING WHEAT.—Better than fall; a 25 bushels per acre.

BARLEY.—Some crops were harvested over 50 bushels per acre; average believed to be over 30.

OATS.—Were cut off to a considerable extent by grasshoppers, but the crop very fine. Average believed to be 35 to 40 bushels, some fields yielding 80 bushels per acre.

RYE.—Is very little grown, and the return unimportant.

PEAS.—A very good crop, quite free from the bug. The average from 20 to 25 bushels per acre.

INDIAN CORN.—But little cultivated, this season, in consequence of the late frost was unfavorable to it. In favorable seasons 50 bushels of shelled corn per acre would be considered a good crop.

**FLAX AND HEMP.**—Very little cultivated. Some good samples, however, were secured.

**WHEAT.**—A very poor crop, and much below an average. The failure attributable to the frosts and drought. Some excellent crops, say two tons, were obtained, but the average must be estimated at less than one ton per acre.

**POTATOS.**—A very good crop, and generally speaking of excellent quality, the yield ran from 100 to 300 bushels per acre; average, 120. Late dug potatoes affected by the blight. The quantity cultivated may be estimated at about from one to two acres per 10 acres of farm land.

**TURNIPS.**—The cultivation is generally receiving increased attention, but the quantity grown is yet inconsiderable; may be estimated at from none at all to ten acres per farm. The average probably not over an acre to each farm of one hundred acres. Particular cases of high cultivation this year, the crop obtained was from 700 to 1000 bushels per acre, the average probably from 400 to 500 bushels.

**MANGEL WURZEL.**—Considerably less cultivated than turnips, but some excellent crops, say 600 to 800 bushels per acre produced last year.

**CARRIAGES.**—Sown in very small quantities, but produce exceedingly well when properly cultivated.

The breeds of cattle in this riding do not occupy the high position, which might be expected from the wealth and position of the owners of land. There are a few lots of purebred animals, and many good common cattle of various grades; but on the whole the County of York must yield to other portions of the country in this respect.

Dairy farming does not receive that attention which it merits, and neither the quantity or the quality of butter and cheese produced can merit high commendation.

Sheep and pigs, are, generally speaking, of a good class. The Leicester, or crosses of the Leicester sheep, and the small breeds of sheep, being the most in favor. The number of sheep kept is not so large as it might be to the advantage, if greater attention were directed to the cultivation of root crops and the improvement of wool.

Amongst the important improvements being made in farming operations, we have much to be sure in alluding to the rapidly increasing

attention which the subject of land drainage is receiving. Tile manufacturers, not only in this but adjoining counties, are selling large quantities, and there appears to be almost a universal awakening to the importance of the subject. One of the Vice-Presidents of this Society, Mr. H. J. Boulton, whose name as widely known as associated with the subject of land drainage, has laid in 50,000 tiles on his farm in Etobicoke during the past season, effectually draining about 40 acres of land, and intends proceeding vigorously with the work in future.

#### TOWNSHIP BRANCHES.

**ETOBICOKE.**—One hundred and seventy-eight members; amount of subscriptions and donations, \$363; balance on hand from previous year, \$221 09; public grant, \$188 68; grant from Township Council, \$60; entries at shows and ploughing match, \$84; total receipts, \$916 77. Paid premiums at shows and ploughing match \$611 50; expenses and sundries, \$157 77; balance in Treasurer's hands, \$147 50.

**YORK.**—Two hundred and fifty members; subscriptions, \$304; government grant, \$99 30; grant from township and York municipalities, \$157; donations, \$149; received from late treasurer, \$20; receipts at show and ploughing match, \$104 99; total received, \$834 29. Paid premiums, \$516; expenses, \$226 84; balance in treasurer's hands, \$91 45. The exhibition, the directors report, was highly satisfactory, both in the number and quality of the animals and articles exhibited, the number of entries being over one thousand.

#### Extracts from Report:—

The Township of York rates very high in its growth of the cereals, and this year it has not lost its standing. Its wheat crop was excellent in quality, and a very high average was obtained, estimated at over 22 bushels per acre. Barley and oats were also very good. Barley averaged 30 bushels, and oats 40 bushels per acre.

The wheat fly made its appearance, but did not injure the crop over two per cent. Peas were sown to a very considerable extent, and a large and excellent crop was harvested. This crop did not appear to suffer this season from any insect or bug, which is sometimes the case, damaging considerably the product.

Rye, buckwheat, and corn, are not generally grown in this township; if the destruction of the fly should increase, it would be well for our farmers to extend the cultivation of these grains. The June frost injured the corn very much.

Potatoes.—There was a large breadth of land planted this year with this crop, and a large product obtained, but in many instances the rot has diminished the crop one half.—The June frost cut off and injured greatly those early planted. Those on under-drained land appeared to suffer least from the rot.

Turnips.—Of this crop a very large average crop was obtained, between 800 or 900 bushels per acre was considered not too high an estimate. Our farmers (thanks to agricultural societies) begin to appreciate this crop, its cultivation is greatly on the increase, as is also that of mangel wurzel and carrots, good crops of which were gathered. Clean cultivation and frequent stirring of the soil influence greatly the amount of crop obtained. Much improvement in the management of these crops by our farmers is apparent.

Flax and Hemp.—Of these crops little or none is grown; it is a question worthy of consideration whether it would not be more to the advantage of our farmers if these crops were grown more extensively.

Hay.—Little can be said of this crop, it was a poor crop in all cases, and in many a complete failure. It is singular, but true, that this crop never was so bad, while at the same time other spring crops never were better.

Underdraining.—This improvement has been carried on to a considerable extent, and appears to be on the increase, its advantages are no longer a problem. Tile draining is the mode generally adopted—and it is pleasing to be able to state that several new and approved machines have been imported during the year and have been in successful operation, and that several persons are now manufacturing tile well adapted to the purpose of underdraining at prices lower than heretofore. Messrs. Wm. Lea, Nightingale, & Gibbs, have established yards in this township, where tiles can at all times be obtained at from \$6 to \$10 per thousand.

#### TORONTO.

ELECTORAL DIVISION SOCIETY.—Three hundred and seven members; amount of subscriptions, \$335; received from funds of late Horticultural Club, \$32.32; grant from City

Corporation, \$100; Government grant, \$173 40; net proceeds of exhibition held jointly with the West Riding of York Agricultural Society, \$2,820; total received, \$838.90. Paid in premiums, \$534 50; expenses, \$23 48; balance in Treasurer's hands, \$250.00. The joint exhibition consisted of an excellent display of animals, grain, roots, fruit, flowers, machinery manufactures, paintings, ladies' work, &c., amongst which were many first-class specimens of live stock, and of agricultural and mechanical skill. In regard to the fruit and vegetable department, the Directors make the subjoined remarks:

#### Extracts from Report.

In the fruit department the display was as extensive as could have been wished; it was, doubtless, owing in a great measure to the severe frosts which occurred during the blossoming season in June, and which did great injury to most of our hardy fruits. But it is to be feared that the deficiency in the number of specimens exhibited, more especially in the pomological class, is in some degree attributable to want of skill and enterprise on the part of our fruit growers, who are allowing themselves to be supplanted, even in our home markets, by foreign produce. This is the more inexcusable as our soil and climate are admirably adapted for the cultivation of the apple, and the few extremely good collections which were exhibited proved most satisfactorily what *could* be effected, by ordinary skill and attention bestowed upon the cultivation of this most valuable fruit.

There were some good collections shown of pears, peaches, and grapes, (grown in the open air,) and of the latter fruit, some magnificent specimens grown in cold vinery were exhibited. Great progress has certainly been made in our own immediate neighborhood, during the last few years in the cultivation of this delicious fruit, and it is gratifying to note the success which has attended the erection of cold vineries and orchard-houses, by several of our leading citizens and horticulturists. Some of the grapes exhibited, grown in cold houses, could hardly be surpassed anywhere, either for size or flavor, a fact which speaks volumes in favor of our mode of cultivation, which, while bringing the fruit to a high state of perfection is of a comparatively simple and inexpensive character.

The show of vegetables, as may be seen in the very large number of entries made in the

partment was most extensive, and both for numbers and excellence they formed one of the best features of the exhibition. It would be impossible to speak in too high praise of the quality of most of the specimens exhibited. Some of the different varieties of plants shown were especially excellent. Many new kinds were exhibited, some especially worthy of commendation, and evincing the careful and successful cultivation of this valuable root. The same praise may be awarded to the beets, carrots, parsnips, and other vegetables. And it may safely be asserted of this department, that both in number and quality it surpassed anything of the kind that has before been witnessed in Ontario.

### Miscellaneous.

**OCCUPATION OF WOMEN IN FRANCE.**—In France a woman is permitted to engage in many occupations which are performed with us entirely by the male sex. She often acts as ticket collector at railway stations, as bookkeeper at hand shops, and as attendant on the heaped shelves of the reading room.

The watchmaker consigns to her delicate hands the finer parts of his mechanism, and she is seen in the setting of his costly gems. The wood-carver expects his most delicate and tasteful work from her hands; and the picture dealer invites her to plant her easel in the Louvre or the Luxembourg, to reproduce, as she well can, the masterpieces of ancient or modern art. She holds the mallet of the sculptor considered to grace the hands of a princess—one of the latest statues of modern times, representing the Amazonian, the production of a daughter of the late Emperor. The individual and social advantages which the honor that is thus paid to laborers are incalculable. Pride is never permitted to interfere with usefulness; and many a woman, who would have been debarred, from us, by its pernicious influence, from the honorable employment of her powers, is enabled to be wiser and more merciful arrangements obtain in France, to secure a virtuous and comfortable independence.—*Scientific American*.

**RELATIONS OF THE MICROSCOPE.**—Wherever we look within the precincts of our own homes, in the meadow or moorland, hill or forest, by the seashore, or amidst crumbling ruins, fresh sources of interest are constantly to be found; and animals unknown to our unaided vision, with minute organs perfectly adapted to their necessities; with appetites as keen, enjoy-

ments as perfect as our own. In the purest water, as well as in thick acid, and saline fluids, of the most indifferent climates, in springs, rivers, lakes, and seas, often in the internal humidity of living plants and animals, even in great numbers in the living human body—nay, probably, carried about in the aqueous vapours and dust of the whole atmosphere, there is a world of minute, living, organized beings, imperceptible to the ordinary senses of man. In the daily course of life, this mysterious kingdom of diminutive living beings is unnoticed and disregarded; but it appears great and astonishing, beyond all expectation, to the retired observer who views it by the aid of a microscope. In every drop of standing water he very frequently, though not always, sees by its aid rapidly moving bodies, from 1.96 to less than 1.2000 of a line in diameter, which are often so crowded together that the intervals between them are less than their diameter. If we assume the size of the drop of water to be one cubic line, and the intervals though they are often smaller, to be equal to the diameter of the bodies, we may easily calculate, without exaggeration, that such a drop is inhabited by from one hundred thousand to one thousand millions of such animalcules; in fact, we must come to the conclusion that a single drop of water, under such circumstances, contains more inhabitants than there are individuals of the human race upon our planet.—*Westminster Review*.

**CURIOUS ANIMAL**—Australia is a land full of natural wonders to us. Great tracts of that country are covered with balls of quartz, shot, as it were, from some lunar battery; the natives kill the jumping kangaroo by shooting the boomerang "round the corner;" and there is the *ornithoryncus*, which puzzles naturalists to classify by its paradoxical peculiarities. It appears to be a link between the quadruped, bird and reptile. Its body is something like that of a beaver; it has four short legs, and is web footed, and on its little flat head it has the bill of a duck. These creatures live a great deal in water; their resorts are quiet creeks fringed with weeds, among which they search for food. They burrow in the banks of streams like moles; in disposition they are timid, playful and harmless and they have been made very amusing pets.

**THE CITY UNDERGROUND.**—The buildings above ground in our crowded metropolis are probably equalled by the subterranean works which traverse the city and suburbs in every direction. Endless miles of sewers, now to be in part superseded by vast cloacæ rivaling those of ancient Rome; water service brought to every inhabitant's door; gas mains and pipes, so carefully laid down that the whole soil is saturated by the foul air escaping from them; and those mystical wires, which carry out the whispers of the electric telegraph—all these cross and recross every foot of our great thoroughfares; and out of what seems their inextricable confusion,

results the most striking and useful are euded. Within these few months, also, the gigantic plan of an underground metropolitan railway, to connect all the termini in one London centre, has been in part accomplished, and, in a little more than a twelvemonth, a large portion of the merchandise, now encumbering the principal streets and roads, will pass to its destination through the bowels of the earth. In former times, when men began to build, their lease was said to make them free from the surface to the moon; they might compete with the workmen at Babel, and, in some cases, a 10th or 12th story has been reached. At present, we enterprising bipeds are as profound as we were sublime; and are taking possession of all under our feet as fearlessly as we once did of all over our heads; and thus, if the fashion lasts, London may be tripled in size without adding an acre to its circumference. As subterranean builders, however, we have been forestalled, for our ancestors, often without intending it, have gone towards the centre, joining arch to arch, and burying silent streets which, centuries ago, echoed to the tread of their inhabitants in the cheerful sunlight. The surface of the city has risen in a marvellous manner, so that when we dig out a new foundation the pickaxe is arrested against the solid wall or groined roof of fabrics long covered by the accumulating debris of forgotten generations. Thus, many of the churches of London proper are built over enormous masses of sanctuaries, where in Saxons or Normans once worshipped.—*City Press*.

"PUT BY THAT STICK, MY MAN"—Young men would call upon him (Mr. George Stephenson) for advice or assistance, in commencing a professional career. When he noted their industry, prudence, and good sense, he was always ready. But hating foppery and frippery above all things, he would reprove any tendency to this weakness which he observed in the applicants. One day a youth, desirous of becoming an engineer, called upon him flourishing a gold-headed cane. Mr. Stephenson said, "Put by that stick, my man, and then I will speak to you." To another extensively decorated young man he one day said, "You will, I hope, Mr——, excuse me; I am a plain-spoken person, and am sorry to see a nice-looking and rather clever young man like you disfigured with that fine patterned waistcoat, and all these chains and fang-dangz. If I, sir, had bothered my head with such things when at your age, I would not have been where I am now."—*Men Who Have Risen*.

LIFE IN THE SEA.—Brimful of life at its surface, the sea would be encumbered if that prodigious power of production was not kept somewhat in check by the antagonistic power of destruction. Only imagine that every herring has from fifty to seventy thousand eggs! If every egg was to produce a herring, and every herring

fifty-thousand more, were there not an enormous destruction going on, the ocean would very soon be solidified and putrified. The great ceter drive them towards the shores, ever and anon diving into their ranks and swallowing up whole shoals. The whiting eat their fry; cods devour the whiting. Yet, even here, the pressure of the sea, an excess of fecundity, shows itself a still more terrible shape. The cod has up to nine millions of eggs, and this creature, of so formidable powers of maternity, has nine most of love out of twelve. No wonder that the fertility of this productive fish has created towns and colonies. But even then, what would the power of man be opposed to such fecundity? He is assisted by others, among which the starling takes chief rank. Then, again, the starling itself is a very fecund fish. This devourer cod has itself fifteen hundred thousand eggs. Another great devourer is not proportionally reproductive, and that is the shark; so Michael calls it *Le beau mangeur de la nature, mangé patente, le requin*. Viviparous, he nourishes the young shark in his bosom, his feudal heritor, who is born terrible and ready to die. Hence are sharks called in many countries "dogfish," and so we lately saw the French *chimpanzee* literally translated.—*Blackwood*.

ORIGIN OF THE TERM WILD GOOSE CHASE.—Wild goose chase was a term used to express a sort of racing on horseback formerly practised resembling the flying of wild geese; those who generally go in train one after another—confused flocks as other birds do. In this sort of race, the two horses, after running the score yards, had liberty, which horse ever could get the lead, to take what ground jockeys pleased, the hindmost horse being bound to follow him within a certain distance given on by the articles, or else to be whipped by the triers and judges who rode by; and whenever horse could distance the other won the race. This sort of racing was not long in common for it was found inhuman, and destructive to good horses, when two such were matched together. For in this case neither was able to distance the other till they were both ready to fall under their riders, and often two very good horses were both spoiled, and the wagers forced to be drawn at last. The mischief of this sort of racing soon brought in the method now in vogue of only running over a certain quantity of ground and determining the plate or wager by cutting in first at the winning-post. The phrase "wild goose chase" is now employed to denote a fruitless attempt, or an enterprise undertaken with a little probability of success.

INSECT APPETITE.—The man who wishes had a throat a mile long, and a palate all ways, might envy the feats performed in the world of insignificance. Some insects are endowed with an appetite so keen, and a digestion so

they can eat incessantly throughout the  
of their lives. They begin as soon as they  
we, and eat steadily on till they die. Their  
is a feast, without a change of places,  
between the courses. Morning, noon,  
night their mouths are full, and an endless  
of favourite foods gratifies the un-  
palate. They know not the names of  
Breakfast commences with infancy, and  
of after-dinner nap is a passage to another  
of existence.—*Once a Week.*

### A La Claire Fontaine.

Following is a translation of this Song of  
each Canadiars, referred to in the narra-  
of the Saguenay Excursion of H. R. H.,  
of Wales :—

By the crystal fount I strayed,  
Which the dancing moonbeams played,  
Water seemed so clear and bright,  
I shed myself in its delight.  
I loved thee from the hour we met,  
And never can that love forget.

Water seemed so clear and bright,  
I shed myself in its delight ;  
Nightingale above my head,  
I met a stream of music shed.  
I loved thee from the hour we met,  
And never can that love forget.

Nightingale above my head,  
I met a stream of music shed,  
Nightingale ! thy heart is glad !  
I could weep for mine is sad !  
I loved thee from the hour we met,  
And never can that love forget.

Nightingale ! thy heart is glad !  
I could weep for mine is sad !  
I have lost my lady fair,  
She has left me to despair !  
I loved thee from the hour we met,  
And never can that love forget.

I have lost my lady fair,  
She has left me to despair !  
I gave not, when she spoke,  
The rose that from its tree I broke.  
I loved thee from the hour we met,  
And never can that love forget.

I gave not, when she spoke,  
The rose that from its tree I broke ;  
The rose were on its tree,  
I beloved again with me !  
I loved thee from the hour we met,  
And never can that love forget.

of Education, Montreal, Nov. 1860.

ORIGIN OF THE NAMES OF THE DAYS OF THE  
WEEK.—In the Museum at Berlin, in the hall  
devoted to northern antiquities, they have  
the representations of the idols from which  
the names of the days of the week are derived.  
From the idol of the sun comes Sunday.  
This idol is represented with his face like  
the sun, holding a burning wheel, with both  
hands on his breast, signifying his course  
round the world. The idol of the Moon, from  
which comes Monday, is habited in a short  
coat like a man, but holding the moon in his  
hands. Tuisco, from which comes Tuesday,  
was one of the most ancient and popular gods  
of the Germans, and represented in his gar-  
ments of skin, according to their peculiar man-  
ner of clothing; the third day of the week  
was dedicated to his worship. Woden, from  
which comes Wednesday, was a valiant prince  
among the Saxons. His image was prayed to  
for victory. Thor, from whence Thursday, is  
seated in a bed, with twelve stars over his  
head, holding a sceptre in his hand. Friga,  
from whence we have Friday, is represented  
with a drawn sword in his right hand and a bow  
in his left. Sater, from which is Saturday, has  
the appearance of perfect wretchedness; he is  
thin-visaged, long haired, with a long beard.  
He carries a phial of water in his right hand,  
wherein are fruits and flowers.

SHADE TREES IN PARIS.—It has been calcu-  
lated that Paris, at present, covers a space of 78,  
080,000 yards. It contains 148,000 trees, occupy-  
ing a space equal to 336,890 square yards. The  
trees consist of horse-chestnuts, elms, acacias,  
lime trees, and others. It is estimated that  
these trees cover, with their shade, a space of  
220,200,000 yards, sufficient to protect 1,589,-  
000 individuals from the rays of the sun.

GOOD MANNERS.—Good manners are blossoms  
of good sense, and, it may be added, of good  
feeling too; for if the law of kindness be written  
in the heart, it will lead to that disinterested-  
ness in little as well as in great things—that  
desire to oblige, and attention to the gratifica-  
tion of others, which is the foundation of good  
manners.—*Locke.*

OBNOXIOUS TO BED-BUGS AND FLIES.—Coal oil  
is said to be a sure destroyer of bed-bugs. Ap-  
ply plentifully with a small brush or feather in  
the places where they most do congregate. The  
cure is effectual and permanent. Gilt frames,  
chandeliers, rubbed lightly over with coal oil  
will not be disturbed by flies.

PARISIAN MODE OF ROASTING APPLES.—Select  
the largest apples; scoop out the core without  
cutting quite through; fill up the hollow with  
butter and fine, soft sugar; let them roast in a  
slow oven and serve up with the syrup.

Guano was first introduced into England in  
1841.—twenty casks being brought to Liverpool  
by Mr. Myers. Subsequently its use became so  
general, that, for the ten years ending 1857, the  
English farmers expended more than one hundred  
millions of dollars in its purchase.

ON HAIR.—Hair is the dry, round, elastic fibres or filaments that arise from the skin, and are fed by the medullary juices. It is found on the "Mammalia" tribe, on every part of the body except on the soles of the feet, and on the palms of the hands; and in the shape of hair, bristles, wool, scales, and spines, is found much diffused over the animal creation. Hair grows in vascular pulps, with the roots enclosed in bulb-shaped capsules, situated within the skin; it is of a horny nature, and composed of smooth lamella placed over one another like zones, which increase by thrusting the parts forward as in nails, and not by a liquor flowing along the tubes as in plants. The felting property is owing to this quality in hair, and carried forward in wool, and in bristles, and other hairs; the horny substances are arranged like the woody fibres of a cane. Hair burned to ashes has given iron and magnesia, phosphate, sulphate, and carbonate of lime, muriate of soda, and a considerable portion of silica. Gelatine is produced by boiling it, and imparts the flexible toughness; continued boiling dissipates the gelatine, and the remains are brittle, crumble to pieces between the fingers, and resemble coagulated albumen, in being insoluble in water. White hair yields magnesia, which is wanting in the other colours; and red hair contains less iron and manganese, the ashes do not exceed 0.15 part of the hair.

Hair is composed of—

1. Animal matter chiefly.
1. White solid oil, small quantity.
3. Greyish green oil more abundant.
4. Iron.
5. Oxide of manganese.
6. Phosphate of iron.
7. Carbonate of lime.
8. Silica.
9. Sulphur.

The animal matters are chiefly gelatine and albumen, and a substance resembling both, and the operation of hair as a manure, is similar to bones and horn-shavings. It has been sold at 1s 6d per bushel, and 30 bushels have been applied to an acre, and may be covered in the land by one ploughing, or mixed with earths in composts.

INFLUENCES OF THE DWELLING.—We talk about houses, my friend: we look at houses; but how little the stranger knows of what they are! Search from cellar to garret some old country house, in which successive generations of boys and girls have grown up, but be sure that the least part of it is that which you can see, and not the most accurate inventory that ever was drawn up by appraiser will include half its belongings. There are old memories crowding about every corner of that home unknown to us: to minds and hearts far away in India and Australia everything about it is sublimed, saddened, transfigured into something different from what it is to you and me. You know for yourself, my reader, whether there be not present elsewhere

about the window where you sat when a— and learned your lessons, the table once rounded by many merry young faces which not surround it again in this world, the fire where your father sat, the chamber where sister died. Very little indeed can sense descend showing us the Home; or towards show us any scene which has been associated with human life and feeling and embalmed in man memories. The same few hundred years along the seashore, which are nothing to man but so much ribbed sea-sand and so much murmuring water, may be to another something to quicken the heart's beating and bring the blood to the cheek. The same green path through sprig-clad trees, with the primroses growing beneath them, which lives in one memory after year with its fresh vividness undimmed may be in another merely a vague recollection recalled with difficulty or not at all.

Each in his hidden sphere of joy and woe,  
Our hermit spirits dwell and range apart;  
Our eyes see all around in gloom or glow,—  
Hues of their own fresh borrowed from heart.

—Recreations of a Country Parson.

PRINCE EDWARD ISLAND.—The following statistics from the *Prince Edward Islander*, show only the capacity of the Island, but the increase it has been making in agricultural wealth during the past twenty years. Amounts shown are not the whole produce, only the exports, for the years mentioned;

	1838.	1840.
Oats, bushel,	155,783	1,111,9
Barley, "	23,601	97,9
Potatoes, "	167,596	465,3
Turnips, "	6,341	24,9
Dry fish, qtls.,	3,810	19,7
Pickled fish, lbs.,	1,482	10,7

## Editorial Notices &c.

THE NORTH BRITISH REVIEW.—MAY 1861. BY WOODS' EDINBURGH MAGAZINE FOR JUNE. York, Leonard Scott & Co. Toronto, Rowsell.

The *North British* may now be said to have regained the high literary character under new management, for which it was distinguished during its earlier career. The able attack on the American secession; present movements in the Church of England; Railway accident and the Educational Question, will be read with great interest and profit on this side of the Atlantic. Several other articles treating on subjects that have a wide spread interest, equally able. *Blackwood*, as usual, is fit.

will;—seldom indeed does dulness characterize a single article in this old established journal. The Book Hunters; The Monks of West; Miss Bremer in Switzerland and From the Fatherland; Memoirs of a Gentlewoman, are among the leading articles of the present number which our readers welcome.

JOURNAL OF THE BOARD OF ARTS AND MANUFACTURES FOR UPPER CANADA, JULY 1861

It is very happy to find this new coadjutor in the work of native industry and provincial improvement continues fully to sustain the useful character which distinguished its commencement. The July number has articles on the International Exhibition of 1862; The New Cotton Factory; Chemical History of the Potato; Vegetable Food;—besides a number of other articles, and copious information on matters relating to the proceedings of the Board of Arts in Upper and Lower Canada; Canadian Patents and Patentees, correspondence, &c. We have seen from this enumeration that the Journal embraces subjects of great importance, possessing a wide interest. Not only might it be read by manufacturers, mechanics, merchants, but the more enterprising and energetic of our farmers might frequently find it all its pages with advantage.—Price \$1 per copy; to clubs of ten 75 cents per copy. Members of Mechanics Institutes and Agricultural Societies, organised according to the Act, can procure the Journal at the extreme price of half-a-dollar a year!

You may notice that the Board of Arts and Manufactures have removed into a capacious set of rooms in the new Mechanics' Institute, corner of Church and Adelaide Street; and that strangers visiting Toronto would do well to call on Mr. Edwards, the Secretary, who will always be found ready to give information on all matters pertaining to the operations of the

**REMARKS.**—In the communication on "Societies and Unsuccessful Competitors" in our number, page 388, in the last paragraph we find that a typographical error has occurred which has changed the meaning of the word. The word "annoying" was written instead of "amusing."

## FRESH GARDEN, FIELD and FLOWER Seeds for Spring Sowing.

The Subscriber begs to inform his friends and the public that his stock of Fresh Seeds is now complete, and very extensive, embracing almost

### EVERY VARIETY OF SEED

that is adapted to the country. The stock of Agricultural Seeds is large and well selected, and the vitality of each sort being fully tested, the genuineness of the seeds may be fully relied upon.

Merchants and Agricultural Societies ordering Seeds in bulk will be supplied at wholesale prices. Complete assortments of garden seeds neatly put up in small papers, with directions for sowing, and sold by the box containing 150 papers for \$5. Twenty packages of Flower Seeds, choice sorts, will be sent free by post to any part of the Province, to the address of any party remitting \$1, free of postage, or 25 packages, postage unpaid.

The Subscriber wishing to give parties who reside at a distance an opportunity to test the qualities of his seeds, will on the receipt of \$2, free of postage, send free to any Post Office in Canada, 25 full sized packages of VEGETABLE SEEDS, many of them containing an ounce of seed, and 12 papers of choice FLOWER SEEDS with descriptive catalogue and box included—the seeds to be of my own selection. None but the most useful and desirable varieties will be sent.

Descriptive catalogues of Garden, Field and Flower Seeds furnished gratis to applicants.

JAMES FLEMING,

Seedsman to the Agricultural Association of Upper Canada,  
350 Yonge Street.

Toronto, April 22, 1861.

9—3t.

## TO LANDED PROPRIETORS.

AN 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.

THE 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,  
Secretary.

Toronto, 1861.

**SEEDS! SEEDS! SEEDS!**

TORONTO SEED STORE,

CORNER OF FRONT STREET AND WEST  
MARKET SQUARE.

THE Subscriber would beg to direct the attention of his friends, and the Public to his assortment of

FIELD, GARDEN, AND FLOWER SEEDS,

Comprising large quantities of Turnips, Carrots, Mangel-wurzel, Cabbage, Onion, Parsnip, and everything worthy of cultivation in this latitude. They are all of the best quality and procured from such sources as to warrant their genuineness.

THE SIXTH ANNUAL EDITION OF HIS PRICED  
CATALOGUE

Of seeds, contains full directions for the treatment of various Seeds and Crops, together with much valuable information regarding this subject, and may be had gratis on application.

It forms a neat little pamphlet of 45 pages, and a perusal of it will show purchasers the advantage of procuring their supply of Seeds from responsible Seedsmen, instead of from parties having no knowledge whatever of the business.

The satisfaction so generally expressed by those with whom he has had the pleasure of dealing heretofore leads him to hope that he will continue to receive a large share of the Public patronage.

Orders per post or otherwise will receive prompt attention, and are requested to be addressed to

J. A. SIMMERS  
Seedsmen.

Toronto, April, 1861.

4-t.

**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

**SHORT HORNS.**

FOR SALE—FIVE BULLS, all entered in American Herd Book Prices, from 100 to 400 dollars. Also, a few HEIFERS, at low prices. Apply to

T. L. HARISON, Morley,

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or at the *Agriculturist* office, Toronto.

March 9, 1861.

6t

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