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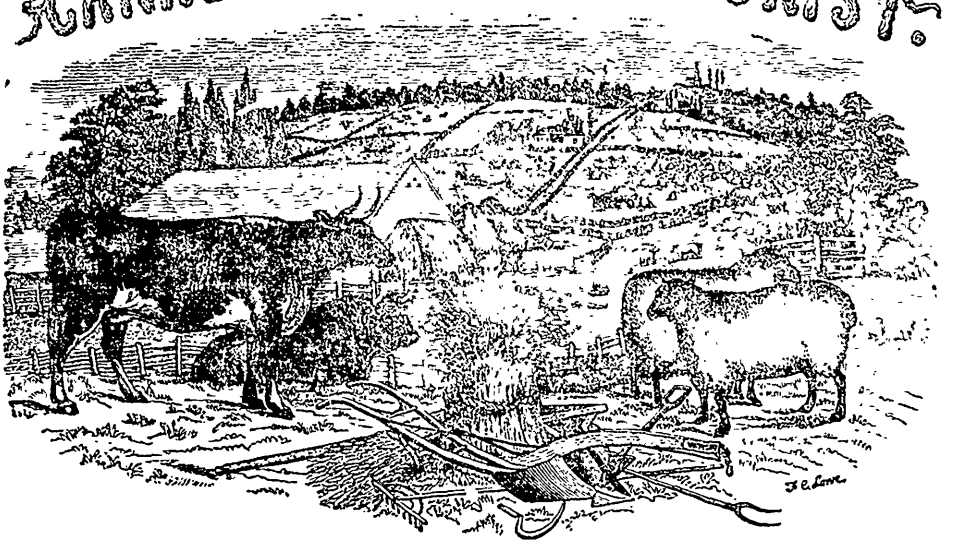
CANADIAN AGRICULTURIST.



"The profit of the earth is for all; the King himself is served by the field."—ECCLES. v. 9.

GEORGE BUCKLAND, WILLIAM McDOUGALL, } Editors and Proprietors.

VOL. I. TORONTO, SEPTEMBER 1, 1849. No. 9.

The Canadian Agriculturist,

A MONTHLY JOURNAL of Agriculture, Horticulture, Mechanical and General Science, Domestic Economy & Miscellaneous Intelligence: Published by the Proprietors, W. McDougall and Geo. Buckland, on the first of each month, at their Office, near the South-west corner of King and Yonge Streets, Toronto.

☞ Subscription One Dollar, *in advance*. Advertisements 4d. per line each insertion.

☞ Societies, Clubs, or local Agents ordering twelve copies and upwards, will be supplied at 3s. 9d. per copy.

☞ *Money*, enclosed in a letter, and addressed to the "Editors of the Agriculturist, Toronto," will come perfectly safe As we shall employ but few agents this year, those who wish to pay for the last, or subscribe for the present volume, *need not wait to be called upon.*

☞ *Payment in advance* being the only system that will answer for a publication so cheap as ours, we shall send the remainder of the volume to none but those who *order* and *pay for* it.

Local Agents.—Any person may act as local agent We hope that all those who have heretofore acted as such will continue their good offices, and that many others will give us their influence and assistance in the same way. Any person who will become a local agent may entitle himself to a copy by sending *four* subscriptions. Those sending *twelve* and upwards will be supplied at 3s. 9d. per copy.

MESSRS. DENISON & DEWSON, Attorneys, &c., *New Market Buildings*, Toronto.
January 26, 1849. 2

TORONTO NURSERY.

FOR SALE, an extensive collection of FRUIT TREES, consisting of all the choicest sorts of Apples, Pears, Plums, Cherries, Peaches, Grape Vines, Raspberries, Gooseberries, Strawberries, Currants, Asparagus, and Rhubarb Root, &c.

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Descriptive Catalogues, containing directions for transplanting, furnished *gratis* to post-paid applicants.

GEORGE LESLIE.
March, 1849. 4

CASH! CASH!! CASH!!!

THE Subscriber will pay the highest Cash Prices for 1000 bushels clean Timothy Seed; 100 bushels clean Spring Tares; 100 bushels White Marrowfat Pea and 25 bushels Flax Seed.

JAMES FLEMING,
Yonge Street, *Seedsman and Florist.*
Toronto, Jan. 1, 1849. 1

WM. M'DOUGALL,
ATTORNEY, SOLICITOR, &c.,
South West Corner of
KING AND YONGE STREETS,
TORONTO.

☞ *Deeds, Mortgages, and other Legal Instruments promptly prepared.*

We insert, for the full information of our readers, the following Programme of the Provincial Agricultural Show, to be held in Kingston in September next, as published by the Committee of Management:

GRAND PROVINCIAL AGRICULTURAL FAIR AND CATTLE SHOW,

TO BE HOLDEN AT KINGSTON, C. W.,

On September 18th, 19th, 20th, and 21st, 1849.

THERE will be expended in Premiums, in the various branches of Agricultural and Horticultural Productions, Implements of Husbandry, Manufactures, Mechanical Inventions, Fine Arts, &c. &c. &c. the sum of from TWELVE TO FIFTEEN HUNDRED POUNDS, the particulars of which and Premium Lists (which will be liberal) will be prepared and made known as early as possible.

The ground selected for the Show is delightfully situated, and commanding a splendid view of the River St. Lawrence and Lake Scenery. Persons desirous of competing at the Show must become Members of the Association, which they can do by paying 5s. per annum, or $10, which constitutes Membership for Life.

Members will have the right of entering for Competition *Three Articles free of charge* (all Entries over that number 7½d. each), and will be furnished with a Badge, which will entitle them to a Free Entry to the Show Grounds.

FIRST DAY.

All Entries to be made with the Secretary, at not later than 8 P. M. of the 18th, at which hour the Lists will be closed. Separate Lists of Premiums provided for Articles and Animals not the production of Upper Canada.

SECOND DAY.

The Judges, Competitors, and Officers of the Society only will be permitted to enter the Show Grounds until 2 P. M., after which hour the public will be admitted. At 7 o'clock, P. M., an AGRICULTURAL LECTURE AND DISCUSSION will be held in the Court House, to which the Public are invited.

THIRD DAY.

The Show Grounds will again be opened to the public, and at 3 P. M. the President will deliver the ANNUAL ADDRESS, after which the Premiums will be declared. The city authorities have kindly given the use of the City Hall for a PUBLIC DINNER in the Evening.

FOURTH DAY.

The Trial of Ploughs. A Ploughing Match will take place in the morning, and at noon the Prize Stock and Articles will be Exhibited on the Show Grounds, after which the PREMIUMS will be paid.

No Premiums will be paid on Stock or Implements, &c., leaving the grounds previous to this, without permission from the President.

THE WHOLE WILL BE WOUND UP WITH A

GRAND PROVINCIAL REGATTA,

At the close of the Show, open to all Competitors.

Ample accommodation will be provided for Visitors, and pledges have been received that the ordinary rates only will be charged at the principal Hotels, Taverns, and Boarding Houses, of which there are over one hundred and fifty in the city and immediate vicinity. Spacious Buildings will be erected for the reception of all articles intended for the Show, and their protection and security suitably provided for; and particular attention will be given to the LADIES' DEPARTMENT.

The Executive Committee will meet on the Show Ground, on Wednesday, the Second Day, at 10 o'clock, when the Judges are requested to attend, as on that occasion all vacancies will be filled. Members of the Society are requested to call, on their arrival, at the Secretary's Office, and receive their Badges. Entries may be made at any time previous to the Show, with the Secretary, GEORGE A. CUMMING, Esquire, care being taken by the parties to make the entries in the owner's name, which will prevent confusion in calling over the premium lists for payment.

Arrangements are about being made with the respective Steamboat Owners, for the Transit of Stock, &c., intended for the Show, at moderate charges, and application made to the proper authorities to have Animals and Articles of American production, intended for competition at the Show, admitted Free of Duty.

Kingston, June 30, 1849. 7

TO BRICK MAKERS.

AN excellent opportunity offers itself for the purchase of an improved BRICK MOULDING MACHINE, with horse power, capable of Moulding from 20 to 30,000 Bricks per day.

ALSO:

TWO CLAY TEMPERING MACHINES, on a new principle, each Machine can temper a bed of clay, at one time, sufficient for 12,000 Bricks.

Apply (if by letter, *post-paid,*) to

ROBT. BEEKMAN, AGENT,
No. 6 Wellington Buildings.

Toronto, 6th September, 1849. 9-tf.

PROSPECTUS

OF A

WORK ON EDUCATION;

OR

An Address to the Mothers of Canada on the Education of their Daughters,

BY MRS. HURLBURT,

PRECEPTRESS OF ADELAIDE ACADEMY.

THIS work treats of the moral, religious, intellectual and physical training of Girls; dwells particularly upon the nature and great importance of an early religious education; the practical duties of Christians in the family circle, in social and public life; the prevailing systems of education, their excellences and defects; the choice of teachers, their religious and moral character; the subjects of study of most importance for Girls; their early associates, prevailing amusements; reading, choice of books, pernicious effects of novel reading; duties of mothers, duties of daughters; domestic or fireside education, private schools, public seminaries; examples of pious and distinguished women.

Nearly one-third of the work is devoted to the religious education of Girls, showing its influence upon the happiness and prosperity of families and communities. The author believing that this part of education is too much neglected, where it can most efficiently be attended to—at the fireside—has been induced to extend her remarks upon this part of the subject.

This work will contain about 200 pages 12mo, and will be delivered to subscribers at the low price of 2*s.* 6*d.* per volume.

Toronto, 8th March, 1849. 7

THE

CANADIAN AGRICULTURIST.

VOL. I. TORONTO, SEPTEMBER 1, 1849. No. 9.

PROVINCIAL AGRICULTURAL ASSOCIATION.

The time for holding the Annual Exhibition of this important Society being close at hand, we again call the attention of our readers to the subject. We are assured that the Executive Committee at Kingston are actively engaged in completing the arrangements, and that they are looking forward to the result with much hope and satisfaction. Ample accommodation will be provided both for visitors and stock, and for all other kinds of articles sent for exhibition. The public may therefore depend that proper care will be taken of whatever is entered for competition. A guarantee has been given the Committee, by the various owners of boarding houses and hotels in Kingston and its vicinity, that only ordinary rates for board and lodging shall be charged. We likewise learn that arrangements have been made with the proprietors of the various steamboats on the lake, river and the Bay of Quinte, to convey passengers, stock and all articles intended for exhibition, both to and from the Show, at one half the usual rates.

In the premium list we notice some additions to those of previous years: Ayrshire Cattle are included, also a Foreign Department—which, although necessarily restricted, will be a means of increasing the Exhibition by considerable additions both from Lower Canada and the United States. From the latter, we expect to see a large number of its most distinguished agriculturists and mechanics. The presence of such eminent individuals in the walk of agricultural science as Professor Johnston, of the University of Durham (England), and Professor J. P. Norton, of Yale, Connecticut—both of whom have expressed their intention of attending—will be an additional means of attracting a great number to the Exhibition, which, there is good reason to hope, will this year far exceed anything of the kind that has hitherto taken place in this country.

We understand that the Governor-General intends to honour the Exhibition with his presence; and notwithstanding the political excitement and differences which unhappily obtain, we should hope that on an occasion like this, his Excellency will be received by the farmers of Canada with the proper respect due to a British Statesman and the Representative of the Sovereign.

We say, then, to the farmers and mechanics of Canada—to all, in short, who feel an interest in the improvement and well-being of their country—Rally round this most valuable institution, and show by your presence and support that you are prepared to take your assigned part in the onward movements of the age. In this noble and patriotic work, we hope to see men of all parties acting in harmony and with zeal; and we are sure that in the present unhappily excited state of the public mind, the opportunity which will be thus afforded of meeting on common ground, for the attainment of a common good, will be eagerly sought after by all who sincerely desire the peace and prosperity of the country. We hope to see the approaching Exhibition graced by the presence of a large number of our fair countrywomen, whose powerful and salutary influence could scarcely be devoted to a more important cause. And we likewise trust that all who take a part in its proceedings, will see the necessity of cultivating and expressing a *kindly and hopeful feeling*, in reference both to the present and future of Canada. As this is, so far as we know, the only Institution we have at all deserving the distinction of being designated national and free from party control, we believe that it may be made, by judicious management, not only conducive to the improvement of the industrial interests of the country, but also to exert a beneficial influence on public feeling and opinion. Bearing in mind, that the destinies of our country are, under Providence, in our own keeping, it behooves every man to cherish a deep and solemn sense of so high a responsibility; and we hope to hear the many hundreds that will gather around the festive board, on the approaching interesting occasion, sing with one heart and voice—GOD SAVE THE QUEEN.

EDITORS' NOTES.

On the 24th July, we set out on a tour through the Gore and Wellington Districts, on behalf of the Provincial Association; a few short observations in connection therewith may not be uninteresting to our readers.

It is stated, on another page, that one of the principal improvements now making in the Wellington district is the new macadamized road, in course of construction between Guelph and Dundas; and although the soil on a large portion of this line is not of the best quality, yet much of it appears susceptible of cultivation; and the direct communication thus opened up between Lake Ontario and Guelph, extending northwards till it ultimately reaches Owen's Sound, will be a certain means of increasing the wealth and facilitating the settlement of this large and important district. Good roads may be regarded as ranking among the great civilizers of mankind, and it is pleasing to see the improvements that are going on in this respect in different sections of this province.

We had the pleasure of inspecting a number of farms, many of them well-cultivated and abounding in good stock, particularly in the neighbourhood of Guelph. John Howitt, Esq., so well known as a successful breeder of the pure Durhams, we regret not having the opportunity of seeing, but we saw several fine specimens of his celebrated herd. His three-year-old bull is a remarkable animal, decidedly among the very best we have seen on this side the Atlantic. Mr. Jackson pointed out to us a rich and beautiful piece of land, consisting of some thirty acres, on the banks of the Speed, belonging to Mr. Howitt, which a few years since was a most forbidding cedar swamp. What a metamorphosis does man's industry produce on the roughest and apparently the least promising portions of the earth's surface! How altered will be the appearance of this country when thoroughly subjected to the dominion of man! In the case just instanced, the whole expense of reclaiming, including under-draining, did not, we understand, exceed seven pounds an acre. Although this is an outlay, in the present early history of the country, that cannot be made on a large scale, yet the time will come, in the progress of population and civilization, when many parts of this country will vie with some of the fairest portions of the old world, both in beauty and fertility. Our soil only awaits the skill and labour of man to open up her immense latent resources.

We had the gratification of spending a day with Mr. H. Parsons, near Guelph, and of inspecting his dairy, which Mrs. P. seems to take a delight in conducting on a uniform system, based on correct modern principles. Mr. Parsons' cheese, of the *Stilton* variety, is, as many of our readers well know, from the most gratifying of all tests, that of tasting, of a very superior quality, commanding a high price, and showing beyond all controversy that the soil and climate of many parts of this country are well adapted to the purposes of the dairy. Mr. Parsons keeps a considerable number of pigs, of the small Sussex breed, which come early to maturity, and with proper feeding and management produce bacon and hams of a fine grain and of delicious flavour, particularly suited to family use. We afterwards saw the large Yorkshire breed, introduced by John Harland, Esq., the intelligent and zealous Secretary of the Wellington Agricultural Society, with whom we had the pleasure of spending several hours on his farm, which would give an old countryman a correct idea of what can be done in Canada. The tall forest, where the land is rich and devoid of pine, is changed in some ten or twelve years into waving corn fields and rich pastures, without the disfigurement of a single stump! Mr. Harland possesses a very fine pure bred Durham bull, of large dimensions. Indeed, the stock of this district, as a whole, including both sheep and pigs, is superior to what we have seen any where besides. It is also gratifying to find so many old country farmers giving proofs that they have not forgotten the principles of the agricultural art, as it is practised with such signal success at home.

July 28. We attended a meeting of the directors of the Wellington District Agricultural Society, in Guelph, the president, Colonel Saunders, in the chair. Although the directors did not feel justified in making a grant to the Provincial Association, from the sentiments that had been expressed at a former meeting by several of the members, yet they would exert themselves to procure individual subscribers, and expressed their conviction of the importance and value of the Provincial Association to the country at large, and their best wishes for its continued usefulness and prosperity. The warden, James Wright, Esq., observed that the Provincial Association ought to be regarded in the light of a parent society, the centre, to which all the different agricultural societies in the province should tend, and the depository of all that is worth recording and communicating in relation to the great interests of agriculture and native in-

dustry. Mr. Wright moved and Mr. Greet seconded the following resolution, which was carried unanimously:

"That it is the opinion of the directors assembled this day, that the Provincial Association is capable of affording considerable information to the several agricultural societies in the province, as well as to contribute to the improvement of stock and the cultivation of the soil; and therefore they highly approve of the formation of the said society, and hope that at a future period the Wellington District Society will be induced to aid the Provincial Association in sustaining its valuable and important operations."

July 30. We had the pleasure of observing the extensive farming operations of David Christie, Esq., of Dumfries. It was indeed a gratifying spectacle to witness, at this busy season of the year, fields varying in size from fifty to one and two hundred acres each, waving with the golden grain, promising a return of 25 to upwards of 30 bushels of wheat per acre; land almost without a stump, beautifully undulating, of a free texture, yet possessing naturally a happy combination of all the essential elements of a fertile soil. In looking at Mr. Christie's extensive improvements, we were reminded that some dozen years ago those beautiful and productive fields were a part of the unbroken forest! Now, the country all around is well settled with an industrious and prosperous population, and forms the greatest wheat growing district in Canada. The wheat is stacked in the field, and afterwards thrashed, during the leisure of autumn or winter, by a machine in the open air; a dozen or more ricks being commonly seen in a single field. People were in the midst of harvest operations, and the wheat crop may safely be pronounced a full average. That insidious enemy to this, the most valuable of the farmer's crops, the *rust*, had in some instances been injurious to the grain, but not, we believe, upon the whole, to any alarming extent. We cannot refrain from mentioning the following incident, as it struck us with all the force of novelty, so different to all our associations connected with the joyous season of harvest at home. While going in search of Mr. Christie, and the shades of evening rapidly approaching, we met him in a wheat field consisting of 200 acres, seated in a cart by the side of an indian chief, followed by upwards of twenty indians, dressed in their usual costume, with their scythes, rakes, &c., returning from the scene of their labors. This was indeed a novel sight to us, and strongly reminded us of that cheering portion of holy writ, in which the time is shadowed forth when the weapons of warfare shall be transformed into those of husbandry, and the nations of the earth learn war no more. Mr. Christie informed us that he preferred the red men to the white for harvest work; that they were very orderly and honest, although in this instance they were heathens. It is humiliating to reflect that these contented children of the forest should favorably compare in several essential points of morality with many of a more favored race. The destructive vice of intoxication is one of the chief hindrances to man's social and moral progression. We found that Mr. Christie was careful not to allow intoxicating drink to his work-people, red or white; and without pledging ourselves to extreme views upon this question, we think it to be one of the first duties of every good member of society, of every well wisher of his own race, to use his utmost influence in promoting temperance and sobriety.

July 31. We enjoyed the gratification of spending a day with Henry Moyle, Esq., of the Sheepwalk, near Brantford, a gentleman of long and extensive experience, and so favorably known as an extensive agriculturist, both here and in England. Mr. Moyle's estate has a very neat and picturesque appearance, the pastures forcibly reminding us of some of the best grazing districts in the old country. It is surprising how soon a farm upon the "oak openings," as these soils are termed, can, by a judicious application of labor, be thoroughly cleared up and made to produce abundant crops, and assume the aspect of an old settled farm. Not being heavily timbered, clearing is comparatively cheap and easy; while the soil is such, in the original combination of its constituents (except where sand unduly predominates) as to ensure by good management a profitable return. Sheep should form a prominent feature in the farming of these soils; and we must content ourselves by referring the reader to a valuable paper, which appeared in our January number, from the pen of Mr. Moyle. His flock consists of the Leicester (the Bakewell variety), producing a good fleece and heavy carcass, having an aptitude to fatten and early maturity, as some fine specimens of fat wethers testify, that we have seen on the shambles in the Toronto market.

We had an opportunity of just calling on Allen Good, Esq., the President of the Gore District Agricultural Society. Mr. Good was getting in his wheat, and pointed out to us those portions that had been sown broadcast and others that were drilled. Little or no difference appeared in the result. But we think a single experiment of

this kind not sufficient to justify a general conclusion. Taking a number of experiments together, made in different years and on different soils, and of course subjected to varying seasons, we are strongly inclined to think that the drill method of sowing, all other circumstances being equal, will prove the most economical and successful in the ultimate result. *Experience* is certainly in favor of drilling.

The Messrs. Allchin, of Paris, rake and snathe manufacturers, have recently brought out an improved chaff-cutter, on a principle very similar to what we have seen in some parts of the States. No farmer ought to be without such an implement, and we think the one just mentioned both economical and efficient. We afterwards went over the extensive works of P. C. Van Brooklin & Co., at Brantford, a firm well known for the excellent quality of the articles it turns out. We found most kinds of agricultural implements manufactured here; and a considerable improvement has been very recently made in their threshing machines, diminishing the motive power, whilst increasing the result. These machines, in their present improved state, appear to us the best we have seen. We trust that both these firms will send to the approaching exhibition, at Kingston, several specimens of the articles they manufacture. In this way may both manufacturers and farmers be mutually benefited.

Want of space forbids any lengthened observations on what we saw and admired in the Niagara District. The scenery in several parts is delightful; the farms generally well cleared and cultivated, and a bountiful harvest had just been gathered in. Fruit, for which the district is much celebrated, is this year but indifferent, except cherries, and some kinds of plums; the peach crop will be almost a failure. We heard here, as in many other parts of the country, much complaint among the managers of agricultural societies of the apathy of many of the farmers, and the want of active support which it is both their duty and interest to render. Truly all attempts at improvement are attended with difficulties; and the energetic promoters of agriculture should not relax their efforts in a cause which both nature and man's necessities have pointed out as progressive.

Before closing these imperfect and hasty observations, we must take a passing glance at some things we saw on the farm of W. H. Dickson, Esq., M.P.P., of Niagara. Our time, we regret, was very short, but sufficient to convince us that Mr. Dickson possesses some very fine stock, well worthy the attention of such farmers—and we wish they were more numerous—as desire to improve in this important department. We may just instance a span of pure blood horses of superior merit; some good specimens of Ayrshire cattle; Durhams excellent; sheep of the Leicester breed, very good and apparently pure. What struck our attention most was a young Durham bull, two years and a half old, of beautiful proportions and in a most thriving condition. If this animal should continue as it advances to full maturity the harmonious development of its present many excellent points, it will certainly rank among the first on this continent. His dam was *Princess*, a pure and superior animal, and his sire the well-known *Wellington*, the property of John Wetenhall, Esq. Mr. Dickson, we hope, will send several specimens of his stock to the Kingston Exhibition, when our readers may judge for themselves of the correctness of our remarks. It is much to be regretted that our farmers generally do not appreciate the labours of the few enterprising breeders we have among us. The attention and expense required in procuring and sustaining improved breeds, are by the generality of farmers but very imperfectly understood.

HIGHLAND & AGRICULTURAL SOCIETY OF SCOTLAND.

The half yearly meeting of this very useful and long established society was held in the hall, Albyn Place, Edinburgh, July 23rd. The president, the Duke of Roxburgh, K.T., occupied the chair. We glean the following facts from an elaborate report of one of our exchanges, "*The Scottish Agricultural Journal*," an exceedingly well conducted weekly paper, published in Edinburgh.

After the disposal of some preliminary business, brought before the meeting by Mr. Hall Maxwell, the secretary, the annual report of the *Veterinary College*, which has been for a number of years connected with the society, and under the very able management of Professor Dick, was presented and received. The institution continues very prosperous, nineteen students having graduated and received diplomas during the last year. The diploma was eagerly sought for as a distinction by veterinary students, and was recognized by the Horse Guards and East India Company as a qualification for employment in their service.

The secretary reported that successful arrangements were in progress for holding a show in the

summer of 1850, at Glasgow; the one for this year appears to be suspended for want of sufficient support. Professor Low made a powerful appeal for aid, and most convincingly pointed out the great advantages of this venerable society, which has done so much, not only for the agriculture of Scotland, but of the whole empire, nay, of the civilized world. There now appears good ground for hoping that the society will be able to continue for the future its usual annual exhibition.

Chemical Department.—The Highland Society has now incorporated with it a chemical laboratory for experimental purposes. A distinct society previously existed, under the superintendence of Professor Johnston, who has resigned. Dr. Anderson is now the chemist of the Agricultural Society; he commenced his duties last January, since which about 100 analyses of manures, soils, &c., had been made for different applicants. Several of the most intelligent farmers are lending their aid to the chemist, in carrying on his enquiries and experiments, so that a *practical* character may as much as possible be given to this important department. Turnips grown with guano were generally thought inferior for feeding purposes to those grown with farm yard manure. Arrangements were making to bring this matter to a final decision. They were also engaged with a series of analysis of different sorts of grains, oil cakes, and other species of cattle-food, for the purpose of drawing up a table of their comparative values, so that the farmer may, when the prices of home produce are low, be able at once to employ the produce of his own farm, in place of selling it and buying foreign oil-cake, or other similar food. It was likewise proposed to ascertain, by careful experiments, the different feeding values of turnips grown on different soils and altitudes. The composition of the principal soils of Scotland it was desirable to ascertain, with a view of assisting practice and fixing on the actual characters and constitution of a really good soil. They will at first limit their investigations to wheat soils, the necessary arrangements for which are perfected. Mr. Dickson, Laughton Mains, had agreed to grow wheat for a succession of years in the same field, during the whole of which time a series of analysis of the soil and produce would be made at definite intervals, along with such experiments as might appear desirable. Mr. Finnie, of Swanston, stated a number of facts, showing the valuable aid chemistry had rendered to practical agriculture, particularly in artificial manures, either in detecting adulterations, or pointing out substances hitherto regarded of little worth, but really possessing high fertilizing or feeding properties. Honourable mention was made of the value of Professor Johnston's services.

Supplementary Charter.—An effort has been made to enable this society to establish a sort of college for agricultural youth, with a power of issuing diplomas of the nature of degrees, but as yet without success. The directors, however, resolved to persevere.

Potato Disease in the Highlands.—The secretary observed that it having been reported that the potato blight had re-appeared in the Western Highlands, a month earlier and with greater virulence than in former seasons, he had communicated with a number of well informed gentlemen resident in that part of the country, who had the most ample opportunities of observation, and who assured him that not only had there been no disease, but that the potatoes were looking well, having overcome the effects of the late severe frosts.

We copy from the *Cobourg Star* the following announcement, with much pleasure. It refers to a subject of vital importance to the interests of this country, and His Excellency deserves the best thanks of all classes of our fellow-subjects for his discriminating and liberal offer. We hope it will be the means of calling forth an essay alike worthy of the noble donor and the importance of the theme.

LORD ELGIN AND THE PROVINCIAL AGRICULTURAL ASSOCIATION.—A PRIZE OF £50.

The President of the Agricultural Association of Canada West, has requested us to announce to the public the offer of his Excellency Lord Elgin, of a prize of FIFTY POUNDS for the best treatise on the bearing of the St. Lawrence and Welland Canals on the interests of Canada, as an agricultural country.

Competitors will send their treatises on or before the first day of February, 1850, to the office of the Governor's Secretary. Each treatise to be headed by a motto, and accompanied by a sealed letter endorsed by the same motto, containing the name and address of the writer. The letters will not be opened until the prize shall have been awarded.

It is his Excellency's intention to request the Council of the Association to name two gentlemen to act as Judges, to whom his Excellency will add a third.

As it is his Excellency's desire that *practical information*, on a subject deeply affecting their interests, should be presented in clear language, and an accessible form to the farmers of Canada, through the medium of the prize, he trusts that competitors, in framing their treatises, and the

Judges in pronouncing their award, will keep this object in view.

We conceive Lord Elgin to be most happy in his selection of a subject for a prize. The question of canals in relation to an agricultural country is but little understood, yet it is a question of all others, situated as we are, that should be thoroughly comprehended by every body. We have no doubt that the handsome sum given by his Excellency will cause such a treatise to be laid before the public as will convey to them the required information.

ANNUAL EXHIBITION OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

The cattle show and exhibition of implements, under the auspices of this important society, took place this year, at Norwich, during the third week of July. From the accounts which have reached us, we are led to conclude that the recent exhibition has in no essential points been inferior to its predecessors, and in some departments, particularly in the number of agricultural implements and machines, it appears to have been superior to any previous shows.

The show yards were placed at a distance of two miles to the south of the city, on a level space well adapted for the purpose, and commanding a wide prospect of the surrounding country. They cover the immense extent of 11 acres, and, being symmetrically arranged in parallel sheds, and approached through a long avenue of booths erected to provide every variety of refreshment and amusement for visitors: the effect produced by such a vast encampment is not unsuitable to the idea of a great Agricultural Fete Champetre. From year to year, the implement yard has shown a remarkable increase, and from the following table it will be seen that in this department the society has shown far stronger and more vigorous signs of vitality than in that of stock:

Year of Meeting.	*Locality.*	*Entries of Stock.*	*Entries of Implements.*
1839	Oxford	249	23
1840	Cambridge	352	36
1841	Liverpool	319	312
1842	Bristol	510	445
1843	Derby	730	508
1844	Southampton	575	948
1845	Shrewsbury	437	942
1846	Newcastle	613	785
1847	Northampton	459	1.321
1848	York	724	1.508

The immense number of implements which have been exhibited for the last few years, the large space which they necessarily occupy, and the expense which the society incurs in providing room for them, has attracted to this subject not only the serious attention of the council, but of all the friends of agricultural improvement. It has been observed that at each succeeding exhibition this department degenerates more and more from the character of an "exposition," and approaches to that of a bazaar. The great implement makers, encouraged by the facilities of carriage afforded them, send an overflowing number of articles, and fill the sheds of the yard with a dreadful array of scarifiers, clod-crushers, pulverizers, and other instruments, not more formidable in name than in appearance. Not content with one specimen of each kind, they have perhaps two or three of different sizes, and with some slight variation in structure to make them admissible. The idea of exhibiting new inventions or the best forms of indispensable implements—an idea absolutely necessary to be kept strictly in view where prizes are awarded—is of course lost sight of. The humble but ingenious mechanist sees his little stall overwhelmed by a wholesale array of articles beside it; and the great manufacturer has reason to complain that, having gone to a large expense, and done all in his power to extend the taste for the application of mechanical skill to the operations of husbandry, he is rewarded with a few paltry medals, and the empty honour of a public exhibition, necessarily excluding that test of practical experience by which alone the substantial support of the farming interest can be won. In this state of things many of the most influential implement makers ask for the society to do away with its prizes, and to allow them to exhibit their manufactures to the public in such a manner that they may be seen in operation, and that ample time may be given for the inspection. The society, on the other hand, are anxious to adhere to the old system, and perceiving that the implement yard is outgrowing their means of accommodation, they are anxious to impose a ground charge on exhibitors, to require from them a plan of the mode in which they intend furnishing their stalls, and to adopt such other checks as may be necessary to meet the evils of the present system. How the question will be decided it is at present impossible to say, but the permanent interests of the society and of agricultural improvement generally are largely involved in the prompt determination of it.

Of the great show of implements at this meeting, it may be truly said that a more important collection of agricultural machines never before was assembled together in one yard. It is true that there are perhaps fewer novelties than usual, but there are much fewer absurdities—far less indications of desperate attempts to realise crude and worthless ideas. Then, again, the workmanship displayed is of a very improving order, a result which is pretty clearly to be attributed to the great influence exerted by the meetings of this society in exciting the exertions of the implement makers on the one hand, and inducing the patronage of the farmer on the other. As the reporters of the show of implements at Liverpool very correctly remarked, (*Journal of the Royal Agricultural Society*, vol. ii. p. 103,) when tracing the connection between the advance of the implement makers' skill with the country meetings of this society:—"At their first, or Oxford meeting, there were some examples of good machinery and workmanship, but many more of rude, cumbrous, and ill-executed implements. At Liverpool, many machines were exhibited, not only of surpassing

skill in contrivance and execution, but also having for their object the effecting of processes in tillage husbandry, of the most refined nature and acknowledged importance, but hitherto considered of very difficult practical attainment. Some of these may already be considered as forming part of the necessary apparatus of every well-managed farm, and to be essential to its economy and profit. This vast stride in the mechanics of agriculture, made within so short a period, has doubtless arisen from the congregating together of agriculturists and mechanicians from all parts of the empire, and a still higher perfection in machinery, may be confidently anticipated, from the opportunity offered under the auspices of the society, of periodically contrasting, and estimating the merits of varied implements used for similar purposes in different localities and soils. It is apparent that the manufacture of even the commoner instruments has already, to a great extent, passed out of the hands of the village plough-wright and hedge carpenter, and been transferred to makers possessed of greater intelligence, skill and capital. The improved style of finish, the greater lightness and elegance of construction, and the generally superior adaptation of the means to the end, in every class of implements, which distinguishes the implements of the present meeting, were sufficient manifestations of the beneficial results arising from the encouragement given by the society to these objects." Large in number as are the implements at the Norwich meeting, they would have been still more so had not even the large dimensions of the show yard proved insufficient, by one third, to supply the extent of ground for which the implement makers applied.

The principal day for the cattle show was Thursday, and the yard was crowded.

The short-horned bulls formed a most striking portion of the show—most majestic brutes they were, certainly, with their vast necks, deep chests, and huge square flanks. None of them either—and the remark is general—appeared to be over fed. There were no mere lumps of living tallow supported on four legs, which appeared hardly able to bear their unwieldy burdens; on the contrary, the animals appeared to be in the highest condition in the best sense of the word, that is to say, in that condition developing to the full their muscular powers, and the peculiar characteristics which mark their separate breeds. The bull which carried off the first prize will bear it to the other side of the Tweed. He is a splendid fellow, milk white; his coat glancing like that of a racer, and showing a perfect development of the highest points of his kind. He was bred by the Duke of Buccleuch. The young short horn bulls did not make a good appearance, and carried off no prizes. The Devon bulls, that fat dappled race, were well represented by the winner of the first prize, a prodigious animal bred by Mr. Quartley, of Devon. The Herefords were ranged not far from the Devons, and it was highly interesting to remark the peculiarities of the two breeds—the characteristic round outlines of the former, and the square proportions of the latter. The prize for the best Hereford bull was awarded to a fine white-faced animal of splendid proportions and development, bred by Mr. Price, of Hereford. A Gloucestershire beast was adjudged the next best.

The cows did not appear as exhibiting such fine specimens of perfect breeding as did their male kindred. However, they turned out some capital beasts of their class, and it was pleasant, after the eye had become familiarised with the gruff and grizzled physiognomies of their majesties the bulls, to turn from them to the softer and milder, although, perhaps, less intelligent looking faces, of the "milky mothers." There were several of the cows which attracted much attention, and in general their small expressive heads and well-moulded forms were good specimens of that vaccine (if there be such a word) and pastoral species of grace, which is a frequent characteristic of the animal in question.

Two very fine specimens of the grey and dun coloured Italian bulls came amongst the extra stock. The mass of jolly farmers who surrounded them treated the poor foreigners with great neglect, but, to an untechnical eye, they were amongst the most interesting beasts in the show. They belong to the old Roman breed, such animals, perhaps, as Virgil saw in his Mantuan meadows, and Horace had yoked to the plough which turned up the Sabine farm. Apart from all classic associations, however, the animals were graceful and majestic beasts in themselves, far more picturesque and *deery* in outline and appearance than their heavy square-built Saxon compeers. The spread of their horns was magnificent.

The show of stallions was very fine. There were stallions for dray purposes, huge animals, perfect giants in bulk of limb and swell of muscle; stallions for agricultural purposes, of a lighter and less muscular class—and roadster stallions, compact, high-spirited brutes, uniting pace with strength, and docile beauty of appearance with muscular energy. The dray stallion which won the first prize was a most elephantine-looking brute, bred by Mr. Gleanes, of St. Neots. The 30*l.* prize for a stallion for agricultural purposes, was awarded to the specimen sent by Mr. Coulson, jun., of Norfolk—a stately creature—of great thew and sinew.

Near the stallions were ranged the mares and foals—a class of stock, which, as a body, received the unanimous though not official commendation of the judges. Of course these animals did not possess, to the unskilled in horse flesh, the attractive appearance of the stallions; but they were very interesting, with their rough, unkept colts by their sides. Mr. Thomas Catlin, of Butley, exhibited a beautiful mare of the class intended "for agricultural purposes," and carried off the highest prize in this department.

As regards the sheep, the shearling Southdowns received the unanimous commendation of the judges. The pens in general presented exquisite specimens of the different breeds of the animal, and altogether this department of the show appeared to be very equal and highly creditable to the breeders. In general, the animals were in

beautiful condition—as plump as partridges, without being so fat as to destroy what little symmetry the somewhat vulgar-looking *contour* of the sheep presents. When you pressed their fat flanks with the hand, the sensation was as though you were squeezing a spring cushion. The fleeces of many of the long-woolled kind were literally as white as snow, and the breadth of back which the Leicesters exhibited, as they rolled luxuriously upon their straw bedding, was somewhat remarkable. The high condition both in fleece and flesh of the "woolly people" could not but be apparent even to the most superficial observer.

It is due to the society, to the judges, and to the agriculturists of the eastern counties, to state, that at this exhibition the rage for stock, fattened till they were fit only for the tallow chandlers' melting tubs, has been entirely extinguished. Overfeeding, with all its painful and disgusting consequences, does not, at least as far as cattle are concerned, exist in this district. The stock exhibited is in excellent condition, and nothing more, and it would really appear as if there was some prospect that the encouragement of the society would now be permanently given to the production of the best breeds. The eastern counties have in times past been principally a feeding rather than a breeding district, and therefore the exemption of this from the great blemish of former exhibitions is the more creditable to them. To this district, tempted by the vast supplies of turnip and other artificial food, vast quantities of the lean stock of Scotland and England have been drawn; and from this, when in good condition, they are transported in extraordinary quantities, by the railway to London and the other great markets of the kingdom. Latterly, considerable efforts have been made to introduce throughout the eastern counties the purest breeds both of sheep and cattle, and a glance at the names of the most successful candidates in the list of prizes, will satisfactorily show that the matter is in good hands.

The display is upon the whole equal, if not superior, to that of any former meeting. There never has been an exhibition of the society in which all the classes of stock have come out so strongly, although there may have been occasions on which particular classes have shown greater excellence and been present in larger numbers. In no department was the show of a decidedly inferior character, and in nearly every one the animals were of extraordinary beauty, size, and purity of breed.

Both the council and pavillion dinners were as usual numerously attended. The Earl of Chichester, the president of the society, occupied the chair. We notice, among the numerous visitors and distinguished personages, the names of the Duke of Cambridge, and that zealous patron of agriculture the Duke of Richmond, the Bishop of Norwich and a number of the clergy, including those two eminent geologists, the Dean of Westminster, Dr. Buckland, and Professor Sedgwick of Cambridge, whose eloquent and instructive speech we could like, had we room, to transfer to our pages. It must have been a truly gratifying spectacle to every real lover of his country, to witness, as on this great occasion, so large an amount of rank and talent arrayed in the noble cause of agriculture.

We are indebted to the *Norfolk News* for the following report of the Rev. E. Sidney's lecture to the members of the Royal English Agricultural Society, at their recent annual meeting at Norwich.

REV. E. SIDNEY'S LECTURE ON THE PARISITIC FUNGI OF THE BRITISH FARM.

This lecture was delivered on Wednesday afternoon, to a numerous and attentive audience. From the far too-extensive field selected by the lecturer for the subject of a single lecture, it, of necessity, was sketchy in its nature and rapid in its transitions. Some of our readers, not intimately acquainted with this class of the diseases of corn crops, and as little aware of the ravages they commit, will very naturally ask what are fungi? This very question Mr. Sidney undertook, some years since, to answer in a little work "On the Blights of Wheat and their Remedies," published by the Religious Tract Society. "Fungi," he said, "belong, botanically speaking, to the class of *thallogens*, of which there are three alliances well described in Lindley's Vegetable Kingdom. These alliances are *algæ*, *fungi*, and *lichens*. The first live in water, or very moist places; the last two live in air. Between fungi and lichens the chief distinction is, that fungi are never accompanied by any of those curious green *gonidia*, or separated cellules of the medullary layer of the thallus, which, as well as their spores or seeds, form reproductive matter in lichens. Suppose then, the question asked, What is a fungus? The answer is, it is a cellular, flowerless plant, deriving its nutriment by means of a *thallus*, to which the name has been given of *mycelium*, or *spawn*; it lives in air, and is propagated by *spores*, which are naked, or by *sporidia*, so called when inclosed in *asci*, or little vesicles. The way in which these spores germinate, generally speaking, is by a protusion of the inner membrane, or an elongation of the outer, thus lengthening out its spawn. This is the usual or normal mode: but, as will be hereafter seen, apparently not the only one, for we shall have to describe another method of germination in the case of certain parisitic fungi belonging to our subject. The term sporule will also occur, by which we mean the fine contents of the seeds of the fungi. We shall see, in the course of the work, that these fine contents appear to circulate in plants, and grow. Fungi may be said to consist of a mass of little cells, or little threads, or of both combined in various ways. They have no fructification except their spores, or sporidia, of which the methods of attachment are singularly curious and beautiful. In their respiratory functions they approach to the peculiarity of animal rather than vegetable life, for they absorb oxygen and exhale carbonic acid gas. Like flesh, they contain a great quantity of nitrogen; and the substance called *fungine*, extracted from them by the chemist, bears a near resemblance to animal matter. They derive their nourishment from the substances on which they grow, and not, as is the case with the lichens and algæ, from the media in which they exist. The juices impregnated with the peculiar principles of the matter to which any particular fungus is attached, form its appropriate food."

The importance of these fungi, and the loss that followed to the farmer, some time since attracted the attention of Professor Henslow. His description of those minute yet extensive varieties, which too often tenant the wheat plant, was given with his usual clearness (*Journal of the Royal Agricultural Society*, vol. 2, p. 1.) and will well illustrate the observations of the Rev. Edwin Sidney, on the present occasion:

"All fungi, be it remarked, grow upon some kind of organized matter, none of them deriving their nutriment directly from the soil, water, or the atmosphere, like other plants. They are of great importance in the economy of nature, by assisting in the decomposition of decaying or decayed animal and vegetable substances. A few of them appear to grow upon healthy subjects, but these may possibly most frequently have originated on a part where disease or decay had already effected some alteration in the tissue; and then, by spreading rapidly from thence, they may afterwards occasion the decay of other parts also. None of this tribe of plants attain to any great size, when we compare them with many species of flowering plants, or even with many of those of other neighbouring tribes, (as the ferns, &c.) which never flower. Among fungi we find a multitude of extremely minute species, which it needs the skill of an experienced microscopic observer to detect and examine; and it is also among the very lowest of the several groups, into which these minute fungi are classed, that we must search for the few species that produce the fatal diseases in corn we are about to notice. But if these fungi are themselves so exceedingly small, how much more so are those reproductive bodies, analogous to the seeds of flowering plants, by which they are propagated and multiplied! So very minute are these sporules (as botanists term them) that they altogether escape observation by the naked eye, and can only be just distinguished by the highest powers of the microscope. Many of these kind of fungi live beneath the scarf-skin, or epidermis, and within the very substance of certain plants. In the progress of their growth, they raise blisters under the epidermis, and, when arrived at maturity, they burst through it, and then form spots or irregular blotches of various colours, which are frequently orange, brown, or black. These spots (or *spori*) are masses of fructification, and are surrounded by the tattered edges of the ruptured epidermis. A vast number of these fungi are known to botanists. Like parisitic animals, they are restricted in their powers of attack, being able to live on certain species only, and even on particular parts only of particular individuals of these species. There is often a strong general resemblance between many of them; but a naturalist will readily detect such important differences between two fungi which may infest distinct species of plants, that he is compelled to consider them also as species distinct from each other. Thus it happens in the animal kingdom, that different species of flea, and different species of lice, can exist only on particular species of quadrupeds or birds. The flea which infests dogs is distinct from that which annoys man. So also with these parisitic fungi; some are restricted to one species of plant, some to another; but, generally speaking, most of them are capable of living upon more than one species of the same genus; where, of course, we might expect the resemblance in all points to be very close. Some fungi confine their attacks to the seed, others to the stem or leaves, and some even to one side only of the leaves. One of those which attack wheat live only on the grain, another more particularly attacks the short stalk (*pedicel*) on which each flower is seated, whilst three of which we are about to speak are restricted to the straw, chaff, and leaves; but all five live at first beneath the epidermis, and not upon it. In this respect, they bear a close analogy to those parasitic animals which live within the bodies of other animals, some immediately beneath the skin, others in the intestines, and others again within the very substance of the muscle. It is the extraordinary minuteness of the sporules (or seed-like bodies) of these fungi, which allows of their being absorbed by the roots, and probably also through the pores of the stem and leaves of plants; and then they are conveyed by the sap to the various parts where they are enabled to germinate, grow, and fructify. The sporules of fungi appear to be everywhere dispersed through the atmosphere, ready to germinate wherever they may find a dead or living subject in a condition suited to their attack. Common mouldiness, for instance, which so readily forms on many substances in moist situations, is the most familiar example of the inconceivable numbers in which the sporules of a minute fungus are everywhere diffused. The difficulty of admitting such a universal dispersion of these sporules, has induced some modern philosophers to support the old exploded theory of spontaneous generation. Of this theory, however, we may safely assert, in the present state of human knowledge, that it involves difficulties an hundred fold more inexplicable than any which attend on the opposed theory, which teaches us that all living creatures proceed from similarly organized beings, originally called into existence at the fiat of the Almighty. We shall therefore consider these minute fungi to be plants, which have proceeded from, and are capable of reproducing, their kind by means of those minute sporules, with which direct observation has made us well acquainted."

It is only of the *general remarks* of which the lecture was chiefly composed, that we have been able to avail ourselves. These were valuable and instructive, and, although with the exception of the prevention of the smut in wheat, scientific researches have not yet enabled us to ward off the attacks of these fungi, yet, it is very probable that much in this way will be hereafter accomplished. For as the Professor remarked, when speaking of *the Bunt, Smut Balls, or Pepperbrand*—"The fungus which occasions this well known and much dreaded disease has hitherto been met with only in the grains of wheat. Its presence is readily recognized by the peculiarly disgusting odour of the infected ear. It may be detected in the young seed, even in the very earliest state of the flower bud; and when fully ripe it most frequently occupying the whole interior of the grain, but without bursting the skin, so that the wheat seed retains very nearly the same size and shape that it would have assumed had it been perfectly sound. When examined under the microscope, the Bunt-fungus is seen to consist of vast numbers of extremely minute globules, of a dark colour, and which are at first attached to a mass of matted thread-like matter, analagous to what is termed the spawn in mushrooms, and other Agarics—and which in those plants spreads underground, and frequently occasions the remarkable appearances called fairy-rings. It is not easy to see this spawn of the Bunt-fungus, but the little dark globules, called spores, may readily be detected. They may be considered analagous to the seed-vessels of flowering plants, and each of them contains a mass of almost inconceivably minute sporules by means of which the plant is propagated.

"The reproductive powers of fungi are quite beyond our comprehension. Fries, one of our greatest authorities, has calculated that a particular fungus may contain 10,000,000 sporida. The terms *sporæ*, *sporulæ*, *sporidia*, &c., have either been applied synonymously or vaguely by different authors. The more modern practice appears to be, to use *sporulæ* for the ultimate granules analagous to seeds; *sporidia* for the cases or vessels containing them; and *sporæ* for an additional covering, which sometimes includes several *sporidia*.

Mr. Bauer has accurately measured the spores of the present species, and finds their diameter is not more than one sixteen-hundredth of an inch. A single grain of wheat (estimated at less than the one-thousandth of a cubic inch) would therefore contain more than 4,000,000 such spores; but it is hardly possible to conjecture how many sporules each spore contains, since they are scarcely distinguishable under very high powers of the microscope, and then appear only as a faint cloud or vapour, whilst they are escaping from the ruptured spores.

"When this disease prevails, it greatly deteriorates the value of the sample; imparting its disgusting odour to the flour, it makes it less fit for bread; but I understand that ready purchasers are to be found among the venders of gingerbread, who have discovered that the reacle, and whatever else they mix up with it, effectually disguises the odour of the fungus; if this in itself is really innoxious, there can be no objection to such a mode of employing the tainted flour; but some are of opinion that it is to a certain extent deleterious. Although the Bunt-fungus confines its attacks to a young seed, it seems to be a condition essential to its propagation, that it should be introduced into the plant during the early stages of its growth, and that its sporules are most readily absorbed by the root during the germination of the seed from which the plant has sprung. It has been clearly proved that wheat-plants may be easily infected and the disease thus propagated, by simply rubbing the seeds before they are sown, with the black powder, or spores, of the fungus. It is also as clearly ascertained, that if seeds thus tainted be thoroughly cleansed, the plants raised from them will not be infected. This fact is now so well established, that the practice of washing or steeping seed-wheat in certain solutions, almost universally prevails. Upon simply immersing the grain in water, the infected seeds float, and on the water being poured off, nothing but the sound ones remain in the vessel. This simple process, however, is never perfectly effective, because, in threshing the wheat, many of the infected grains (smut balls) are crushed, and the spores are dispersed in the form of a fine powder, which adheres with considerable obstinacy to the surface of the sound grains, by means of an oily or greasy matter found in the fungi. In order to detach them thoroughly, it has been considered useful to add some alkaline ley to the water in which they are washed; because oil and alkali unite and form a soapy substance, and then the spores will no longer adhere to the surface of the grains of wheat. Lime, possessing alkaline qualities, has been long employed for the purpose. Common potash, and substances containing ammonia, as the liquid portion of stable manure, have also been used. But as some persons employ brine, sulphate of copper, arsenic, and a variety of other materials which do not possess alkaline properties, it is supposed that all these solutions act rather by destroying the vegetative properties of the fungi, than as a means of removing them from the surface of the grains. It may, therefore, be worth while to institute a set of experiments to determine which supposition is really correct. Perhaps some portion of the effect may be owing to the increased specific gravity of the liquid; or perhaps some portion of the solution may be imbibed by the steeped corn, sufficient to prevent the sporules of the fungus from germinating within the substance of the plant; just as corrosive sublimate, essential oils, and Russia leather prevent the formation of mouldiness. I may also add, that the temperature at which the solutions are applied may be of some importance."

To a minute fungus, then, is owing the bunt or smut balls so well known to the farmer—from another arises the smut or dust brand (often confounded with the last described)—to another the rust, or red gum—to a fourth the mildew. It is of the first importance that the nature of these ravaging diseases of corn plants should be well and generally understood, since it is one great step to their prevention or cure, to understand their nature and the laws by which their production is governed. In the case of the smut, we all know that the precaution of the farmers, by means of various steeps, have very materially reduced its ravages. Even in the case of the mildew in wheat, the late Rev. Edmond Cartwright successfully conducted some experiments, which proved that even that formidable disease might be successfully *cured* by merely sprinkling the diseased plants with a weak solution of common salt. It is, therefore, a very insufficient reason for delaying our examinations of these fungi, that they produce diseases which we cannot at present completely cure.

Mr. Sidney commenced his lecture (which to render it intelligible required very numerous diagrams, in consequence of the absence of which from our columns, our report must be brief,) by stating that he had no common satisfaction in addressing an audience in a county, where, for many years, his humble efforts, made long before similar exertions had become general, had been so favourably received and kindly acknowledged by all classes of persons. He would, however, indulge himself by no further preface, but would proceed at once to the task which he had cheerfully undertaken. He should endeavour to describe, in simple, popular language, the nature and habits, and, as far as he could, the preventive or palliative of the principal parasitic fungi of the British farm. Mr. Sidney then enumerated several types of the fungus, and afterwards proceeded to say—so numerous are the seeds, spores, or sporules of the fungus, that it is not easy to conceive any place from which they are excluded. Those which grow on matter in which decomposition has decidedly begun, have been well called the scavengers of nature, and others of a most minute description, some of which belong to my subject, apparently attack tissues in full health and vigour. With regard to the properties of the fungus, I can only mention, in few words, that they are respectively *eatable, poisonous, medicinal, intoxicating*, and *luminous*, lighting up with their lustre mines and caverns, where they grow, and assuming at night, in many places, an appearance of pendulous lamps, from the stems on which they vegetate. Mr. Sidney went on to notice the ergot on rye and the ergot on wheat. He said that botanists termed this fungus, which accompanied the ergot, Ergotetia Arbortifacieus; but the only argument in favour of its producing ergot, was that it constantly attended it; but it did not follow, that because things were coincident, they were cause and effect, and the best examination did not warrant such an inference in this instance. Mr. Sidney subsequently alluded to different kinds of moulds, especially mentioning the Botrytis. It had been stated, he remarked, and he himself had verified it by a series of experiments, that if a single drop of acid was mixed with albumen, in eight or ten days what were called necklace moulds would appear. In his experiments, he had found that every sort of vegetable with acid yielded a mould, but when the albumen contained a neutral salt, none appeared. Oxide of lead hastened it; copper, nickel, cobalt, &c., retarded it; oxides of iron, antimony, and zinc, had no effect; but all perfumes, even the least drop of essential oil, stopped it. In reference to the *Bunt*, the rev. gentleman observed, that it had been stated that the potato disease had been propagated by burning matter. In mouldy apples and pears, some experiments of Mr. Berkeley, on the growth of the bunt, tended to show that its propagation might arise from the mere grumous matter in spores. The experiments were made thus: wheat seeds were immersed in a mixture of water, and the spores of bunt, and a curious

mould sprung up. The wheat was sown, and the plants came up affected, but no communication could be traced between the cells and the shoots thrown out by the spores. The rev. lecturer noticed lastly the various *fungi* attacking animal tissues. Sappy meat, he said, contained a fungus somewhat analagous to the highest species of the vegetable fungus. Sclerotia (from *skleros*, hard) often appeared in animal matter, under particular circumstances. But these were only states of other fungi: the fungus of the West Indian wasp, of the caterpillar of New Zealand, and the muscardine of the silkworm, were well known examples of fungi attacking living animals. The last was easily propagated by innoculating healthy caterpillars. This he mentioned, to shew that fungal disease might be conveyed from one animal to another in a state of health.

An accurate knowledge of such facts might be of great use in investigating certain diseases prevalent amongst animals on the farm, hitherto unattainable.

Animal fungi grew only on the skin, or the mucous membrane. After noticing a few varieties of the animal fungi, the rev. gentleman concluded: I have now completed my humble attempt to give a popular outline of the chief parasitic fungi of the farms of England, which only require simpler names to be easily understood. The farmer must learn to distinguish them from diseases of the superficial tissues. The subject is well suited to farmers' clubs, where good botanists and microscopists might be induced to attend with their instruments. Simplicity is the handmaid of all useful science, whose truths are only impeded by needless grandiloquence. I can say by experience that endeavours to propagate it will be found God's subordinate auxiliaries to the higher ends of men of my own sacred calling; and while we see that there is not a thing so simple or so apparently mean but that it sparkles with some beam of the skill of its great maker, I conceive that it befits the office I bear, to shew that the nobler teaching of divine wisdom by things revealed, does not tend to efface but to elevate our conception of God's perfection in things created. This life was not made to be neglected, nor meant to be unobserved; and if the unpretending gleanings I have gathered in my very few moments of leisure shall this day have proved in the least degree acceptable to the present audience, or generally of any interest to the British Farmer, (of the kindness of whose disposition I have had ample proofs) I shall rejoice, my lord, in the honour conferred upon me by being allowed the privilege of addressing you. [Applause.]

PROFESSOR JOHNSTON.

It affords us sincere pleasure to learn that this eminent agricultural chemist has safely reached our shores. Professor Johnston will receive a hearty welcome in every portion of the British Provinces and of the United States that he may honour with a visit. The Secretary of our Provincial Association has received a letter from him, accepting an invitation to attend the approaching Exhibition at Kingston. The Professor will deliver a lecture in the Court House on the Wednesday evening of the Show week. From the eminent position which Professor Johnston occupies in the higher departments of chemical science, as an able teacher and an accomplished author, with the very extensive opportunities he has enjoyed of observing the farming practices of different nations, far beyond, probably, any other living chemist, we are led to conclude that his presence among us will be regarded as one of the principal attractions of our anniversary meeting.

We likewise learn that Professor Norton, of Yale College, Connecticut, has signified his intention of being present. He was, we believe a pupil of Professor Johnston, and has already attained considerable celebrity as a teacher and experimentalist. Those of our readers who had the good fortune to hear his able and instructive lecture last year, at the State Fair in Buffalo, will regard his presence as a most valuable acquisition. Altogether, the prospects of the Kingston meeting are very cheering.

THE WELLINGTON DISTRICT—ITS AREA, SOILS, SIZE OF FARMS, STATE OF CULTURE, LIVE STOCK, AGRICULTURAL SOCIETIES, &c.

For the following interesting paper we are indebted to the courtesy of John Harland, Esq., the indefatigable Secretary of the District Agricultural Society. It was drawn up in the early part of last year, and addressed to the office of registration and statistics in connection with the government, at Montreal. The idea is an excellent one, and we could like to see the plan carried out in greater fulness and detail in reference to every district in the province. A large mass of useful information might thus be collected, which when subjected to careful revision and classification, and published in an acceptable form, would throw an interesting light on the vast capabilities of the country, and be the means of improving the character of the emigration to this most important section of her Majesty's dominions. The real condition and natural resources of Upper Canada are but very imperfectly understood at home; and but little has hitherto been done in the colony, of a character to command public confidence in imparting those kinds of information which intelligent and respectable emigrants require. We have of late had pretty ample opportunity of ascertaining the views of our leading agriculturists on this subject, and there seems but one opinion, that the Provincial Agricultural Association should publish an annual report, embodying whatever is important and useful in regard to agriculture, manufactures and the mechanical arts. This object might be accomplished by securing the co-operation of the secretaries of the various agricultural societies already in operation in every part of the province; and we cannot for a moment

doubt that government would liberally assist the society in the prosecution of so valuable a work. In the mean time we shall be happy to publish information of an analogous character to that contained in the following article, to whatever districts it may relate.

The Wellington District is one of the newest and largest districts in the province of Upper Canada, extending from north to south about one hundred miles, and from east to west, at its widest part, about sixty miles; it commences within fifteen miles of Lake Ontario, and terminates at Owen's Sound, on Lake Huron; it comprises twenty seven townships, each of which may be considered equal to three or four English parishes. The climate, although decidedly healthy, is nevertheless very variable, the transitions from great heat to intense cold being extremely sudden, and there is not perhaps one month in the year in which some part of the district is not visited by frost.

The soil in so large a district must of course be various: the township of Puslinch is gravelly, Waterloo is sandy, Wilmot is clayey, Guelph consists of a deep black loam, and the same may be said of all the other townships, except those near to Owen's sound, and they are gravelly. Generally the soil may be considered extraordinarily fertile, and highly favourable for cultivation, the land being neither very hilly, nor yet very flat, but may be termed rolling, and affording excellent natural drainage—a circumstance which in a new, and consequently poor country, is of great consideration and advantage. The water is very pure and plentiful.

Property is generally held in lots of one or two hundred acres, and there are in the district about three thousand freeholders.

The quantity of land cultivated by individual farmers, varies according to the time which the respective townships have been settled: in Waterloo, for instance, which was settled by a company of Dutchmen from Pensylvania, about half a century ago, the farms may perhaps average one hundred and twenty acres each, whilst in Guelph, where only about twenty years have elapsed since the first tree was cut, the average size is probably not more than twenty acres.

In buildings, a great improvement is in progress in the older townships, where the barns are already very excellent, and the original log houses are giving place to frame ones, and in many cases to those composed of the more substantial material of brick or stone.

With respect to implements, it may be remarked, that the carriages appear to be well adapted to the circumstances of the district, but the ploughs and harrows have hitherto been of a wretched description. Since the establishment of the Agricultural Society, however, some very superior ploughs and harrows have been introduced, and it is reasonable to suppose, that in the course of a very short period, the original description of Canadian plough or harrow will be remembered amongst the things which were.

Fences are almost entirely composed of rails, placed in the zig-zag form; in many cases, however, considerable improvement has been made in their construction, by placing the stakes at the corners perfectly upright, and securing them at the top by a cap; by this means they occupy less ground, are much stronger, and are more durable and sightly than when made on the original plan.

It would be impossible to describe the management of land here, for perhaps scarcely two farmers mange alike. The land, as has been previously remarked, is exceedingly fertile, and its owners, in the first instance, took very unwarrantable liberties with it, in many cases taking two crops of wheat without ploughing at all; and although they would profess to plough for the third crop, yet they would scarcely raise sufficient soil to cover the seed, which was harrowed in the most slovenly manner possible. By persevering in this system for a few years, it is easy for any one to conceive, that the land would become so foul as to render it impossible for any one to plough it at all; consequently a little grass seed was scattered over it, and it was then left to itself, affording a scanty subsistence to a few sheep, until the farmer had served all the rest of the land which he was yearly recovering from the forest in the same manner; he would then find it necessary to return to the piece originally cleared, and as the stumps would by that time be nearly decayed, he would attempt to bring it into something like cultivation, but would nevertheless declare that he would rather chop and clear a piece of land than he would summer fallow a piece of the same size. There are, however, persons who have kept their land in good cultivation from the commencement; and farms may be seen in the townships of Guelph and Eramosa, the management of which would do no discredit to the agriculturists of Norfolk, Northumberland or the Lothians; but they, it is to be regretted, form only exceptions to the general rule. It is cheering, however, to witness, that within the last few years the tide of improvement has set in, and as a great portion of the farmers are not only highly intelligent, but very energetic, it may reasonably be expected to flow on in a continuous course.

The kinds of grain sown here are wheat, barley, peas and oats, and on some of the poorer descriptions of soil, rye is cultivated. Fall or winter wheat is by no means a certain crop in the new townships, being frequently killed in the winter, or if it escapes that disaster, it is very liable to be destroyed by rust in the summer. *Spring Wheat* may be considered nearly a certain crop, and is consequently much more extensively cultivated; and in consequence of the emulation amongst the farmers, created by the Agricultural Society, the very best kinds are eagerly sought after, and cultivated with great success—thirty bushels to the acre is not considered by any means an extraordinary crop, and sometimes forty-five bushels per acre have been produced. Orchards are much cultivated in Waterloo and a few other of the older townships, and in some years yield an abundance of fruit; but in other seasons, when they have born equal promise, the

district has been visited by a frost, which has nipt them in the blossom, and not a vestige of fruit has been produced. This circumstance has doubtless prevented orchards being so extensively planted, as would otherwise have been the case.

Gardening is not much followed here as an occupation, but specimens of onions, carrots, parsnips, turnips, beets, asparagus and celery, have been produced at the exhibitions of the Agricultural Society, of a quality perfectly astonishing. The live-stock here, i. e. in and about the township of Guelph, may be considered equal, if not superior, to any in the province. The horses are stout, active and hardy. The horned cattle are strongly impregnated with the blood of the short horns, a large herd of which were some few years ago imported by Rowland Wingfield, Esq., and were sold by him to Mr. Howitt, a gentleman of large property, residing at Guelph Grange, who takes great care to preserve the purity of the breed, and who has indeed carried off a very great proportion of premiums from the two great provincial exhibitions which have been held at Toronto and Hamilton.

A great number of Leicester and Southdown sheep have been brought here from England, and have effected a great improvement upon the original stock. An exceedingly fine breed of hogs have also been brought here from England, and for this description of animals, Guelph is highly celebrated, numbers of them having been sent alive from hence to nearly every state in the neighbouring union; and it is not an uncommon circumstance to see hogs here which at the age of one year will weigh nearly if not quite four hundred pounds; and at the age of eighteen months, weighing nearly six hundred pounds. The pure breed is chiefly in the hands of Mr. John Harland.

The roads here are in a bad state, and as the distance from the centre of the district to the lake is great, may be considered one of the greatest evils which the farmers have to contend with; they are, however, in an improving state, and it may be hoped that before the lapse of many years, access to the market may be had at all seasons.*

An Agricultural Society was established here about seven years ago, and is under judicious management, and has effected an immensity of good; it at present consists of 533 members, and during the last year, distributed 540 premiums, amounting to 326*l.* 5*s.*, and for which 1567 articles were entered for competition.

To Cure Swelling of the Throat in Hogs.—In order to contribute to the usefulness of your valuable periodical, and to inform the public of what I find from experience to be an infallible cure for a certain disease with hogs, viz.: the swelling of the throat, I herewith send you a recipe for the disease, with a desire that you publish the same in your work if you deem it of any import, and the same meets your approbation.

Take of molasses half a pint, and a tablespoonful of hog's lard; to this add of brimstone a piece an inch in length. Melt it over the fire, and when cold or in a liquid state, drench the hog with it; and nine times out of ten it will be found to have the desired effect. My hogs were affected with this disease during the past year, and I found the above to be effective when all things else failed.—*Farmer's Register.*

ON PRACTICAL FARMING, ROTATION OF CROPS, MANAGEMENT OF STOCK, &c.

(Communicated to the Johnstown Agricultural Society, by John Bland, Esq., Brockville.)

(*Concluded from page 203.*)

MANAGEMENT OF STOCK.

1st, Horses; 2nd, Cattle; 3rd, Sheep; 4th, Swine; 5th, Miscellaneous Stock.

Horses.—The form of a horse adapted to agriculture has been well described by Culley, a writer of great experience, in the following words: "His head and shoulders should be as small as the proportion of the animal will admit; his nostrils expanded, and muzzle fine; his eyes cheerful and prominent; his ears small, upright and placed near together; his neck, rising out from between his shoulders, with an easy, tapering curve, must join gracefully to the head; his shoulders, being well thrown back, must also go well into his neck (at what is called the points) unperceived, which perhaps facilitates the going much more than the narrow shoulder. The arm, or fore thigh, should be muscular; and, tapering from the shoulder, meet with a fine, straight, sinewy, bony leg, and full at the girth; the loin or fillets broad and straight, and body round. The hips or hooks by no means wide, but quarters long, and tail set on so as to be nearly in the same right line as his back. His thighs strong and muscular; his legs clean and fine boned; his leg bones not round, but what is called lathy or flat." Now, as to their management.

Breeding and Rearing.—This is of much importance, and care should be taken to have our animals in good health and condition. The mare should be at least four years old before you introduce the stallion to her, and the season arranged, so that the foal may have the benefit of the grass in May. Mares kept for breeding alone, should be covered from the ninth to the eleventh day after foaling; and it is a good practice to take her to the horse again, nine or eighteen days afterwards. Mares should be, when with foal, attended to with a little extra care, and less burthened or worked than others. Attention to this will improve the stock. The colts should be permitted to have any exercise they may take, and not allowed much exciting food, as oats beans or peas, but rather such succulent food as potatoes, carrots, ruta baga, &c. At two years of age, they may try the light harrow; and at two-and-a-half, plough on a light soil, and so till four, or even longer, when they should become fit for all reasonable uses.

Castration is commonly performed on males.

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* A good Macadamised road is now in course of making between Dundas and Guelph, which is expected to be completed next year, and which will be of great benefit to the country through which it passes. Most of this district abounds with good road materials, gravel and stone. North of Guelph, there are several miles of excellent gravel road. [Ed. of Agriculturist.]

when one year old, but many prefer to do this when only one to three weeks old, or as soon as the testacles come down, or as circumstances warrant. Finally, to have your horses in good and healthy condition, be liberal with your curry-comb and brush twice a day; frequent but moderate meals in due proportion of succulent and solid food, and abundance of clean straw. Some consider good dressing more conducive to health than liberal feeding. A common saying in England is, that it is equal to half their food. When duly and properly attended to, the most satisfactory results are formed; and when you consider his spirit, courage and patience, and noble endurance under fatigue and burdens—nay, even under neglect, you will be compelled to be grateful to him for your personal interest. It is recorded of the Russian couriers, in travelling from Petersburgh to Tobalsk, distant 19 deg. 26 min., that they journey from 95 to 110 miles per diem, on one horse; also will and do bear on their backs 300 to 350 lbs. The dragoon horse carries, including his rider, arms and baggage, 340 lbs., and when fully appointed, 350 to 370 lbs; indeed their capacity is capable of bearing 1600 to 1100 lbs.

CATTLE.—Much importance is prudently attached to the proper breed of cattle—hence the choices of both males and females: on the former, more care is generally bestowed, and always with the most satisfactory results. Care should be extended to the female during pregnancy; say that they be well fed, and not subjected to rough treatment or ill usage. The next object is to fatten cattle for our markets; and as we are now to have fairs established in our district town, it is likely we shall get more encouragement for good cattle. It is well known, that the most likely to bring a good price, are such as are in the best possible condition; hence those that are fat, for it is well established, that the lean meat of all fat animals, is better flavoured and more nutritive than that of poor ones. To overtake this, in the best and shortest way, is stall-feeding. Keeping the animals quiet, dark—fed often rather than liberally. Turnips with cabbage, if possible, then carrots or potatoes; and lastly, Indian corn or barley-meal, or bruised beans or peas, varied several times a day, and boiling these latter two or three times a week. Salt daily, but little of it. Clean water twice a day, and not in very great quantities. Cattle, to be fattened most easily and profitably, are well-known to be middle-aged; either too young or too old is bad management. It is also well known, that the male should be altered, and the female spayed, otherwise the flesh is always inferior and ill-flavoured in comparison. Cattle attain their full growth generally in about five or six years; sheep and hogs at two years.

Breeding.—No exact rule can be well applied, but general practice seems to sanction the following:—Bulls are admitted to cows when two years old, and if good stock-getters, are allowed practice till nine or even twelve years. Three years of age is better for the females, as the stock most commonly shows. The period of gestation with cows averages forty weeks. The calf which may be in strength, is allowed a week to suck its dam. After that, skim-milk can be gradually given in lieu, with other suitable nourishing food.

The Dairy next calls our attention, and is of paramount importance, as the regular demand for butter and cheese exhibit. Too little consequence has been attached to this, and I would impress upon all, the liberal reward that awaits those who will devote more time and care to these two important necessaries of life. To churn *well*, is to do it regularly, neither too slow nor too hurriedly. A deviation from this is highly injurious—hence a moderate and continued agitation which ought not to be interrupted. If hurried on violently, the cream is heated, which yields a white and curd-like butter. Press well with a wooden spoon, and wash carefully in clean and cold water. A very small quantity of salt, dry and well pulverized, mixed equally, is good practice. Print or roll it for market; otherwise, if to keg it, be a little more liberal with Liverpool salt—hence ready for sale. Next—

Cheese Making.—Rennet, or calf's second stomach, is used generally for turning the milk. This must not emit any strong or disagreeable flavour, else it will communicate its taint to the curd. Take of this the size of a dollar; put it in a tea-pot with some salt, and pour in a quarter of a pint of boiling water. This will be rennet enough for nine or ten gallons of milk. When such a number of cows are kept as to yield milk sufficient for a cheese of middle size at every milking, the milk is passed through a sieve to remove impurities, into a tub, and formed into a curd by a mixture of rennet. As this is required to be kept to the same heat as when it came from the cow, it is necessary to pour a quantity of warm water into the curd tub; otherwise, when fewer cows are kept, the milk is stored in coolers, three or four inches deep, till sufficient is collected to make the size wanted. When the cheese is to be made, the cream is skimmed from the milk in the coolers, and without being heated is passed through the sieve along with the milk drawn from the cows at the same time into the curd tub, and the skimmed milk, being heated to the heat of new milk. Pass all through the drainer. The whole is coagulated by rennet, and carefully mixed with the milk. The cream is now put into the curd tub cold, that its oily parts may not be melted. Keep your milk cool when drawn from the cows; put in a little cold water to raise the cream. It should be kept at a temperature of 55 deg. Fahrenheit. If higher, it will not cast up the cream so well, and will likely very soon become sour. It is said to be owing to the milk being allowed to cool too much before it is coagulated, that it becomes difficult to form it into cheese in winter; hence cheese made at that season is so soft and tasteless. When the milk is coagulated, draw off the whey instanter, and to expedite its separation, the curd is broken and cut with a knife. Next the curd is put into a drainer again, cut and pressed, to expel the whey completely. It is now broken small, intimately mixed with salt, and put into the cheese press with a thin piece of canvas round it; it is well pressed till the whey is wholly extricated, and the cheese

formed. It remains in the press one hour, and is afterwards taken out, and again replaced three or four hours, getting a dry cloth and its position reversed each time. Half an ounce of salt is said to be enough for every pound of cheese. When brought out of the press, expose them to a considerable draught in a cool room, turning twice every twenty-four hours. In a week, twice only will do. Armatto or saffron is used for colouring cheese; either will do, but the latter probably is the better—some say it is an improvement. Keep your cheese now carefully, turning the same regularly, the larger, the harder and more valuable it becomes.

Sheep.—The varieties of sheep are very numerous, and are still more than cattle exposed to all the influence of soil and climate. I shall, however, confine myself to those of Spain and England, as being best known and appreciated in our colony, because in them are best united the two great objects for which this animal is reared—viz., its wool and carcass. The two races above mentioned have been judiciously mixed, hence the produce of the carcass has been much improved as well as the fleece. The average weight of the latter may be six to eight pounds, and of the former eighteen to twenty and twenty-two lbs. These should meet the attention of our farmers, as being well adapted for our climate. It is of much importance to keep your sheep excluded and free from all harm or alarm, as they fatten much better, and in every respect sooner than otherwise.

Swine.—This is a valuable species of stock to a farmer, and will continue to be more so, if the lumber trade maintains its present standing. This is more likely, from the great consumption now existing at home by railways, &c. A very excellent kind of breed seems, and justly, to obtain a good standing in the Berkshire, from the reason of being more easily fed, and acquiring a large bulk and weight in a short time. Some wonderful specimens of this have been produced, say from 10 cwt. 2 qrs. 10 lbs in weight; measuring from the nose to the end of the tail, 3 yards, 8 inches, and height 4 feet 5½ inches. Other approved breeds are well known among us, but a mixture of this breed is very generally diffused, from its known qualities. The mode of breeding, the food and general management of swine, are all dependent on local circumstances, so much so that it would be little use to dwell on the subject. The period of gestation with swine is sixteen weeks. Pigs are weaned at six weeks old, soon after which the sow is again in season, so that two litters are generally farrowed in one year. February and August are the best months for parturition, as the young pigs are tender, therefore the sow should never be allowed to farrow in winter.

Miscellaneous Stock. — Say poultry, bees, pigeons, &c. The first is perhaps the only kind worthy the farmer's attention. The most difficult to rear, voracious, and unprofitable is the turkey. Geese, which live on grass, are more valuable, and give little or no trouble. Ducks are not only harmless, but feeding principally on pernicious insects, are probably deserving of more attention than they have yet met with. But common fowls are the best and most profitable stock, and add a good deal to the income of the good housewife, for the eggs and chickens she can always take to market. A little care and attention to feed and protect the common farm-yard hen, and her return is very numerous. A few boiled potatoes mixed with a little meal, and plenty of clean water, is all that is required. A warm shelter in winter is good management.

Flax Culture in Ohio.—In the immediate vicinity of Delaware, on rising a point of land, from which we could see the waving fields of grain some miles distant, the effect produced on our minds, having been raised in a district of country noted for its beautifully undulating lands and superior cultivation, was of the most pleasing nature; and what made this feeling additionally strong, was to view a great number of fields of flax in full bloom, a crop which we have cultivated largely for many years past. The soil in the neighbourhood of Delaware, is well adapted for the cultivation of flax, but to appearance, the farmers are totally ignorant of the proper method of preparing land for this crop. Flax ground should be brought to the finest possible state of tilth, and the seed should be sown at the rate of two bushels per acre, about the first week in April, or when the plum blossoms make their first appearance. We have frequently grown as high as 25 bushels of flax seed and 500 pounds of clean scutched flax per acre, extending over an area of from fifteen to forty acres. The flax ground near Delaware, could not have been ploughed more than once; three pecks per acre must have been the utmost quantity of seed sown, and the period of sowing must have been delayed at least three weeks later than it should have been. The result of this wretched system of management is perfectly obvious—ten bushels of seed will be the outside average, and the fibre is worthless for manufacturing purposes. Worse than all this, the ground by being only partially covered with plants, and they of a stunted growth, becomes covered with weeds, and is in a worse state of cultivation, than previous to its being sown with flax. Whereas if sown upon moderately rich land, and the directions above given followed, it would have proved a smothering crop to most descriptions of weeds.

The heaviest crop of clover, that we ever saw grown, the seed was sown on flax ground, at the rate of eight pounds per acre. The pulling of the flax plants, loosened the ground around the roots of the young clover plants, which in connection with a top dressing of gypsum, at the rate of one bushel per acre, as soon as the crop of flax was removed off the ground, promoted a growth of young clover plants, the first season, that perfectly astonished all those who saw it. If land be naturally too rich in decayed vegetable substance, a crop of flax taken from the ground as a preparative crop for wheat is calculated to lessen the chance for rust, besides the ground if well prepared for flax, and two bushels of seed be sown per acre, will be in better condition for wheat than would be the case, if subjected to the expensive process of summer fallowing. A well cultivated crop of corn, would in most cases be a superior preparative crop for flax, which could be either followed in succession by clover or wheat, as the judgment of the farmer would dictate, or the quality of his soil might require.—*Ohio Cultivator.*

Messrs. Howe and Butler, of New York, have invented a machine entirely to supersede cutting clothes with shears. Two men can do the work of fifty with it.

Horticulture.

ROSEBANK NURSERY, AMHERSTBURGH.

We beg to call the attention of our readers to Mr. James Dougall's advertisement on another page. His collection of fruit trees, shrubs and flowers, is very extensive; and from the well-known attainments of the enterprising proprietor, both in the science and practice of his profession, all articles sent from his establishment may be safely relied upon for being correctly named and of genuine character. Many of the fruits raised by Mr. Dougall may be seen growing in a state of maturity in his extensive orchards. A sense of duty alone impels us thus to make honourable mention of one who has done much to advance both the agricultural as well as the horticultural interests of Canada.

THE LONDON HORTICULTURAL SEASON having now closed with the great Exhibition at Chiswick, on Wednesday last, the time has come for making a few general remarks in anticipation of future years. To our minds, the evidence of advancing horticultural skill, afforded by the Chiswick meetings, is most satisfactory. It may be true, that nothing has been produced more remarkable, as an example of high cultivation, than has been seen before; perhaps in some things skill can go no further. It is possible that individual cases of better gardening might be pointed out in former years; but what is far more important is the fact, that in no season has so little appeared of inferior quality. It has become as rare to find ill-grown plants in the exhibitions at Chiswick, as it once was to find them well grown. Things of which a head gardener would have been proud some twenty years ago, his apprentice would be ashamed of now. This alteration must be admitted to be immense gain; it proves, that although progress may in some particulars be arrested, it is upon the whole in vigorous and rapid march.

Nor can it now fall back. In the onward flow of the arts of civilization, there is no ebb; there may be eddies, and rapids, and bars, and shallows; and gales may for a moment force back the advancing flood, but such obstacles are soon overcome, and the mighty stream glides on with a force that accumulates as the volume augments. Against the return of gardening to its former state, we have this security, that the taste of the public has kept pace with the improvement of the profession. The employers of gardeners have become fastidious; what they would have admired in 1800, and endured in 1820, they now scout. A striking proof of this was afforded on Saturday, by the remarks of the visitors, who chanced to spy some unhappy grapes which an innocent country gardener had produced as a sample of his skill. The grapes were not so bad: we have seen far worse gain prizes; but the lookers on refused to endure them, because they have become accustomed to what is infinitely better. Visitors to these exhibitions come not only from every quarter of the globe, but from every hundred in England, perhaps from every village; they see what gardeners *can* do; they hear that the best results are often obtained by men with no better means than their own; and they return to their homes determined that there also really good gardening shall be introduced. That is the security against the art of horticulture falling back to its ancient level.

The quality of the plants exhibited is not the only matter in which the public taste is changing; and it is as well to point out what direction the change is taking.

What are called large collections of plants have ceased to be popular. Admirable as have been the specimens shown under this denomination, visitors no longer crowd around them. You hear the passers by exclaim, "how fine! how lovely! What a capital garden Mr. —— must have!" and that is all. The tents are deserted for a more attractive display. Nevertheless there are crowds around the "small collections;" although made up of similar plants, they have not lost their interest. The reasons of this we take to be several. In the first place there is little or no competition for the "large collections." One or two leviathans swallow all the minnows. In the next place the small collections are more varied, more choice, and are moreover for the most part composed of smaller specimens; to have a chance of winning in them, everything must be at least on the borders of perfection. Insufficient competition in the larger groups produces the contrary effect.

A similar indifference is manifested yearly towards heaths. They are in themselves among the most beautiful objects in the greenhouse; great success in growing them shows great horticultural skill; and the detached branches, or solitary bushes, amidst other plants, excite everybody's admiration. Nevertheless the heath tents are generally almost empty. This we take to be caused by the monotony of the form of heaths, and the entire absence of a graceful mode of growth. Groups of them have no picturesque effect. The flowers indeed display all the tints of red and yellow and white; the foilage is of the purest green; the blossoms are of greatly varied shape; and yet the plants have an uninviting sameness. The flowers are all tubes, the leaves are all narrow, and the general form of the bushes is so round that a person ignorant of their nature might imagine them to be relics of the clipped hedges of our ancestors. In fact a row of finely-grown Hottentot heaths is like a line of Hottentot Kraals. This is fatal to masses of such plants exciting pleasurable emotions in a crowd of lookers on.

It is because they are so entirely the reverse of this that the orchids fascinate everybody. Where they are, and where roses are, the crowd is greatest: it is thither that the earliest visitors invariably resort, and there they linger. You never find the tent of orchids deserted. Men say that it is because of their singular forms, and their aromatic fragrance; but we believe that the explanation is chiefly to be found in their graceful outlines and infinitely varied aspect. It is as difficult to give sameness to a bank of highly cultivated orchids as it is to throw variety into a line of Cape heaths.

New plants are becoming less numerous. They scarcely appear, indeed, except from the great house of the VEITCHES of Exeter, or from the garden of the Horticultural Society. But, on the other hand, there is the satisfaction of witnessing every now and then the reappearance of some old plant as good as new. Let us hope that we may see many more such cases. When, at the end of the last century and beginning of this, the horticultural *furor* began to tell upon the English mind, people could not grow the plants that merchants brought them. They were flowered, named, indifferently represented in botanical periodicals, starved to death, and forgotten. But among the casualties of those days were many beautiful creations, the names of which stand in our catalogues as so many records of horticultural unskilfulness. Because they flourished anno Domini 1795 they are set down as "old things," and, like other old things, are no longer cared for. From the way in which these plants are treated, one would think they possessed the attributes of humanity. We can, however,

give an assurance that plants, at least, are none the worse for being old, and that the public sustains no small damage for entertaining a contrary opinion. This was shown by Mrs. Lawrence's charming *Rellania squarrosa*, which, although born near London in the year 1774, was the youngest and prettiest plant in that lady's collection on Wednesday last. For ourselves, we incline to class old plants with old wine and old nobility.

These are points which exhibitors would do well to think upon.

Concerning Wednesday's meeting, we shall only add, that the day was beautiful, the gardens at Chiswickhouse delicious, and the exhibitions of fruit and flowers the best which has yet been seen in July. The fruit-growers vindicated their claim to rank with the cultivators of flowers; very little was of inferior quality, a great deal was excellent, and some was admirable. As to the strawberries from the garden of the Right Honourable the Speaker, it was admitted by the best judges that no such British Queens and Eleanors had ever been seen before.

The number of visitors was 7338.—*Gardener's Chron.*

Cultivation of the Pansy.—The following is a Lancashire method, which we believe has been practised successfully for twelve years:—The soil best suited for the pansy is three parts good loam, two of rotten cow dung, one of bog soil, and one of sharp sand, with a little wood ashes, mixed together, and left in a heap for at least three months. Care is taken, before planting in the beds prepared of this soil, to wash all the soil away from the roots of newly received plants; for, if different, and the pansies had to grow in it for some time, it would have a tendency to deteriorate the other soil. Divide the roots into as many plants as practicable, taking care, however, that each stem has roots, otherwise it will be only a cutting, which demands different treatment. Press the soil firmly round the roots at planting; water abundantly with a can, provided with a very small rose; protect from the sun by means of a mat, without, however, a total deprivation of light and air; and keep the plants thus protected for a week. In order to prevent the pansy from degenerating, *two* beds are to be made in a year from *cuttings*. The side-shoots are to be taken for this purpose in preference to the centre ones. The centre shoots appear stronger, but they seldom succeed in striking, the stem not being solid, and the back too hard. The short shoots at the head of the plant, with the back almost white, will strike quickly. These cuttings should not be longer than 2 or 2½ inches; and they should be carefully cut just below a joint. This is very important, for if a long piece be left below the joint it will rot, and cause the loss of the plant. The leaves must be carefully removed an inch from the bottom, without injuring the back of the stem. The proper time for this operation, in our (Scotch) climate, is *now*, for summer and autumn flowering; and at the end of August or beginning of September for next spring. Cuttings must be struck in the bed they are intended to flower in; planted from six to eight inches apart; the soil pressed firmly round them; watered abundantly, and protected from the heat of the sun for a week or ten days, or, if the weather be hot and dry, for a longer period. But, if possible, rainy weather should be selected for the operation. Cuttings strike much more surely in rainy and cloudy weather. The same bed should not even be used twice without adding fresh, and turning the old soil over. A single bed of cuttings, made in August, will flower all the next year, it is true, but long before its termination will be found to produce nothing but bad-shaped and worse coloured flowers. The blossoms will not, even with two beds in the year, always come true. They are apt to run; the best preventive whereof is protection from the mid-day sun, and not suffering the shoots to get too long, but heading them back, and making cuttings of the pieces. Straw or hay laid between each row and close to the roots, best protects the pansy from frost. The wire-worm, slug and snail require to be sharply looked after.—*Scottish Agricultural Journal.*

Watering Gardens and Crops. By James Lothian.

During the greater portion of summer, the British gardener is considerably employed in watering, especially flowers and plants; but not perhaps in any case to the extent that would prove most beneficial; and, although strongly recommended by almost every author who has ever written on gardening (with exception of some of the market gardeners near London), the subject has scarcely received notice beyond what dire necessity has compelled. Fruits and vegetables, during drought, are benefitted in a most powerful degree by copious waterings; and although some may have held forth the contrary, whenever a defect may have occurred, it is only where unfair watering has been practised, which no doubt does much more harm than good; but wherever applied freely, and particularly when holding ammonical substances in solution, the benefits accruing are as great and certain, not merely in accelerating more abundant produce, but in preparing the land or soil for future crops. It is clearly evident that as yet the process of watering, in the majority of gardens, has been but little attended to, and that little perhaps with much labour and expense—the young men having often to draw water, in some instances not very attainable, from the hot-houses, or some remote part of the garden or grounds, in order to water plots and quarters in dry weather, such as we generally experience during June, July and August. Being mere over often—nay generally and perhaps unavoidably—done after hours, it is very imperfectly performed; and it is very well known that in this manner much valuable time is lost, going for and returning with water, while any advantage derived may be small and partial, which may have led some to condemn the process of watering entirely, without ever giving it a fair and judicious trial.

In lieu of carrying water, as commonly done, from one end of the garden to the other, or from somewhere outside, might be proposed the sinking of four or more tanks, in different suitable parts of the garden, each of which could be supplied with water from the nearest river or fountain-head, by means of proper drains of tile or brick, and leaden pipes, placed a proper depth below the surface; such cisterns or tanks could be made, if desired, at the same time, ornamental. They might be of stone or wood—if the latter, previously steeped for some time in a solution of *sulphate* of copper, which would render the wood as durable almost as stone itself—or, if preferable, very large barrels or hogsheads might be used, into which could be affixed a pump or tube, with an efficient grating at the base or bottom, to prevent any filth ascending the tube to the large rose fixed on a leathern pipe, the latter to be moveable, or otherwise joined to the leaden tube, and taken from it at will, and at the same time similarly fixed on the leathern pipe. The water conducted into the tank might be regulated by means of a cock, and that supplied from this source, and diffused over the crops and quarters of the garden, by another. Should any manures be steeped in such tanks—for instance, pigeon dung or guano—it would form the thing complete, by fixing a filter half-way (or rather more) towards the bottom of the tank. On this system, one person, and in much less than half the usual time, could water the entire garden, and with much less labour to himself, having only to conduct the rose attached to the leathern pipe, while the grounds and crops

would receive a complete saturation; any outlay in such tanks would be repaid in one season, or two at most, by the saving in time, wages and production of abundant and heavy crops; and I feel almost as certain, could be brought or rendered as applicable in the field as in the garden.—*Scottish Agricultural Journal.*

Floral Clock.—It is pretty generally known that flowers themselves may be made to form a horologe.

"There is," says Professor Balfour, "a periodicity in the hours of the day at which some species open their flowers. Some expand early, some at mid-day, others in the evening. The flowers of succory open at 8 A.M., and close at 4 P.M.; those of *Tragopogon porrifolius* or *Salsafy* close about mid-day. Linnæus constructed a floral clock or watch, in which the different hours were marked by the expansion of certain flowers. The periods however do not seem to be always so regular as he marked them at Upsal. The following are a few of those horological flowers, with their hours of opening:—

Ipomœa Nil	3 to 4	A.M.
Tragopogon pratense	4 to 5	—
Papaver mudcaule	5	—
Hypochæris maculata	6	—
Various species of Sonchus & Hieracium	6 to 7	—
Lactuca sativa	7	—
Specularia Speculum } Calendula pluvialis }	7 to 8	—
Anagallis prostrata	8	—
Nolana prostrata	8 to 9	—
Calendula arvensis	9	—
Arenaria rubra	9 to 10	—
Mysembryanthemum nodiflorum	10 to 11	—
Ornithogalum umbellatum (*Dame d'onze heures*)	11	—
Various Ficoideous plants	12	—
Scilla pomeridiana	2	P.M.
Scilene noctiflora	5 to 6	—
Œuothera biennis	6	—
Mirabilis Jalapa	6 to 7	—
Cereus grandiflorus	7 to 8	—

Rhubarb Cultivation.—The red Goliath rhubarb is one of the best of the hybrids for culinary purposes, and as superior to the old harsh, dock-like rhubarbs which were generally prevalent even ten or eleven years ago, as our cultivated celery is superior to the rank weed of the same name which grows by muddy ditches. It is as easily propagated as any other perennial vegetable; and so hardy as to resist the frosts and vicissitudes of our severest seasons; and of all the esculents for pies and tarts and puddings, it is the most easily prepared. It is so prolific too, that half a dozen roots would keep a small family constantly supplied, during four months of the year, that is, from the beginning or middle of April, according to the forwardness or backwardness of the season, until the beginning or middle of August; and it is sometimes preferred to all other vegetable substances for the purpose of pastry, throughout the summer, even where fruits of every kind abound. Stalks of the red Goliath rhubarb have been known to measure six inches in circumference and nearly two feet in length, so that only one of them was required for a pudding. So delicate and soft too, is its texture, that as soon as it arrives at the boiling point, it becomes a fine pulp, and is already sufficiently cooked. As a garden production for culinary purposes, it is certainly of much value, being in perfection precisely at that season when apples become tough and scarce, and before gooseberries have made their appearance. Its flavour is so delicate, that it ought not to be mixed with any other ingredient than sugar; and on no account should it ever be peeled. The eyes or buds of the red Goliath rhubarb have a deep rich red colour; its leaves are of different hues of green; and its stalks have a green ground colour, spotted and streaked with red. Its leaves are of enormous size—sometimes four feet long and three-and-a-half wide; its roots also are gigantic—so large that, in the course of three or four years, a single root, when dug up, would fill a wheelbarrow; hence the plants require a wide space—say five feet every way, or five feet by six. Either this hybrid or any other kind of culinary rhubarb may be propagated from seeds, or from young roots of one year's growth, or from clean offsets with each two or three bold eyes. The soil should be rich, and may be prepared in the same way as for asparagus beds. Seeds may be sown either somewhat thickly, with the view of the plantlets being transplanted in a few weeks, or at wide distances and in regular rows, with the view of the plantlets being merely thinned out and allowed to remain permanently when raised. The sowing may be done in September or October, and the final thinning toward the close of the following summer; and intermediate cleanings and hoeings must be given in spring. Roots or offsets may be planted in March, in dry weather, in an open state of the ground, and during a temperate state of the atmosphere. Plants from vigorous roots may be available for use so early as four or six weeks after planting; but, generally, plants from offsets ought not to lose a stalk or a leaf, except by natural decay, till the following year. When the growth of transplanted rhubarb or of plants from offsets becomes established, the ground must be kept free from weeds; and if dry weather supervene, water ought to be given freely around the roots two or three times, at intervals of four or five days. In ordinary culture, nothing further is done, except to manure the bed in autumn after the leaves have decayed—and even the waterings in a time of drought are not attended to; but in more refined culture, some special methods are used for promoting luxuriance, succulency, flavour and blanching. In autumn, the decayed leaves are laid in little trenches, formed along the centre of the space between the rows, sprinkled with a handful or two of salt, and covered with the earth that had been dug out; as the winter approaches, a coating of well decomposed stable-manure or leaves, or a mixture of both, two or three inches deep, is laid round each plant to the extent of two feet; and in the open weather of February, or before the new growth appears, the whole bed is forked over, and a mimic mound of drift sand, or of light porous earth, or of the soil in the central space between the rows, is formed to the thickness of a foot over each plant,—and this mound must be removed as soon as the season of pulling or of cutting ceases. When the red Goliath is gathered for use, the stalks should never be cut from the bed, but wrenched sideways with a sudden twist, and they will then come away entire from their junction with the root,—round, flat, clear, and as white as milk. As soon as the growth of rhubarbs of two or at most three years old becomes vigorous, the flower-stem begins to ascend from the root-crown of each plant, and this will readily be distinguished from a leaf-stalk and ought instantly to be pulled away, except from some one plant which is intended to produce seed; and this plant should be less gathered from than others, or not gathered from at all, during the season,—and must not by any means be subjected to the bleaching or mould-covering method in spring. The seed should be gathered as soon as ripe; and care must be used that none of it be scattered over the beds; for young plantlets from it might grow up unobserved among the old plants, and greatly rob them of their spreading-room and nourishment.—*Rural Cyclopedia.*

The deeper the soil is made, the deeper will the roots go in search of food.

Mechanics and General Science.

SCIENTIFIC NOTICES.

NO. IV.

THE INDIAN SUMMER.

It is scarcely necessary to enter into a full description of the peculiar appearances which characterize that varying portion of the year known in this country by the name of Indian summer. Old residents on this continent have had frequent opportunities of observing the phenomenon in perfection, while new comers may probably have been fortunate enough, within the last few years, to have observed two or three days so entirely different in character from all the rest of the year, as clearly to entitle them to the above appellation. In former years, this late summer, which generally occurred about the beginning of November, and consequently after the cold had begun to set in, lasted for several days, or even for two or three weeks; but at present, at least in our neighbourhood, we seldom see more than a day or two, and even then, the phenomenon is so slightly developed, that it is difficult to determine whether it is a real Indian summer day, or only a warm autumnal one. As I said before, it is not necessary to describe the peculiar appearances, for they are precisely similar to those that are observed during the dry fogs of Europe, with this addition, that the weather is to all appearances much milder.

The name Indian Summer, seems to have been given to this period, from its being the time when the Indians were accustomed to start on their hunting expeditions, and it usually follows immediately after those cold rains which are commonly observed about the middle or end of October. The temperature of the day appears warmer than might be expected at that season of the year, probably from the stillness of the air, but it freezes during the night, and the mean temperature of the twenty-four hours is therefore not abnormal.

A somewhat similar phenomenon is frequently and almost regularly observed in some parts of Europe, as has been shewn by Dr. Mahlman; it is, however, of much shorter duration, and more variable—a circumstance not to be wondered at, when we consider the exceedingly variable climate of that continent.

Various theories have been proposed to explain this curious phenomenon, but there does not seem to be any reason for attempting to discover a cause different from that which produces similar effects in Europe. According to some, it arises from peculiar winds, which produce a copious deposition of moisture in the shape of fogs, and this is said to cause the red colour of the sun; but, as Mahlman observes, the air is really much drier at that time than at almost any other season of the year; and if the red colour of the sun is to be ascribed to the presence of vesicular moisture in the atmosphere, why is it not seen during the early spring months, when, as is well known, fogs are extremely prevalent?

By observation it has been found, that there is less rain during November than in any other month; were the phenomenon owing to wet fogs, we should naturally expect a frequent recurrence of rain, while it is found that in general the smoky appearance of the sky is diminished after heavy showers.

It seems highly probable, that the Indian summer, which used formerly to prevail for two, three or even four weeks, was produced by the fires made by the Indians in the forests and prairies, in the same way as the dry fogs of Europe are produced by the burning of the moors. It must be remembered, that the phenomenon has gradually decreased as cultivation has passed further westward, and this fact is strongly confirmatory of the truth of the above explanation.

That dry fogs sometimes exist on this continent, is well known; for instance, in 1819, they spread over a great part of North America. In 1825, a fearful conflagration along the banks of the Miramichi, which extended over 6000 square miles, produced a dark cloud, which extended over ten degrees, in a southerly direction. These and others, too numerous to mention, are instances of the absolute production of dry fogs; and as we know that certain phenomena are produced in Europe by these causes, and a precisely similar phenomenon is observed here, we may fairly conclude that the causes are the same, especially as we can readily account for the decrease of its duration by the gradual retreat of the Indians, and advance of civilization towards the coast, whereby these periodical fires become fewer in number.

In conclusion, I will mention one fact which has been stated to me by an old settler, who has often observed the fully-developed Indian summer, that it was a common observation, that clothes could not be hung out to dry at that period on account of the number of *blacks* floating in the air. If this observation is really a correct one (and doubtless many of the readers of the Agriculturist can speak of its correctness or incorrectness), the cause of the phenomenon will be at once apparent, as after every great conflagration, and even in large towns, the rain brings down considerable quantities of carbonaceous particles, which when swimming in a dry atmosphere are usually denominated *blacks*. H. C.

NEW APPLICATION OF THE SYPHON.—*The Ohio Cultivator* describes the mode of washing sheep which some of the farmers of Trumbull county have adopted. The plan is to select a place near the bank of a stream where the ground is several feet lower than the surface of the water; then place a vat or trough large enough to hold one or more sheep. Then take a syphon made of tin or copper, eight or ten feet long and three or four inches in diameter, and bent nearly in the shape of a triangle, the curve being made a little from the centre; place the short arm in the stream, and the long one outside of the bank, with a gutter made of board to conduct the water to the vat. This furnishes a constant stream, sufficient for washing expeditiously one sheep at a time, without at all disturbing the water in the canal. To set the syphon at work, plunge it into the canal, downwards so as to fill the tube nearly or quite full of water; then stop up the ends, and place it in a position for operation, then withdraw the stoppage and let it run.

The following is the substance of a lecture delivered last winter before the Mechanics' Institute in this city, by the Rev. J. Hurlburt, M. A. We had the pleasure of hearing the lecture, and believing that some portions of it would be interesting and instructive to many of our readers, we requested the Rev. Gentleman to furnish us with an abstract for publication, which he kindly consented to do.

IMPORTANCE OF SCIENTIFIC KNOWLEDGE TO PRACTICAL MEN, AND OF PRACTICAL KNOWLEDGE TO SCIENTIFIC MEN.

No general impulse could be said to be given to improvement in the practical arts of life, till after the revival of letters in Western Europe. Many ancient nations, as the Egyptians, Grecians, Romans, and some countries of Asia, were distinguished for their learning; but their attention was more particularly turned to philology, morals and government. To modern times alone can be attributed any systematic application of the laws of nature to the practical purposes of life. The few facts connected with natural science, known to the ancients, were regarded as subjects of curiosity rather than of utility. But the happy thought of crowding the illimitable powers of nature into the service of man, has opened a new era in the history of our race. Whatever discoveries the ancients may have made in the laws of mind, the principles of political economy and of government, their attention was rarely given to an investigation of the laws of the natural world, as a source of happiness and improvement to man. This constitutes a great difference between their learning and ours. The powers of steam, electricity and galvanism, were never dreamed of by the sages of antiquity. Chemistry, that illimitable source of modern discovery, was entirely unknown to the ancients, beyond a few isolated facts.

At the revival of letters, after the dark ages, Europe began to experience a change more favourable for improvement in the practical arts of life. The spirit of enquiry into the very foundation of our knowledge, the establishment of seminaries of learning, the art of printing, and especially the works of Lord Bacon, in which the true principles of philosophical investigation—the induction of truth from the observation of fact—were illustrated and enforced, and the discoveries in the physical sciences which immediately followed, gave a vigorous impulse to the human mind, and led to the application of scientific principles to the useful arts of life. Little, however, was accomplished till the middle of the last century. During the last one hundred years, man has learned much of the laws of the material world, their nature and uses. He has fused the solid opaque rock, and from it formed the transparent lens of the telescope—an instrument which reveals to him the wonders of the distant heavens; the microscope—opening up a still more wonderful world in the atom and drop of water. This same transparent glass discloses the secrets of the rainbow, and untwists the delicate rays of the sun. He can compose and decompose the thousand objects of earth around him, scattering the air, the water, the solid rock, the animal and vegetable substances into their original invisible elements, and recomposing them again form their various compounds. He can extract a mysterious agent—galvanism—from inanimate nature, and collecting it to a focus, make it burn fiercer than the concentrated sunbeam or the raging furnace, fusing the most solid metals. This same mysterious agent is made an instrument of transmitting his thoughts with the rapidity of lightning. He casts his broad pathway over rivers and oceans, converting the very element in which he moves into a power to force him against wind and tide. With the same power he traverses hills and valleys, and manufactures many of the comforts of life. He descends into the depths of the earth to bring up its hidden treasures, and with the safety-lamp—more wonderful than Aladdin's—he walks through the perilous deep, with the destructive flame imprisoned in a wire cage, struggling to get free for the work of ruin. Although his abode is upon the surface of the earth, he can estimate the speed of the planets in their orbits through the skies. He can unravel their mystic dances around the great centre of life, and light, and joy.

Turning to the more ordinary avocations of life, his science has led him deeply into their mysteries. He has already learned much of the composition of soils, and the laws of vegetation; the means of resuscitating the exhausted land, and of producing surer and more abundant crops. The arts of manufacture, of dying and calico printing; the uses of the acids and alkalis in bleaching; the processes of brewing and tanning; the manufacture of soap, candles and sugar—of earthenware and porcelain.

But how few of the operators in these arts, have any knowledge of the principles upon which their arts are founded. How then is it possible for them to make any improvement? Scientific men seldom turn their attention to such subjects, and those engaged in them are ignorant of the laws which govern their operations. It is often asserted that many discoveries are the result of chance; this is a mistake—very few discoveries in the arts and sciences are made by those ignorant of the laws of nature, and where chance may have disclosed an important fact, the application and improvement have been made by the hand of science. The application of convex lenses in the construction of telescopes and microscopes, of steam to machinery, of galvanism to the telegraph, the illumination of cities and dwellings, and the analysis of chemical compounds, the pendulum, the spinning jenny, the safety lamp, the refining of sugar, the extracting of metals from their ores, —have been the result of the most elaborate researches, directed by the hand of science.

It may, therefore, be laid down as an axiom, that no important discovery is to be expected, except as the result of a knowledge of the laws of nature and unwearied investigation. How could it be otherwise? The great Architect of the

Universe has planned and executed every thing according to certain fixed laws. The adaptation of means to an end is perfect, the machinery is perfect, the operation is perfect. Every part of this vast creation, from the atom to the world—from the tiny insect to the archangel, bears upon it the stamp of infinite wisdom. It is a piece of divine mechanism, perfect in every part. So undeviating are the laws of nature, that the same substances, whether animal, vegetable or mineral, are formed of the same elements in unvarying proportions. "God has meted out the heavens with a span, comprehended the dust of the earth in a measure, and weighed the mountains in scales and the hills in a balance."—Isa. xl. 12. Everything is literally "meted out," "measured," "weighed in a balance." Nothing is formed casually or by chance. How then can these laws be "comprehended" or discovered by *chance?* As well might it be supposed, that well written and scientific treatises could be formed by throwing the twenty-four letters of the alphabet upon the paper, as to suppose that *chance* could unravel the laws of nature.

The workers in the various departments of human industry, have superior facilities formaking new discoveries. Acquainted with the processes in their respective departments, and with their defects, facts are constantly falling under their observations, which, if their hands were guided by philosophical knowledge, might lead to undiscovered laws, or improved operations. To quote but one example in illustration, to be found in works on chemistry. "A soap manufacturer, observing that the residurum of his ley, when exhausted of the alkali, for which he employed it, corroded his copper boiler, put it into the hands of a chemist for analysis. The result was the discovery of one of the most singular and important chemical elements—iodine. The properties of this being studied, were found to explain a variety of new, curious and important views then gaining ground in chemistry, and thus to exercise a marked influence over the whole body of that science. Curiosity was excited; the origin of the new substance was traced to sea-plants and to the seawater, thence to salt mines and springs, and marine plants—amongst others, to the *sponge*. A medical practitioner then called to mind a reputed remedy for one of the most grievous and unsightly disorders to which man in high and mountainous regions is subject—the *goitre*, which was said to have been cured by the ashes of burnt sponge. He tried the iodine, and found it an effectual cure." Thus the casual observations of the soap manufacturer proved a benefit to science and a blessing to mankind. This fact none other but a soap manufacturer might have observed for an age; but had practical men been scientific men, it might have been discovered long before. This is but one amongst the thousand facts constantly falling under the observation of workmen, whilst the philosopher is demonstrating his principles, or forming his theories in his closet, but often confounded, or led astray for want of such practical acquaintance with nature.

Such knowledge would also contribute to the comfort and safety of millions of our race. To the physician, the surgeon and the apothecary, acquaintance with the principles of chemistry is indispensable. The processes of absorption, secretion, fermentation, composition and decomposition, constantly going on in our systems, are all chemical, and may be controlled by the skilful practitioner. Chemical substances, which administered separately are perfectly harmless, but introduced into the stomach at the same time, may form the most virulent poisons, and immediately destroy life.

Some knowledge of geometry is highly useful to every mechanic and artizan, in the construction of angles, drawing parallels, perpendiculars, circumferences and arcs, and to estimate the square or cubical contents of any piece of workmanship.

A knowledge of mechanics is of vast importance to all who are employed in combining materials, raising weights, building piers and bridges.

The principles of hydrostatics and hydraulics have a direct application to the construction of pumps, water-wheels, fountains, fire-engines, canals, wet docks and reservoirs, flood-gates, dams and banks, and in conducting water over hills and valleys.

The resistance, pressure and elasticity of the air, admit of numerous applications to the practical purposes of life, in the construction of barometers, syphons, syringes, air-pumps, water-pumps, hydraulic machines, the durability of gluing, tenacity of cements, stability of walls, and the construction of chimneys, for even smoke will refuse to ascend a chimney unless it be constructed on perfectly philosophical principles, and rather than be forced up an ugly hole, will obstinately linger about the fire-place, until the door or some decent passage be opened for its egress.

Such knowledge would not only facilitate discoveries and improvements in all the arts and sciences, but would prevent innumerable casualties and fatal accidents.

Under this head, a few examples must suffice. The safety-lamp of Sir Humphrey Davy has doubtless saved the lives of thousands of miners; for according to the most accurate calculations, some thousands of these unfortunate persons every year fell a sacrifice to the explosion of carburetted hydrogen gas (called by the miners *fire-damp*). Explosions frequently occur, when the safety-lamp is used; for through the ignorance or carelessness of the manufacturers of the wire of which the lamps are formed, the apertures are too large. From well-attested experiments it is found, that if the openings of the wire gauze are more than one-twentieth of an inch in diameter, an explosion will take place.

I will quote an example which occurred some time last autumn (1848).

"*Frightful Colliery Explosion.* On Wednesday afternoon, a colliery, called the Darley Main, situated three miles from Barnsley, on the Sheffield road, was the scene of a terrific explosion of fire-damp, resulting in the ascertained loss of seventy-eight lives. This colliery is the property of Messrs. Jeffcock and Jarret, of Doncaster, and is not a mile from the Oaks or Audley Main Col-

liery, where it may be remembered, in March, 1847, an explosion of fire-damp caused the loss of no less than seventy-three lives; and about two years since, a similar accident occurred at the Darley Main."

Here carelessness or ignorance in the manufacture of a penny-worth of wire, led in these two instances to the sacrifice of 151 lives, which a little attention to the structure of the safety-lamp would have prevented.

Similar accidents often occur by descending wells, or entering caverns, in which carbonic acid gas, being heavier than the air, often settles. This gas immediately destroys life. We sometimes meet with statements like the following, taken from a late paper:—"*Death of two men from entering a well.* On Wednesday last, two men were killed by entering a well for the purpose of cleaning it. One man had descended to within a few feet of the bottom, when he suddenly fell. A second man immediately went down to his assistance supposing some accident had happened, but when he had arrived at the same place, he also fell, apparently dead. The neighbours were called to their assistance, but when they were taken out, life was extinct." Another—

"*Death of two young ladies.* Two young ladies, of the name of Grant, one about eighteen and the other twenty, were found this morning, one dead, and the other too far gone to be restored. The night being cold, a kettle of coals was placed in their bedroom, which was doubtless the cause of the fatal accident."

In both cases, carbonic acid gas was the fatal instrument of death. In the first, a simple experiment might have prevented the casualty. Had a lighted candle been let down into the well, the light would have been extinguished, which would have been a warning that the air was too impure to support life; for when a candle will not burn, animal life cannot subsist. A few pails of water thrown into the well, or boughs of a tree with the leaves on let down and drawn up a few times, would expel most of the gas, and render it safe to descend. In the other case, a knowledge of the fact, that in combustion, whether of candles, lamps, wood or coal, this same destructive gas is given off, would have been a sufficient caution against burning any quantity of coals in the open room.

But from many other causes, where life is not in immediate danger, the health is gradually but easily undermined. One almost universal source of shortening human life, is the impure air of our dwellings. How often does it occur, that those who enter upon the winter in good health, or not very poor health, are sickly, or die in the spring? A lady, an acquaintance of mine, never complains of poor health in the autumn, but does invariably in the spring. While there may be some other circumstances leading to this result, who can doubt that want of ventilation of our dwellings is the prime cause? From November till April the window is not thrown up, or if it be, the door is shut, thus preventing a free ventilation of air through the room. To secure perfect ventilation, the top as well as the bottom of the window should be opened; this is seldom done. There is no pure air admitted for six months, except when through the kind consideration of the builders, openings are left around the windows—a not unfrequent occurrence. But the advantage which nature would take of this oversight of the artist, is prevented by the vigilance of the housekeeper, who with knife and listing effectually secures every entrance to her palace. This impure air, with the dust constantly floating in the most carefully kept room, completes the work of destruction. Let any one examine a room when the sun shines brightly into the window, or try the experiment of writing his name on any article of furniture ten minutes after the dusting of the room, and he will be astonished at the number of the particles of the carpet, feathers, &c., taken at every breath into his lungs. The same is true of many churches. As if the very air in them was consecrated, it is carefully kept from year to year, and from generation to generation, with all the accumulated impurities arising from lamps, candles, and respiration.

These remarks might be extended to the condition of our large towns and cities, where every tree which would take up the carbon thrown off from thousands of lungs and fires, is carefully cut down by our kind city-fathers;—to the many sources of disease, in the dirty lanes and sinks, where all the pestilence-breeding filth is thrown. But time would fail to multiply the instances which would occur in every-day life, where health and happiness might be promoted, disease and accident prevented; as in adopting clothing to the various seasons of the year, to different constitutions and circumstances, to different ages and conditions; the choice and preparation of food; the care of children; cleanliness exercise, &c,

[*To be continued.*]

New Cleanser for Flouring Mills.—Mr. E. R. Benton, a millwright of Milwaukie, has invented a highly ingenious machine, to which he gives the above name. It is for the purpose of taking the bran as it comes from the bolt and cleaning it of the flour which adheres to it, and which, without the adoption of some such process, is wasted, and also for separating bran and shorts. The machine is in the form of an upright cylinder, about four feet high and two feet across, within which are two revolving cylinders curiously fitted up with wire cloths of various fineness, perforated sheet-iron plates, &c. &c.

The bran is brought by an elevator to the top of the cylinder and passes through a shaking sieve, which throws out the large lumps, that might clog the machine, down among the revolving cylinders. A current of air is driven up from beneath into the centre of the cylinder inside the revolving part, and by the operation of this current of air and the revolving of the mechanism, the bran, shorts, and two kinds of flour are passed off into separate receivers. The coarser flour is passed back into the elevator to go through the machine again, and the fine passes down into the bolt. A hammer constantly raps on the top of the revolving sieves to keep them clear from being clogged up.

We can give but an imperfect idea of this ingenious invention; it is simple, yet accurate in all its movements, and seems admirably adapted to the use for which it is designed. Three other machines for a

similar purpose have been invented at the East within two or three years, but Mr. B. considers his much superior to either of them, and skilful machinists speak in high terms of it. He says that about one-eighth of the mixed stuff as it comes from the bolt to the machine is saved as fine flour, and that in the very best mills three and a half per cent. of the flour ground will be saved; more, of course, in mills less perfectly built.—*Buffalo Commercial Advertiser.*

CREATIVE DESIGN.—Lord Bacon assigns to science a two-fold object, the relief of man's estate, and the glory of the Creator. There has never, in this country, been a disposition to underrate its last, and most honoured use. In the same spirit in which they studied the "book of God's word,' Englishmen have studied the 'book of God's works.' Maclaurin heard Newton observe that it gave him particular pleasure that his philosophy had promoted the attention of final causes, and his followers, who could not rival him in his genius, have not degenerated from his piety. It has been their delight to dwell upon the fact, that though a casual survey of the world proclaimed a Maker marvellous in goodness and in power, yet every hidden law which was brought to light afforded additional evidence of design, and shewed him beyond what man could conceive, 'wonderful in counsel and excellent in working.' With us the exceptions at least have been few, and none of them deserve to be remembered. But in France atheism, without limitation or disguise, has too often been blended with an extensive acquaintance with natural philosophy; and a living man of science, M. Comte, imputing to the works of creation the imperfections which in reality are in his own judgment, has come to be of the opinion of that impious king, who said that if the Deity had condescended to consult him he could have given him some good advice. Supposing it impossible that a philosopher who had run the range of physics, and written a bulky work in which he contends for the utmost strictness of reasoning, could take up a dogma which shocks the instincts of mankind, without some plausible pretence, we read his observations with close attention and painful interest. We laid down the book astounded at their imbecility, and could only re-echo the Psalmist's declaration, that it is *the fool* which has said in his heart there is no God. His argument might have been penned expressly to prove that there is a credulity of scepticism as well as a credulity of belief, and it is difficult to assign any motive for his creed except the morbid passion for distinction which leads some men, and especially Frenchmen, to prefer the elevation of a gibbet rather than walk upon level ground. Yet he had every advantage, for he only undertook to insinuate objection, which must always be easy on mysterious questions, about which knowledge is imperfect.

Atheists are cowards in discussion; they dare not meet the united evidence, and set out in a formal shape the contending system by which they are bound to establish that the contrivances of the world did not call for a contriver. Even of cavils we can fix upon nothing tangible, amidst the cloudy language of M. Comte, except that the arrangements we make are usually superior to the arrangements we find. And this is the argument which is to prove that there is not a maker and a governor of the world! Is it so much as a *defect* in the scheme that man has often to plan for himself? With every thing ready prepared to our hands, ingenuity would languish for want of stimulus; and if it be a curse to eat our bread in the sweat of our brow, a greater curse still, in our present condition, lights upon him whose forehead neither sweats from toil nor aches from thought. As Alexander wept when no more worlds were left to conquer, so we likewise should sigh if a too bountiful nature left nothing to be discovered and nothing to be improved. It is a part of our enjoyment here to employ our talents in neutralizing evils, in turning apparent disadvantages into benefits, in finding in hostile agencies elements of power which a presiding genius converts to as many friendly ministers. Nor need we suppose that a progressive development of material advantages, instead of a complete and original perfection, bore hard upon earlier generations, who, living in the infancy of the world, lived also in the infancy of civilization. Man, with respect to corporal comforts, is the creature of habit. To whatever he is accustomed, that he enjoys. The Greenlander, with his wretched hut and barren soil, believes himself the most favoured of created beings, and pities the lot of nations which are destitute of the luxury of seals. In like manner it is probable that the early inhabitants of Britain were as satisfied with a cave or a cottage of clay, as we with our mansions adorned with all the products of the arts. So, too, in the same age the king would think himself meanly accommodated in the house of the gentleman, the gentleman in the abode of the peasant—and yet custom has adapted each to his own. It is not the absolute degree of refinement that confers the pleasure; it is the improvement on what we are used to, the addition to what we already possess—and this pleasure has been common to every period in which the wants of mankind were sufficiently keen to excite invention and common art to aid nature. But in all our improvements we can only, by the strength and intellect which God has given us, mould the matter which God has made. If we can sail in ships upon the great deep, it is because *He* supplied us with the wood for their construction, and endowed it with the buoyancy to float upon the waves. If we perform prodigies with steam, it is because he gave it an elastic power, ordained that fire should evolve it out of water, and provided us both with the water and the fire. We merely use the things with which he has presented us, and presented with a foresight of the end to which our capacities and wants would enable us to devote them. We can adapt, but we cannot create. The greatest genius that ever lived is impotent to give being to the most insignificant particle of dust. It required the powers of Sir Isaac Newton to detect many natural laws; but even the Newtons of the human race can only discover laws—they cannot make them. We may worm out the secret powers with which Nature is invested, and by new adaptations produce effects of which the native elements are utterly incapable; but at best we only avail ourselves of properties already existing, merely develop the latent energies innate in our materials. We pull to pieces, and put together, we shape, and we arrange, but we cannot add to the world a single atom, no—nor even take it away. Whatever our triumphs, we never passed this limit to human interference, which teaches everybody, capable of being taught, that we are after all only creatures, and that another is the creator. But M. Comte can believe any fable rather than believe a God. He is willing to imagine that the sun, the earth and the planets may have come into being without an author, being whirled in their orbits, endowed with gravity, peopled with wonder: for parodying Scripture, he asserts that the only glory which the heavens declare is the glory of Newton. The remark is one example out of many that French wit is often nothing but English flippancy. If the heavens declare the glory of Newton, then whose glory does Newton display? But the poison is too weak to take effect, except upon vain and vicious understandings. The arguments of atheists are like chaff in the wind—they may settle for a moment, but from their natural levity the first opposing current sweeps them away. We do not require the lessons of Natural Philosophy to teach us to believe.

Their use is, that they assist us to adore. The further we go the more we are constrained to wonder and admire; and though we see but in part, and often retire baffled from the effort to interpret nature, we see enough to bring away the most inspiring sentiment with which men can glow—the deep feeling of the Psalmist's words:—'All Thy works praise Thee O Lord, and talk of thy power; There is no end of Thy goodness.'—*Quarterly Review.*

RATIONALE OF SWIMMING. — The weight of the human body is very nearly equal to that of its own bulk of water; its magnitude, however, is subject to a small variation, caused by the action of breathing; when the lungs are inflated, the volume of the body is greater than after they collapse. It is true that in this case the weight of the body as well as its magnitude, strictly speaking, undergoes an increase; but the change of weight is comparatively small, being that of a few grains of air, which are alternately inspired and breathed out. The change of volume produces, however, a sensible effect when the body is immersed in the liquid. When the chest is inflated with air by drawing in the breath, the body is somewhat lighter than its own bulk of water; and, if it be immersed in that liquid, it will displace its own weight before total immersion takes place. If the head be presented upwards and inclined backwards, so as to keep the mouth and nose in the highest possible position relatively to the remainder of the body, a person may float with about half the head above water when the chest is filled with air; and when he breathe out, his lungs collapse, and the bulk of his chest is diminished; his weight, however, remaining the same, he must sink deeper in order to displace his own weight of water. A living body floating on water is, therefore, in a state of continual oscillation, alternately rising and sinking; this effect is increased by the inertia of the body; for when it descends, it will not cease to sink exactly at that depth at which it displaces its own weight of water, but it will continue to move with the velocity it has acquired, until the increasing weight of the water displaced forces it to return upward; its alternate ascent is similarly increased. This effect may be observed by pressing a piece of cork in water to a greater depth than that at which it naturally floats; an oscillation will ensue which will continue for some time. Hence arises one of the difficulties which are found in floating on water; for, in the alternate sinking of the body, the mouth and nostrils may be so choaked as to intercept the breathing; a slight action of the hands or feet is therefore necessary to resist the tendency to sink after each expiration from the chest.—*Lardner.*

POWER OF EXPANSION IN ICE.—The general law is, that all bodies are expanded by heat, and contracted by cold. If it did not, ice, as it forms, would sink to the bottom, and our streams freeze solid. A correspondent of the Montreal Herald, lately experimented on the expansive powers of freezing water, with the following result:

He filled a 21 lb. shell (the diameter of which was 5.547 inches, and about three-fourths of an inch in thickness) with water, and plugging up the whole securely, exposed it to the action of the frost, during one of our keenest nights this winter. In the morning he found the mighty power had divided the iron mass into four sections, one of which weighing four and a half pounds, was thrown 20 and a half yards, and must have passed upwards, over a wheel behind which it had been placed—the ice remaining in the section left behind, as if it had been pounded.

THE BITE OF THE ADDER.—The adder, though justly an object of aversion and dread, is by no means so noxious a creature as is commonly believed. It never makes an unprovoked attack; but is induced to bite only when suddenly molested, or when obliged to act in self-defence. The chief danger to any persons walking in its vicinity, consists in coming close upon it, and appearing to intend it damage, while it is unobserved. Its bite, too, though quite painful and venomous enough to be matter of serious apprehension, is exceedingly far from being necessarily fatal; and probably may, in every instance, with a due regard of care, be somewhat easily cured. In a moss in the neighbourhood of Bucklyvie, in Scotland, a farm servant, while engaged in cutting peats, a few years ago, was stung by an adder, and died in consequence of the wound in about ten days. The first precaution to be observed in a case of this kind, is, when the disposition of the parts will permit, to fix a ligature above the wounded place, and not to tighten it too much, for fear of giving rise to mortification. Immediately after, a cupping-glass is applied to the wound, the parts adjacent being scarified; and this mode, highly praised by Celsus, has very recently been attended with happy results in the hands of Messrs. Mangili, Barry, and Bouillaud. The method, from analogy, affords an additional recommendation to employ the plan of suction, which has received the further confirmation of professional experiments tried by a number of physiologists and physicians. When the cupping glass has performed its office, the lips of the wound, already scarified, should be cauterized deeply and extensively. This should be done with a red-hot iron, chloride of antimony, or concreted potassium. A variety of different substances, taken internally, has been lauded from time to time as efficacious against the bite of the viper. Sudorifics have been especially recommended. Fomentations of warm vinegar, an aqueous solution of sal ammoniac, or a solution of sugar-of-lead in water, with the addition of a little camphorated spirit, may be applied when horses or dogs have been bitten by vipers. In ordinary cases, relief will be afforded by applying salad oil to the injured part, and also giving it internally. The name adder, by which the viper is popularly known, appears to be a corruption of the reptile's name in the language of the Welch or of the ancient British.

IMPROVED STEELYARD.—Messrs. F. & W. Flint, of Westford, Mass., have recently put in operation an improvement in the Steelyard, which is simple, ingenious, and combines a weighing machine apparatus and self-calculator.

The beam is suspended on a pivot and contains notches on both ends, on each side of the pivot on which the beam turns. Suppose one end is graduated with 100 notches, and the other 200, the notches indicate so many cents, half cents, and quarter cents, which are marked and figured accordingly.

On the short end is found the price per pound or ounce, and on this the scale-pan or article is placed. Then, wherever the poise-weight on the other end is found to level the beam, is marked the precise value of the article weighed, according to the specified price per pound or ounce.

This improvement, it is said, may be applied to platform, and all the variety of scales now in use; and the calculator applied to the English computation of money as well as that of the United States.—*Farmer and Mechanic.*

GENTILITY is neither in birth, wealth, manner, nor fashion—but in mind. A high sense of honour, a determination never to take a mean advantage of another, an adherence to truth, delicacy, and politeness towards those with whom we have dealings, are its essential characteristics.

Domestic and Miscellaneous.

"HOUSE AND HOME."

What's a House? You may buy it, or build it, or rent;
It may be a mansion, a cottage, a tent;
Its furniture costly, or humble and mean;
High walls may surround it, or meadows of green.

Tall servants in livery stand in the hall,
Or but one little maiden may wait on you all;
The tables may groan with rich viands and rare,
Or potatoes and bread be its costliest fare.

The inmates may glitter in purple and gold,
Or the raiment be homely and tattered and old:
'Tis a house, and no more, which vile money may buy;
It may ring with a laugh, or but echo a sigh.

But a Home must be warmed with the embers of love,
Which none from its hearthstone may ever remove;
And be lighted at eve with a heart kindled smile,
Which a breast, though in sorrow, of woe may beguile.

A home must be "Home," for no words can express it,—
Unless you have known it, you never can guess it;
'Tis in vain to describe what it means to a heart
Which can live out its life on the bubbles of art.

It may be a palace, it may be a cot,
It matters not which and it matters not what;
'Tis a dwelling perfumed with the incense of love,
From which to its owner 'tis death to remove.

WHAT TO EAT, DRINK, AND AVOID.—A GUIDE TO HEALTH AND LONG LIFE.—BY R. J. CULVERWELL, M. D.

I shall not particularize the "vegetable kingdom" by an analysis of its orders, but merely take a view of a kitchen supply, or such as is most common to the dinner and desert table. Bread comes under the denomination of a vegetable, and is best known as home-made, domestic, white and brown bread. We have varieties, in the form of biscuits, pies and puddings, made from the same material—flour. Of these I will first speak. *New bread is very unwholesome;* it should, by every body, be eaten after it is one *day old*. Invalids should have it toasted, and eat it only when cold, buttered or not, as may be. It must be recollected that bread is always imperfectly baked, the top and bottom being the only parts thoroughly done; hence toasting completes the process. White bread has a tendency to constipate the bowels; it is rendered more astringent by the alum the bakers mix with it. Brown bread, being made of coarser materials, that is, flour not so well pulverized and sifted, *works its way*, and helps to preserve the bowels in a healthy lax state. The best plan is to alternate their consumption, or take the brown bread for breakfast and tea, and the white for dinner; or reverse it if it be preferred.

Bread is usually fermented with *yeast* or *leaven*, but of late years unfermented bread has commanded great consumption; it is certainly more wholesome—more saving in the preparation, both as to time and money, and, what is well to know, less constipating and indigestible than fermented bread proves to be to many. The following is the best formula employed:

To make white unfermented bread.—Take of flour, dressed or household, 3 lb. avoirdupois; bicarbonate of soda in powder, 9 drachms apothecaries weight; hydrochloric (muriatic) acid, specific gravity 1. 16. 11¼ fluid drachms; water, about 25 fluid ounces.

To make brown unfermented bread.—Take of wheat meal, 3lb. avoirdupois; bicarbonate of soda, in powder, 10 drachms apothecaries' weight; hydrochloric (muriatic) acid, specific gravity 1. 16. 12½ fluid drachms; water, about 28 fluid ounces.

The following are the instructions to the cook or housewife for carrying out the preceding directions: first, mix the soda and flour well together—let the soda be well rubbed down in a mortar, and then scattered through a sieve over the flour, stirring them together in a large bowl. Mix the acid well with the water, which should be cold, or lukewarm, by the aid of a wooden spoon; then make dough, the thinner the better, in the usual manner, by mixing the flour and water as quickly as possible; divide it into loaves of convenient size, which had better be put into earthen pans, and put them immediately into a hot or quick oven. In about an hour and a half they will be sufficiently baked. The soda and acid used, form, when mixed, common salt, but the process of their conversion, the effervescence, it is that expands the dough and answers the purpose of the yeast. If there be too much soda or acid, the bread will be correspondingly flavoured, and where lumpy, slightly discoloured, but neither circumstance is of any moment.

This form of bread admits of many of the usual modifications, such as the use of milk, and its conversion into puddings, cakes and biscuit.

To make a good plain pudding, which may be rendered into plum, currant, suet, &c., thus: Take of best flour, 1½ lb.; bicarbonate of soda, ½ an ounce; hydrochloric acid, 5 fluid drachms; suet, ¼ lb.; ginger, ½ drachm; water (more or less) 1 pint. Mix quickly, as before advised, and boil in a basin or bag.

To make cakes.—Take of flour, 1¾ lb.; bicarbonate of soda, ½ an ounce; hydrocholoric acid, 5 fluid drachms; sugar, 1½ ounces; butter, 1½ ounces; milk (more or less), 1¼ pints. Mix the flour and soda, then add the butter; then dissolve the sugar in the milk, and diffuse the acid, by stirring it, as before directed, with a wooden spoon; then mix the whole intimately, adding fruit at discretion, and divide the product into two or more portions for baking, which is best effected in flat earthen pans.

Bread, of course, is held to be the staff of life, and it is a great consideration how it can best be prepared. Few families have conveniences or time to make and bake their own, and it is no easy matter to persuade bakers that the plan as advised herein is the easiest, cheapest and best, but it is really the case; and what is of equally great importance, it is more nourishing and wholesome, and, to the dyspeptic invalid, it is a most valuable corrective. Independently of its being very valuable, it keeps much longer than common bread, and does not so readily turn sour. However, the instructions are so simple and easy that the experiment is worth the attempt; and were bakers generally to sell it, they would find the demand very quickly compensate them. The remarks I have offered of the superiority of brown bread over white, as a laxative, bear good, whether the bread be fermented or otherwise; but the unfermented is much superior, as not only helping to keep the bowels in ordinary action, but as being positively more digestible; and, instead of being productive of head-ache, acidity, irritability of stomach, flatulence, and other symptoms of dyspepsia, it is corrective and avertive of all these. In Liebig's views of the sustenance of life, it will be learned that the several portions of our food go to form the various structures of our body; such as meat and bread form especially the flesh, bones and blood of human beings; portions of their composition go directly to support and nourish the bones; vegetables, fat and sugar, have a destination of their own. Now, in the process of refining flour, of making it white and pure, as it is called, the millers rob it of a very valuable quality—its saline ingredients—which ingredients are indispensable to the growth of bones

and teeth, and are still required to keep them in healthy condition. Hence do we attribute the weakly-formed bones, as evinced by the bent limbs and bad teeth of the children who have been fed chiefly on the finest wheaten flour, or bread which, as has been just now stated, is divested of its salts. The coarser food of the poor secures them stronger limbs and finer figures for their young children, where health, in other respects, is born with them. This is worth reflecting upon; and, since the conversion in my own person and family, and in those patients I have persuaded to follow my example, of consuming brown bread, or, at least of mingling it with white, and of late unfermented, I can bear testimony to its great utility, wholesomeness, economy and agreeableness. It is suggested that mothers and nurses, when suckling their young charges, should consume brown bread---if unfermented, so much the better; for, upon the same principle, just quoted, that the body derives its nourishment from food analogous only in its elements to itself, so it follows that, as the child is fed only from its parent or nurse, it must owe its preservation to the soundness of the source whence it exists.

In continuation of the subject on the varieties of the uses of flour, &c., hot rolls, fancy breads, rusks, and tops and bottoms, are very indigestible for invalids and children. Country people have generally a slice of cake to offer as a complimentary refreshment, with a glass of home-made wine. A dyspeptic would have heartburn and acidity throughout the day, were he to accept such an invitation; but there are thousands of people who can do "that sort of thing" with impunity. Biscuits when well and crisply baked, are wholesome and easy of digestion. Those containing carraway seeds, and whimsically called "Abernethy," are in my opinion as bad as pastry and sweets generally.

Pies and puddings are made, of course, with flour and butter, or suet, and from closer intermixture (apart from the properties of the butter) are less digestible than bread. Bread puddings, made with unbuttered slices of bread, form an excellent meal, or an adjunct to one.

Macaroni, or vermicelli, boiled in beef tea or broth, makes a nice soup. Macaroni or vermicelli† puddings are excellent. Rice puddings, baked and boiled, are both capital forms of diet. The former should be made and taken without butter, and with very little sugar.

Barley broth,‡ porridge, gruel, sago,‖ tapioca,§ rice powder, and other similar preparations, are severally admirable articles of nourishment. Cookery wonderfully alters the taste, appearance and quality, of all farinaceous articles. The various farinaceous preparations make excellent jellies.

Potatoes,	Turnip-tops,
Peas,	Spinach,
Beans,	Brocoli,
Broad Beans,	Brocoli Sprouts,
French Beans,	Cauliflower,
Scarlet Runners,	Asparagus.
Turnips,	Artichokes,
Carrots,	*Salads.*
Onions,	*Lettuce*,
Parsnips,	*Radishes.*
Vegetable Marrow,	*Cucumbers*,
Sea Kale,	*Endive.*
Greens & Cabbages,	Water Cresses,
Tomatoes.	

Potato,¶ the almost universal vegetable, has advocates and opponents for its adoption. Liebig says, a horse may be stuffed with potatoes, but life thus supported is a gradual starvation, although prisoners have been fed upon them with advantage. Baked potatoes are less nourishing than boiled, and mealy potatoes are more digestible than waxy. Potatoes, in general, engender flatulence. Onions lose their stimulating influence by boiling, and are then considered wholesome. The best onions are found in Mexico.

In the foregoing table, vegetables of less digestibility than others, or which require stronger powers of digestion (for the two properties are not alike), are printed in *italics*.

"1. *That minuteness of division and tenderness of fibre* are the grand essentials for the easy digestion of butcher's meat. The different kinds of fish, fowl and game, are found to vary in digestibility, chiefly in proportion as they approach or depart from these two standard qualities.

"2. *Farinaceous food*, such as gruel, rice, sago and arrow-root, and like-wise milk, are rapidly assimilated, and prove less stimulating to the system than animal food.

"3. Liquids are slow of digestion, and hence, in excess, are unfit for most dyspeptic persons."

RECIPES.

Bread Pudding.—Grate half a pound of stale bread, pour over it a pint of hot milk, and leave the mixture to soak for an hour in a covered basin; then beat it up with the contents of two eggs. Put the whole into a covered basin, just large enough to hold it, which must be tied in a cloth and placed in boiling water for half an hour. It may be eaten with salt, sugar, or sherry.

Panado.—Place some very thin slices or crumbs of bread in a saucepan, and add rather more than will cover them. Boil until the bread becomes pulpy, then strain off the superfluous water, and beat up the bread uhtil it becomes of the consistence of gruel; then add white sugar, and, when permitted, a little sherry wine. An agreeable aliment for the sick.

RECIPES FOR THE SICK.

Milk Porridge.—Boil a tea-cupful of half-grits in three pints of water, for an hour and a half; strain the water off, and add cold milk, or warm as may be approved.

French Milk Porridge.—Stir a handful of oatmeal into a quart of water, let it stand to be clear, and pour off the latter; pour a pint of fresh water upon it, stir it well, let it stand till next day; strain through a fine sieve, and boil the water until half has been boiled away, then add a pint of milk and boil again. This is much ordered, with toast, for the breakfast of weak persons abroad.

Ground Rice Milk.—Boil one spoonful of ground rice, rubbed down smooth, with three half pints of milk, a bit of cinnamon, lemon-peel, and nutmeg. Sweeten when nearly done.

Sago.—To prevent the earthy taste, soak three tablespoonfuls in cold water an hour, pour that off, and wash it well; then add a pint of water and simmer it gently till the globules are clear, with lemon-peel if approved. Add wine and sugar, and boil all up together.

Water Gruel.—Put a large spoonful of oatmeal by

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† Take two ounces of ether, one pint of milk, four tablespoonful of cinnamon water; simmer till the macaroni or vermicelli is tender; then add three yolks and one white of eggs, one ounce of sugar, one drop oil of bitter almonds, glass of raisin wine in half pint of milk Bake slowly.

‡ To make barley water. Take of pearl barley two and a half ounces, wash them, and add half a pint of water; boil for a little while; throw this liquid away, and then add four pints of boiling water; boil down to two pints, and strain. Raisins, figs, tamarinds and liquorice, are sometimes added to make a diet drink.

‖ Sago milk. Take of sago one ounce, water one pint; soak for an hour, pour off the water, and add one pint and a half of good milk, and boil until the sago is dissolved; then flavor with sugar, nutmeg, and wine.

Sago gruel. This is made by boiling the sago in water only, and it also may be flavored with lemon juice, sugar and spice.

§ Tapioca pudding. Take of tapioca two ounces, the yolks of two eggs, sugar half an ounce, milk one pint. Mix and bake.

¶ As a substitute for the potato, during its scarcity, rice, served up plainly boiled, or "curried," is very nutritious and palatable.

degrees into a pint of water, stir it until it is smooth, and then boil it.

Another Way.—Rub smooth a large spoonful of oatmeal with two of water, and pour it into a pint of water boiling on the fire; stir it well and boil it quick, but take care it does not boil over In a quarter of an hour strain it off, and add salt and a bit of butter when eaten. Stir until the butter be incorporated.

Barley Gruel.—Wash four ounces of pearl-barley; boil it in two quarts of water with a stick of cinnamon, till reduced to a quart; strain and return it into the saucepan with sugar and three-quarters of a pint of port wine. Heat it and use it as wanted.

Buttermilk with Bread or without.—It is most wholesome when sour, for then it is less likely to be heavy; but patients generally think it more palatable when it is made of sweet cream. Pour the buttermilk over a couple of slices of bread, and let them soak ten minutes.

Baked Fruits.—Apples baked in an oven, or roasted before the fire, with a small quantity of good brown sugar surrounding them, make an excellent meal for invalids. Pears are equally good; but they should be baked with sugar-house molasses. Raisins also may be boiled until they swell, and then baked with soda or other biscuits, that have been crumbled and steeped in water. Sweeten them with a few tea-spoonsful of sugar. The raisins are sometimes baked with light pale sponge cake which has been immersed in water. The pans in which the raisins are baked should be well buttered.

Biscuit Jelly. — Biscuit jelly is particularly serviceable in cases of debility of the digestive organs. Boil a quarter of a pound of soda or sea biscuits in as much water as will cover them. When they have boiled to a jelly, strain them through a fine sieve or jelly-bag, sweeten them with powdered sugar according to your taste, and add a wine glass of port wine and ten drops of cinnamon water.

Hartshorn Jelly.—Boil a quarter of a pound of hartshorn shavings in a quart of water. Stir it that it may not burn. When so much of the water has evaporated that the jelly begins to thicken, strain it, add the juice of half a large orange, half a small wine glass of sherry, and a table-spoonful and a half of white sugar. Set the jelly over the fire again and let it boil five minutes, it is then fit for use.

Evil Consequence of Smoking. — The widespread habit of smoking has not yet had due medical attention paid to it and its consequences. It is only by two or three years' observation, that Dr. Laycock has become fully aware of the great changes induced in the system by the abuse of tobacco, and of the varied and obscure forms of disease to which especially excessive smoking give origin. He proceeded to state some of them, as they were met with in the pharyngeal mucous membrane, the stomach, the lungs, the heart, the brain, and the nervous system. The tobacco consumed by habitual smokers varies from half an ounce to twelve ounces per week: the usual quantity from two to three ounces. Inveterate cigar smokers will consume from four to five dozen per week. The first morbid result is an inflammatory condition of the mucous membrane, of the lips and tongue, then the tonsils and pharynx suffer, the mucous membrane becoming dry and congested. If the thorax be examined well, it will be found slightly swollen, with congested veins meandering over the surface, and here and there a streak of mucous. The action of tobacco-smoking on the heart is depressing, and some individuals, who feel it in this organ more than others, complain of an uneasy sensation about the left nipple, a distressed feeling, not amounting to faintness, but allied to it. The action of the heart is observed to be feeble and irregular. An uneasy feeling is also experienced in or beneath the pectoral muscles, and oftener on the right side than the left. On the brain, the use of tobacco appears to diminish the rapidity of cerebral action, and checks the flow of ideas through the mind. It differs from opium and henbane, and rather excites to wakefulness, like green tea, than composes to sleep; induces a dreaminess which leaves no impression on the memory, leaving a great susceptibility, indicated by a trembling of the hands and irritability of temper. Such are the secondary results of smoking—so are blackness of teeth and gum-boils.—There is also a sallow paleness of the complexion, and irresoluteness of disposition, a want of life and energy, and in constant smokers who do not drink, a tendency to pulmonary phthisic. Dr. Wright, of Birmingham, in a communication to the author, fully corroborates his opinions; and both agree that smoking produces gastric disorders, coughs and inflammatory affections of the larynx and pharynx, diseases of the heart, and lowness of the spirits, and, in short, is very injurious to the respiratory, alimentary and nervous systems.—*English Literary Gazette.*

Improved Method of Preserving Milk.—We learn from the *Chemical Gazette*, that F. H. S. Louis has patented an improved method of preserving milk. The milk is to be mixed with well clarified raw sugar, 4 oz. to the gallon. It is then to be evaporated with agitation; when nearly solid it must be pressed into cakes of suitable size.

Steam may be used for evaporating, or if time is no object, spontaneous evaporation in very shallow pans, with the fluid not more than one-tenth of an inch in depth, or a drying chamber may be used, the temperature not to exceed 122 degrees Fah.

The cakes remain sweet and fresh for a long time and are soluble in warm water. Another process is to heat the sweetened milk, nearly to the boiling point, and before it becomes cold, to curdle it by rennet or a weak acid. The curd is separated from the whey, and by strong pressure after washing in cold water, it is obtained free from adhering water. The whey is to be evaporated to dryness. The curd placed over a slow fire is continually stirred, and the dried whey added very gradually, with a small portion of bicarbonate of soda. After a while the ingredients melt and unite. A small quantity of finely pulverized gum-dragon, hastens the solidification.

Cream may be preserved by the same methods.

Immortality of Mind.—While the mind rests with a pleasing satisfaction on the great deductions of philosophy, it yet pants for a fuller and higher revelation. If the man of clay has been honoured with such a luxurious table, may not his undying and reasonable soul count upon a spiritual palace and sigh for that intellectual repast at which the master of the feast is to disclose his secrets? In its rapid, continued expansion, the mind, conscious of its capacity for a higher sphere, feels even now that it is advancing to a goal more distant and more cheering than the tomb. Its energies increase and multiply under the incumbrances of age; and even when man's heart is turning into bone, and his joints into marble, his mind can soar to its highest flight, and seize with its firmest grasp. Nor do the affections plead less eloquently for a future home. Age is their season of warmth and genial emotion. The objects long and fondly clasped to our bosom have been removed by Him who gives, and who takes what he gives; and lingering in the valley of bleeding and of broken hearts, we yearn for that break of day which is to usher in the eternal morn—for the house of many mansions which is already prepared for us, and for the promised welcome to the threshhold of the blest, where we shall meet again the loved and the lost, and devote the eternity of our being to the adoration of its Almighty Author.

Editors' Notices, &c.

Reports of Common Schools. — We have been favoured by the Chief Superintendent of Education with copies of the Annual Reports of the Normal, Model and Common Schools, in Upper Canada, for the years 1847-8. These are documents of no common interest, in relation to a subject of vital importance—the education of the masses of this country. They bear evident marks of having been prepared with great industry and care, and the extensive statistical returns embody a large number of facts in reference to the practical working of the common school system. Of whatever improvements that system may yet be susceptible, it is evident that it has already been productive of a large amount of good. We are gratified to find that instruction in the principles of Agriculture forms a part of the course of study instituted in the Normal School; and the teachers that are annually sent out from that valuable institution cannot fail of instructing the minds of the rising generation in rural as well as in more purely intellectual pursuits.

Home District Agricultural Society.—The Fall Show of this society will be held at Richmond Hill, on the second Wednesday in October. We hope a more general interest in the improvement of agriculture will be excited throughout this important district, by occasionally having the exhibition out of the city of Toronto.

Toronto Mechanics' Institute.—We perceive that the managers of this popular institution are again getting up an Exhibition, comprising mechanical inventions, works of art, domestic manufactures, natural productions, &c. &c. This exhibition is to commence on the 25th of September, and will continue open to the public for a fortnight.. We strongly recommend our country readers, when they come into the city, to pay the Mechanics' Institution a visit, the charge for admission being only 7½*d.* for each person. They cannot fail to come away both gratified and instructed.

Remedy for Cholera.—A correspondent sends us the following specific, as having proved efficacious in a number of instances. We insert it at his request, cautioning our readers, however, against placing much reliance on any published nostrums. In case of an attack by this or any other kind of disease, the only *safe* way is to have recourse to the best medical skill within reach, *and without delay.*

"Pour 1½ oz. of spirits of wine on ¼ oz. of camphor, to dissolve it. Take five drops every five minutes for three doses. Then wait half an hour; and should not perspiration be freely induced in that time, continue the dose as before until animal warmth is restored, when an additional dose will usually effect a cure. This is for an adult—children of course proportionably less."

M. W., Chatham.—We are obliged by your communication; it arrived too late for the present number.

W. M., Port Credit.—Your communication in our next. We will turn our attention to the subject of your remarks the first opportunity.

Agricola.—The continuation of the papers on the Application of Science to Agriculture, will be resumed at the commencement of winter, when farmers will have more leisure for that kind of reading; we have of late been too much engaged in travelling about to write on scientific subjects. The papers on the most important breeds of domesticated animals, to which we have already given a general introduction, will appear in the commencement of our next volume.

A. F., Dunnville.—The price of flax seed varies from about 4s. to 4s. 6*d.* currency per bushel of 56 lbs. We believe all dealers in seeds in this city purchase it. Messrs. Dew and McGee, of the Toronto Flax Mills, are no doubt purchasers.

STATE OF THE MARKETS.

From *England* we learn, up to the latest dates (Aug. 11th), that the grain crops generally were most promising, which was also the case both in Scotland and Ireland. Prices consequently ruled low, with a downward tendency. Hops, it would appear, were generally blighted, and the prospect of a crop quite hopeless. Prices had advanced to 80s. and 90s. per cwt. for hops of the growth of 1848.

In Upper Canada the wheat crop will be above an average, and it has been secured in good condition. In some of the eastern sections of the province the drought has been injurious to all kinds of crops, especially spring crops, which are generally short, although we have seen in various places peas, barley, oats and hay in great abundance. That destructive enemy to wheat, the rust, has this year been less injurious than usual; yet it has somewhat affected the wheat crop to a considerable extent in several localities, diminishing the weight and quality of the grain. Upon the whole, however, we have abundant reason to be thankful to the bountiful Giver of all good for causing the earth to yield a liberal increase. Our farmers, we trust, will obtain remunerating prices.

In the *Toronto* market there continues considerable activity in new wheat, occasioned chiefly by American purchasers, who will buy Canadian produce until the arrival of supplies from the Western States. In large portions of the South Western States, we understand the wheat crop has been greatly injured, and in some instances entirely destroyed, by the weevil and rust. How clearly do these facts shew the mutual benefit the reciprocity bill would confer on both countries.

TORONTO MARKET.

	Aug. 31, 1849.				
	s.	d.		s.	d.
Flour, per brl. 196lbs.	17	6	to	21	3
Wheat, per bushel, 60lbs.	3	6	to	4	0
Barley, per bushel. 48lbs.	1	6	to	1	9
Rye, per bushel, 56lbs.	2	6	to	3	2
Oats, per bushel, 34lbs.	1	0	to	1	4
Oatmeal, per bbl. 196lbs.	15	0	to	18	0
Pease, per bushel, 60lbs.	1	6	to	1	10
Potatoes, per bushel	2	6	to	3	0
Onions	3	6	to	5	0
Beef, per 100lbs.	17	6	to	20	0
Timothy, per bushel, 60 lbs.	6	0	to	8	0
Turkeys, each	2	6	to	3	9
Geese, each	1	3	to	2	6
Ducks, per couple	1	0	to	1	6
Chickens, per couple	1	6	to	1	9
Pork, per lb.	0	2½	to	0	3¾
Ham, per 100 lb.	35	0	to	45	0
Bacon per 100 lbs,	36	0	to	40	0
Mutton, per lb., by the quarter	0	2½	to	0	4
Lamb per quarter-	2	0	to	3	0
Fresh Butter, per lb.	0	7½	to	0	9
Firkin Butter, per lb.	0	5	to	0	6
Cheese, per lb.	0	3	to	0	5
Lard, per lb.	0	4	to	0	4½
Apples, per barrel,	10	6	to	15	6
Eggs, per dozen,	0	6	to	0	7
Fowls, per pair	1	3	to	1	10
Straw, per ton,	25	0	to	30	0
Hay, per ton,	30	0	to	40	0
Fire Wood	10	0	to	12	6

Advertisements.

PROSPECTUS.

THE PROVINCIAL MUTUAL AND GENERAL INSURANCE COMPANY.

INCORPORATED BY ACT OF PARLIAMENT.

BOARD OF DIRECTORS.

ROBERT E. BURNS, Esq., ... *President.*
J. S. HOWARD, Esq., ... *Vice-President.*

W. L. PERRIN, RICHARD C. GAPPER,
WM. GOODERHAM, JAMES BROWN,
JOHN G. BOWES, FRANCIS NEAL,
A. A. CLARK, J. C. MORRISON, M. P. P.,
and CHARLES BERCZY, Esquires.

THE Stock of this Company is divided into the Mutual and Proprietary—the Mutual by the members giving premium notes upon obtaining Policies, and the Proprietary by having a subscribed Capital and issuing thereupon in the ordinary way.

THE MUTUAL BRANCH.

It has been felt throughout the Province, that Mutual Insurances have not been sufficiently restricted to render the system a favorite with the public; but this may be said to arise from the operations of the different companies being confined to each particular District. It is evident that these restrictions operate badly; for if it be desired to have nothing but equal risks, then the transactions must necessarily be limited to an amount which makes it unprofitable to become Policy-holders; and if it is desired to increase the business by taking unequal risks with others, then members are exposed to pay more than they would be required to do in other Companies.

If Mutual Insurances are taken upon property classed as extra hazardous with those termed not hazardous, although higher rates are put upon the former with a view to equalize them, it is obvious it has not such effect. This may be fully established by simply putting a class together, as for instance all the Mills of the Province, and ask whether such class would be desirous of mutually insuring each other, or whether they would not rather be joined with a goodly sprinkling of farmers as members. Again, ask the farmers and others of similar risks, whether they would not be willing mutually to insure each other without being obliged to pay for losses on extra hazardous property, and there can be no doubt what the answer would be.

The object of this Company is to equalize the risks so as to make it certain to policy-holders, that by insuring with this Company, they will not be called upon to pay such high rates as in other Companies. The Act of Parliament provides that no one risk shall exceed £500, and no insurance shall be effected on buildings and other property situated in blocks or exposed parts of Towns or Villages, nor on any kind of Mills, carpenters' or other shops, which by reason of the trade or business followed are rendered extra hazardous, machinery, breweries, distilleries, tanneries or other property involved in similar or equal hazard. It is expected to obtain nothing but the best description of risks, which in fact this Company is confined to by the charter; and as their operations will extend over the whole Province, and will thereby unite a most powerful and wealthy class, it affords to the public a security hitherto not attainable in this Province.

The principle now adopted by this Company has been acted upon in the United States for some years, and in consequence people have insured with the United States Companies to a very great extent. It is not, however, too late yet to prevent a great deal more money from leaving us, and if we are desirous to keep our means among ourselves, an opportunity is now afforded to every farmer and other person wishing to insure upon equal risks only, to do so upon the terms of knowing that he never can be called on to pay except for losses sustained upon property of equal risk with his own.

Agents of this Company will be named in all convenient localities; and the advantage of having an institution with all its officers under the surpervision of the members themselves, and under the controul of their own laws, require no comment.

The rates have been placed upon the most favourable terms, and as low as can possibly be obtained in any Company whatever. For instance, the second class embracing the ordinary farm buildings and produce of the country, are fixed at one per cent. of the insured value, that is, if £500 be insured, the premium note will be £5 and the payment thereon £1 10s. 4d., with 7s. 6d. for the Policy and Survey—in all £2 0s. 10d.—which is the whole probable amount for five years' insurance, the future liability being in no case beyond the £5 for the whole five years.

Every facility will be afforded to persons wishing to insure, and if loss should happen, it will be found that the by-laws amply provide for the Insured.

The Directors are confident that they are now placing before the public, the means of effecting Insurances on property on more favourable terms, considering all things, than can be obtained elsewhere.

Applications may be made to the agents, or at the office of the Company, where every information will be afforded.

THE PROPRIETARY BRANCH.

The Capital is £100,000, divided into shares of £20 each, upon which five per cent. is required to be paid at the time of subscribing.

The Company is authorised to take Fire and Marine risks, and also to effect assurance on lives, and to grant annuities.

The Agents of the Company will be authorised to obtain subscriptions for stock; and as soon as a sufficient amount is obtained the Company will be prepared to take Fire and Marine risks.

It is well known to Merchants and others, that a large amount is paid annually to Foreign Companies, simply because the Insurance Companies established in the Province are not sufficient for the business. It cannot be supposed that the foreign companies would continue business in this Province if they did not find it profitable, and that circumstance abundantly affords proof, that there is room for another company, upon remunerative terms to the shareholders.

The Company is not confined in their Marine risks to the lakes and rivers of this Province, but has authority to insure upon the ocean as well.—This authority may afford to the merchant an easy mode of effecting insurance upon property at their own doors.

So soon as it can conveniently be done, it is the intention of the Directors to bring i to operation the branch authorising the effecting of Life Insurances, and granting annuities. It has been stated that upwards of £10,000 a year is remitted to Britain for life insurance—this might be saved by proper attention to the subject. The large Capitals accumulated by the

Life Insurance Companies in Britain, prove them to be proper, and the best and most sure means of saving and making provision for families.

The Directors appeal to the public to consider the advantages thus offered by this Company, in uniting under one management, and at one expense, all the different branches of Insurance—and they confidently expect that they will not be mistaken in such appeal.

LIST OF AGENTS ALREADY APPOINTED.

Montreal.—C. BOCKUS, Esq.
Gananoque.—W. T. MACDONALD.
Kingston.—M. DRUMMOND, Esq.
Prescott.—W. PATRICK.
Peterboro'.—J. HALL.
Belleville.—F. McANANANY, Esq.
Oshawa.—S. B FAIRBANKS, Esq.
Scarboro'.—Mr. C C. BOWEN,
Sharon.—Mr. I. C. HOGABOOM,
Bradford.—Mr. T. McCONCHY.
Weston.—J. A. MACDONALD.
Hamilton.—Mr JOSIAS BRAY.
St. Catherine's.—A. K. BOOMER, Esq.
London.—W. BUCHANAN, Esq.
Drummondville.—R. R. HUBBARD.
Stratford.—J. W. DALY, Esq.
Goderich.—J. CLARK, Esq.
Travelling Agent.—Mr. T. RYALL.

Toronto, July 25, 1849.

ROSEBANK NURSERIES,

NEAR AMHERSTBURGH, CANADA WEST.

THE Proprietor has for sale a most extensive assortment of all the best varieties of FRUIT TREES, Vines, Ornamental Trees, Shrubs, and Plants, Roses, Tulips, Hyacinths, &c. &c., which he will dispose of at very reduced rates, as low or lower than they can be procured any where else.

The Trees are well grown and exceedingly thrifty. The stock comprises a greater number of varieties than can be found in any other Nursery in Canada of Apples, Pears, Peaches, Plums, Cherries, Apricots, Nectarines, Grapes, Quinces, Gooseberries, Raspberries, Strawberries, Currants, Mulberries, &c. &c.

Catalogues will be sent to all post paid applicants, and the trees will be carefully packed, and forwarded to any part of the Province, with despatch, by the *Propeller Cathcart*, or otherwise, as may be directed.

Persons unacquainted with fruits would be better supplied by leaving the selection of varieties to the subscriber, mentioning the number of Summer, Autumn, and Winter varieties required, or any other instructions they may think requisite. Orders should be sent early, so as to allow of a good selection, and also that they may be forwarded by the first conveyance.

JAMES DOUGALL, *Proprietor.*

Rosebank, near Amherstburgh,
1st September, 1849.

JOHN M. ROSS,

AGENT for Hall's Patent Moulding and Pressing Machine: also, for the Genesee Agricultural Seed and Implement Warehouse, Rochester, N. Y. City Wharf, Church Street, Toronto:

20th March, 1849.

PAPER HANGINGS!

A LARGE and CHOICE assortment of PAPER HANGINGS, of the *newest styles of patterns*, for Sale, wholesale and retail, by

BREWER, McPHAIL, & CO.,
46, King Street East.

Toronto, April, 1849. 5-1in.

NEW CARRIAGE FACTORY.

WILLIAMS & HOLMES,

HAVE REMOVED their *City Carriage Repository* to 142, Yonge Street, where they have commenced a Manufactory in all its branches. Parties wishing to purchase for Private or Public Business, are requested to give them a call before purchasing elsewhere, as their facilities are such as to enable them to manufacture cheaper than any other Establishment in Toronto.

Toronto, January 1, 1849. 1-tf

N.B.—The public are respectfully invited to an inspection of their Lumber and other Building Materials, as none but the very best will be used.

MAMMOTH HOUSE,

Removed to the Store next door South of Mr. Elgie's Tavern, Market Square.

THOMAS THOMPSON is happy to inform the Public, that, by the praiseworthy exertions of his friends, he has saved from the destructive *Conflagration of 7th April*, staple and fancy DRY GOODS, GENERAL CLOTHING, HATS, CAPS, BOOTS, SHOES, &c. &c., to the amount of upwards of $15,000! partially damaged, which will be sold at a great sacrifice. The above Stock, with the early *Spring Arrivals* now opening out, will comprise a splendid assortment of *cheap* and *fashionable* Goods, the whole of which he is determined to have cleared out previous to his re-opening the new Mammoth House.

Toronto, 17th April, 1849.

PHŒNIX FOUNDRY,

No. 58, YONGE STREET, TORONTO

GEORGE B. SPENCER,

(LATE C. ELLIOT,)

CONTINUES every Branch in the above Establishment, as heretofore; and, in addition, keeps constantly on hand a good assortment of Cooking, Parlor, Box, and Air-Tight Stoves, of the most approved patterns.

Also, a Second-hand Engine, with or without the Boiler, Twelve-horse Power, will be sold very cheap for Cash or short payment.

Toronto, Jan. 26, 1849. 1-tf

STOVES! STOVES!! STOVES!!!

J. R. ARMSTRONG,

CITY FOUNDRY,

No. 116, Yonge Street, Toronto,

HAS constantly on hand Cooking, Box, Parlour and Coal Stoves, of various patterns and sizes, *very cheap for cash.*

Also, a New Pattern Hot-air Cooking Stove, just received, taking three-feet wood, better adapted for the country than the Burr, or any other Stove now in use. It has taken the First Premium at every Fair in the United States, where it has been exhibited.

Ploughs, Sugar Kettles, Grist & Saw-Mill Castings. Steam Engines, Sleigh Shoes, Dog Irons, and a general assortment of Castings.

ROWSELL AND THOMPSON, PRINTERS, TORONTO.