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THE CANADIAN AGRICULTURIST

AND

Transactions

OF THE

BOARD OF AGRICULTURE OF UPPER CANADA.

VOL. V.

TORONTO, SEPTEMBER, 1852.

NO. 9.

AN ESSAY ON AGRICULTURE.

BY LEWIS CHIPMAN, OF THE COUNTY OF LEEDS,
[To which a Diploma was awarded by the Board
of Agriculture of Upper Canada.*]

Agriculture, whether considered as a Science or an art, must be regarded as a subject of the greatest interest and importance.

It was not unknown to the ancients; from the earliest period it has been followed to some extent. Formerly it did not receive as much encouragement as in modern times, yet, in the days of Varro, in the home provinces of Rome, wheat was raised in large quantities, and some land produced from thirty to forty bushels per acre, but this was not general with respect to other parts of the world, nor did it continue long in those provinces. Although the arts and sciences were carried to some extent among the Greeks and Romans, yet Agriculture did not advance but retrograded for more than a thousand years, chiefly because they did not obey those laws which the Creator laid down to govern the fruitfulness of the soil; and at the present day, if we aspired at nothing more than the ancients did formerly, we would be as imperfect in agriculture now as they were two thousand years ago. But of late, science combined with practical farming, has been the motto with many intelligent and influential men; they have ascertained that in addition to education, something more is necessary to advance agriculture and

bring it to greater perfection, in order to supply the present demand for food. It is well known that every year brings its thousands of inhabitants from foreign countries to settle among us, who must subsist from the produce of the soil; and unless agriculture receives proper encouragement it will not supply the inhabitants with food and export produce to foreign countries in any great quantities. At no time in our history has it required as great attention as at present. When this country was first settled, the inhabitants few, and the soil fertile, there was little attention paid to agriculture; but after the soil became partly exhausted by a succession of crops, it became necessary to replenish it by manure to bring it back to its original state. Many points worthy of consideration are embraced in the subject before us, but space will not allow us to dwell long upon any one in particular. I shall consider first.

ROTATION OF CROPS AND METHOD OF RENOVATING WORN OUT LANDS.

Many parts of this country which have been tilled for a number of years are nearly worn out, in consequence of continued cropping and applying but little if any manure. Generally after the first crop is taken off, the ground is seeded and kept for meadow fifteen or twenty years in succession, till it will not produce more than half a crop; it is then perhaps ploughed and a crop or two raised—then seeded again and in this way the exhaustion is brought about.

In order to restore land that was originally fertile, various experiments have been made to ascertain what crops are best suited for certain soils, and what method is most beneficial for supplying the earth with the elements of fertility which have been taken off, in order that its expanded powers may be replenished.

It is easier to prevent sterility than provide a remedy, but after the soil has become exhausted by bad management nothing but a systematic rotation of crops will prove beneficial.

* This Essay was written to compete for the prizes offered by Johnstown District Agricultural Society, in 1851, one condition of which was, that the Essay should be the bona fide production of practical farmers.

The kind of crops to be raised are determined by the climate and soil in a great measure.—The rotation of crops is a point on which the profits of the farmer depend more than on any other.

The following plan has been recommended by a recent writer:—

“Divide the arable part of the farm, whether large or small, into six divisions and number them in order.

The rotation is for No. 1, fallow or root or drill crops, well manured and labored.

2nd. Wheat or Barley.

3rd. Hay.

4th. Pasture, first year.

5th. Pasture, second year.

6th. Oats or Peas.

The cultivation of No. 1 is considered the basis of the whole system. In the Fall all the manure from the farm is to be spread on this field and ploughed in; the furrows being made so as to let off the water as early as possible after the snow disappears. As soon as it can be labored in the Spring, the earth should be well pulverized by the plough, the cultivator and the harrow, and the crops sown in drills sufficiently wide to permit of horse-hoeing afterwards. The following is considered a good assortment of crops:—Potatoes, Carrots, Mangel Wurtzel, Indian Corn and Horse-Beans. These are to be kept perfectly clean and the earth well stirred between the drills as long as the growth of the crops will permit. This leaves it in good condition for Nos. 2, 3, 4, 5 and 6 of the rotation, none of which require any manure or extra labor; all of which, when completed, leave the ground in better condition at the end of six years for the second application of the same cultivation than it was at the first. The second year, field No. 2 is to be treated the same as field No 1 was the first year, and so on till the end of six years, when they will have been cleared and fertilized, and the rotation begins at the same point from which it started, with greatly improved prospects of success. This plan has been found, by experiment, to be very profitable even for the first six years of the renovating process, while it leaves the whole farm clean and fertile at the end, ready to be carried forward to higher perfection.”

Another writer observes—

“Gravelly soils are generally considered best adapted to crops of Rye and Red Clover, alternately. Dark sand, and a sandy loam soil will produce Indian Corn and Potatoes for the first crop, the second Turnips, then Wheat or Rye if the Turnips can be removed in time; then a Clover; then another crop of Wheat or Rye; then the Indian Corn and Potatoes again. Or

Barley with Clover may come in after Turnips.”

The following six years' rotation is recommended by a certain writer:—

“1st year.—After breaking up the sward put in Oats, sown thick, to be cut for fodder.

2nd year.—Potatoes or Indian Corn, or both.

3rd year.—Ruta-baga.

4th year.—Barley or Wheat, sown with Clover and herdsgrass or red lay.

5th year.—Clover mowed.

6th year.—Herdsgrass and Clover.

In the Autumn of the sixth year, the land to be broken up; and on the seventh the same rotation repeated. It is difficult to designate particularly the most suitable changes of crops, as they are more exactly to be ascertained by the known product of land when properly cultivated. The following will illustrate this principle:—*Never to select for a crop, plants not adapted to the soil, and never in any soil, to permit two crops of the same kind to follow each other.*”

Many in the country already pursue some advantageous rotation of crops; a majority, however, think they know enough already, without following any scientific or well improved plan.

It is considered best to raise green crops instead of naked fallows; they should be turned under in sufficiently hot weather to insure their running speedily together into a putrid state.—This mode is thought better than to obtain the manure by feeding or soiling of cattle, especially when it is scarce.

Buckwheat, Rye, Oats, Clover and Turnips, are considered well adapted for this purpose.—Rye ought to be ploughed in when in full flower; it is one of the best fallow preparations that can be devised to restore an exhausted soil. Weeds have been highly recommended for the same purpose, and proved valuable as manure.

Land that is infected with thistles or other rubbish, or stiff clay soils, may be summer-fallowed to advantage where it cannot be sufficiently tilled without it, but this process only gives a crop every alternate year.

Peas and Clover will not do well on the same soil till after a succession of years; while Oats and Rye may be cultivated alternately with success if the land be properly manured.

In this part of Canada, formerly Black Sea Wheat did well, and Fall Wheat produced but a small crop, lately the former has yielded very sparingly, while Club, Scottish and Fall Wheat have amply repaid the farmer for his trouble.—Hence, we learn that in order to obtain good crops, as the seasons change we must change seed also. Second,

CULTIVATION OF GRASSES, AND REARING STOCK.

In this part of the country almost every farm will produce grass for grazing and hay, and many will produce little else; in this manner all the land can be managed to bring something to advantage, and if a farmer does not have grain to carry to market he will have that which is as profitable, cattle, horses, sheep, butter and cheese. Some land is more profitable in tillage than in grass, particularly dry and light soil; yet constant cropping with grain would exhaust them of fertility, unless frequently manured. In these Counties, (Leeds and Grenville,) and others similiar in soil, where so much of the land is unfit for raising grain in any considerable quantities, I would suggest the propriety of paying more attention to the raising of the different grasses and more stock.

This plan is followed to a considerable extent in some of the neighboring States, and is more profitable to them than raising grain. Farms are constantly improving which are kept in this manner with but little trouble, while the reverse is commonly the case with grain farms, as a succession of crops will in all cases impoverish them, unless frequently manured, and this cannot be done sufficiently if the hay and grain are taken off to market. They will have nothing left to replenish themselves, and will in a few years be almost barren in comparison to what they might have been were they rightly managed.

The proper cultivation of meadows contributes greatly to the prosperity of the farmer, he can thus increase his stock and enrich his farm. The increased wealth of many farmers in several of the European Countries is mainly attributable to this cause.

Meadows have been classed by some under three heads, viz.: Low or alluvial, as on the banks of rivers, creeks, and brooks; uplands naturally moist with clay or heavy loam, and bogs and swamps that have been reclaimed.

Grass seed should never be sown with grain, each should be sown seperately; the roots of the grain are obstructed by those of the grass, the soil will be more or less covered by the grass, and the roots of the grain are injured on account of being in a great measure excluded from the air and heat, dews and rains. After the grain is taken off, the ground should be ploughed, and in a few days grass seed sown on the furrow, harrowed and rolled. If the weather prove dry, the seed will remain safe in the ground ready to improve the benefit of the first showers, when the grass will soon make its appearance and a good progress will be made before winter sets in. If the winter should prove favorable nothing more is wanting, should the ground be

rich to secure a good crop, but to pass the roller over it in the spring as soon as the frost is out of the ground.

Clover is extensively raised in some countries, and if raised in greater quantities among us would be profitable; no farm suitable for clover should be without it. Gravelly soil which will not retain the grass is suited for clover, it should be sown in the spring, harrowed and rolled; if sown in the fall it is liable to be killed by the frosts of winter. It should be sown thick, much is lost by sowing too scanty a supply of seed; when sown thin there will be a thin crop, the stalks will be large, and dry, and contain but little nourishment.

Rearing stock, as I have before intimated is an important consideration, especially where farms are better suited for grazing than raising grain. It has been ascertained that a cow well kept will produce in one year 400 lbs. Cheese, which will sell for not less than \$7 per cwt. and this will amount in the course of the year to \$28, besides making considerable pork. The expense of commencing a dairy is about £25, with from 30 to 40 cows. Some object to the raising of much stock on account of the fodder required during the winter; it is true it requires time and expense, but if rightly managed will be less than is generally supposed. Cows should be stalled in winter, which will lessen the expense of fodder one-third or more, and they will be sufficiently improved to pay the extra expense.

Sheep husbandry can be made profitable to the farmer. Thin, barren, and upland soils, which are so common in some parts of this country, can be cultivated to advantage in rearing sheep where no other animal could be maintained with equal profit, yet a quantity of meadow land is necessary. Suppose a farmer has 100 good sheep, those will shear about 300 lbs of wool, which will generally sell for not less than \$100, and will raise 50 lambs, worth \$50; making \$150 for wool and lambs; 25 acres of good turf land is sufficient for meadow and pasturage; 10 acres of meadow, at one ton per acre, and 15 of pasture.

Suppose 10 tons at \$7.....	\$70
Pasturage, say.....	150
Expenses of Shearing, &c.....	15
Total.....	\$100

Leaving a clear profit of \$50 or 50 per cent. Third,

ROOT CROPS.
These are an important article in husbandry, particularly turneps, beets, and carrots, which are good food for all kinds of stock, and the soil by increasing the quantity of them can be raised in large quantities.

on a small space of ground, and are well fitted to precede barley or oats. Fourth,

ON THE APPLICATION AND SAVING OF MANURE.

Manure is considered to the crop, what grain and forage are to our cattle. Continual cropping, without manure, exhausts the soil as much as constant draining from your purse, without being replenished. Many farms are now almost barren which were originally fertile, by being exhausted. They are cropped till the produce of the soil will not pay the expense, and then often thrown into commons.

It has been frequently asked by many persons whether fermented or unfermented manures are the most profitable?

Manure, while fermenting, gives food and moisture to plants; and soils manured with unfermented manure suffer less from drought.—Unfermented manures lose in bulk and weight; yet what is lost, if buried in the soil, affords food for the crop. Take a quantity of unfermented manure and draw it on a field intended for corn, spread the manure, plough, and harrow, then take the same quantity and put it in a pile to rot, plant another piece to corn of equal dimensions, and when the corn is harvested put on the manure which was left in the pile to rot, and sow both pieces to wheat, and the land dressed with unfermented manure will yield the most wheat, because less exhausted in the process of summer rotting, and for the reason that in cultivating, it became better incorporated with the soil, and the corn crop would be increased in consequence of the gasses upon which the crop fed and thrived; but if it had been left in the yard, would have been dissipated by the winds and lost.

Manures are the bases of all fertility, and when we consider that all vegetable and animal substances are capable of being converted into manure, every pains should be taken to secure it.

Yards, where cattle are kept, should be excavated in the centre in a concave form, here should be deposited annually weeds, coarse grass, pumpkin vines, and potatoe tops; during the winter the excavation gives no inconvenience, and should the weather be soft, the borders will afford plenty of room for cattle.

Bone manure is cheap, light of carriage, and is excellent on account of its strength and durability. Lime is used in considerable quantities as manure; it is usually applied to Indian Corn in the Spring, and to sowing wheat in autumn. Fifth,

THE ADVANTAGE OF DRAINING.

This branch of farming is too much neglected; the choicest lands often lie in a state of uncultivation, and might be made profitable with but moderate expense. Under-drains are best; they

take up no room, and should be deep enough to plough over. Lands that are low and wet, and are not drained, seldom produce good crops, the soil is cold in the early part of the season, and retards the growth of grass, and will be coarse and afford but little nutriment for cattle.

Besides ditching in the lowest parts they should, when necessary, be made round the parts to be drained and left open in order that the water from the higher parts may fall into these drains, which should unite at the outlet and be carried off.

ECONOMY IN FARMING AND GENERAL REMARKS.

It is good economy to select the best breeds, grain, and farming implements, and will often repay double fold.

Industry, economy, and perseverance, are three things important in all branches of pursuit, but none more so than to the farmer; with these he need not fear, and is most sure of obtaining a good livelihood.

Small farms are generally considered more profitable than large ones; some labor under the mistaken notion that to make farming profitable, they must till a great quantity of land; small farms well tilled, will produce more than twice the quantity poorly tilled; the expenditure in labor, manure, &c., will be proportionably increased with the quantity of land tilled. It is true a large farm *can* be made as profitable as a small one, providing it is as well cultivated, yet few farmers can afford to till a great farm as well as a few acres. The greatest gain from the least land is generally from the garden, and if all land were as well cultivated in proportion to the quantity, it would be equally as profitable.

Suppose all the land in Canada which is cultivated, and of the same original quality as that in the neighborhood of our largest cities, were made to yield an equal produce, it would provide food for ten times as many inhabitants. Farms should be well fenced; it costs more to keep poor fences in repair than to build good ones at first; besides often losing grain, making bad neighbors, unruly animals, &c.

Farmers should, if possible, raise their own seeds, and not depend on the merchant or seed store; they can raise their own cheaper, and always should, if possible, unless they wish to purchase new or improved kinds.

A farmer ought to be economical with regard to the situation of his dwellings; they should be conveniently situated as regards the farm, so that too much time will not be lost in going to and from work. A commanding situation for a dwelling house should, if practicable, be selected both for health and appearance. Shade trees should be cultivated; they adorn our

residences, and afford shelter from the scorching rays of the sun in summer, and from the cold blasts of winter.

Good farming implements should always be provided. Often a hired man will not earn half as much in consequence of bad tools, and the employer may lose as much in a short time as would purchase the required implements.

It is good economy to cultivate the soil properly; much is lost by some farmers in consequence of poor tillage; the ground is not sufficiently pulverised, the plough and harrow are used too sparingly, the ground becomes infested with weeds and thistles. Such farmers do not consider that a crop of weeds costs as much as a crop of grain, and exhausts the soil in as great a degree. In consequence of such treatment the land yields but a scanty crop; where upon the same soil, by proper management, a bountiful crop might have been raised instead. Seventh,

OUR PRESENT POSITION AS AGRICULTURISTS.

When we view the rapid progress the arts and sciences are making in different parts we are not at all surprised that Agriculture, the most important of all pursuits, has many innovations. Many excellent improvements in Agriculture have been made since the one handled plough was used; yet we consider it has not kept pace with other sciences; but it is gratifying to know at the present day it is becoming more popular; men of rank and wealth are using various means for the promotion of this science; formerly it was thought by many as too low a calling, something beneath their notice; but happily for Canada this sort of people is becoming scarce, and most are anxious and willing that it should be encouraged.

It may be asked, why are not farmers in this country in general, more popular and intelligent? One reason may be, there is not enough attention paid to education; if we wish to maintain our position in society, we must not be content with a very limited education. All will agree that mental training and professional study are deemed necessary to qualify a man to be an officer in the army, a minister, lawyer, or physician, but the agriculturists are considered by many to need no particular knowledge of the composition and capabilities of the various soils which they cultivate; but happily for Canada many of her yeomanry are beginning to know what changes the plough, harrow, and hoe have effected, and if her sons were properly educated, agricultural schools established, and honest manual labour united with intellectual culture, agriculture would soon occupy a higher position.

The farmer must read and study nature's laws not to keep changing his systems, but endeavouring to improve in them; he ought to know

what farm implements are best calculated to ease labour and do the greatest amount of work with the least expense, and what improved breeds of domestic animals are most profitable. All these he can ascertain by taking a good agricultural paper, and for the small sum of five shillings per year can realize more profit than would pay for a dozen such periodicals. It may be asked how can a labouring man find time to study? Who that follows his occupations with industry and uses his earnings with economy does not find time to study? Suppose but one hour of the day should be devoted to intellectual culture what an amount of knowledge would be gained in the course of a natural life. Eighth, THE INFLUENCE AGRICULTURISTS HAVE UPON SOCIETY BY BEING EDUCATED.

No class of society in the world is superior to the farmer in natural talent or ability, and when we see these properly cultivated we see an enlightened and happy people.

Contrast the position of the New England States, Scotland, and some of the nations on the Continent of Europe, with those of Asia or Africa, and we discover a vast difference; in the former countries agriculture is encouraged, their yeomanry are taught the first principles of the soil, and to know that agriculture is the most honorable pursuit, the most free from crime, and the most sure way of obtaining a livelihood; in the latter Agriculture is neglected, education is in a backward condition; and the people are in a state of idolatry and superstition. Ninth,

AGRICULTURE IMPROVES US MORALLY, MENTALLY, AND PHYSICALLY.

Nature's works afford encouragement for improving our moral powers. If we study them we see the design and wise construction of the plants and vegetables which clothe and beautify our farms, and must recognize a Deity in every plant and flower.

Agriculture is attended with less vice than any other pursuit according to the numbers engaged in it. The temptations to youth are far less in the country than in cities and towns. The examples and precepts of many in such places are far more pernicious than among agriculturists.

Where a population is thin, the opportunity for boys to collect together for misconduct is more difficult than in public places, where we see them leagued together, and vice in all its shapes is so often seen, and many continue their evil course to manhood and through life.

Where will we see as many idlers without any useful employment, who live by their wits, and are endeavouring to gain a livelihood dishonestly as in populous cities?

Farmer's sons are generally kept at some useful employment or at school, and should they have a disposition for crime the temptations are not so frequent.

The sobriety of the father, the economy of the mother, the devoted labour of the son, the chastity of the daughter, these, these are the fruits of glorious agriculture. Our mental acquirements are obtained by action, and those who are shut up in their studies from month to month and almost excluded from the pure air which is so necessary to life, cannot succeed in any great object as well as he whose occupation is often in the open field, where the face of nature is arrayed in beauty and splendour. In the cultivation of the soil he sees many objects calculated to increase the understanding and expand the mind. Labour in the open air operates favourably in promoting health, and is an auxiliary to vigor and strength of body. Tenth,

IT IS THE MOST INDEPENDENT AND USEFUL PURSUIT.

That pursuit which gives the greatest amount of enjoyment together with the ease with which it is attended, to make it profitable and a means of preserving health, should be acknowledged to be the best adapted to the pursuits of life, and it is generally admitted that agriculture embraces all the advantages above enumerated.

Who possesses as great an amount of the solid comforts of life as the farmer? No fears of broken banks or failures in business disturb his mind, he fears not the change of foreign or domestic markets: while the merchant or manufacturer may be ruined in the reward of his labor, and the mechanic may be essentially injured by the failure of those manufacturing or commercial interests on which his whole livelihood depends. The farmer has nothing to fear from such a source, his capital is invested in that which is more permanent, in the solid earth; he draws on a fund which seldom fails to pay his just demands, providing he is industrious and economical, though his profits may be lessened by the failure of crops and other causes, yet they will never be wholly suspended, for he remembers the promises made that seed time and harvest should continue.

Although all farmers are not equally prosperous, it must not be inferred that agriculture should be lessened in public estimation. If a person does not succeed well in this pursuit it is generally owing to himself.

It is a rare occurrence to see an intelligent, industrious farmer, who tills the soil wholly for a livelihood, who is not only in good circumstances but gaining in property. There is no profession or trade but what at certain times is not as encouraging as at others, but the least so with the

farmer. He has the means of living within himself in a greater degree than any other class of the community, as he wants fewer articles from other sources, and in such proportion is the more independent. It is to the farmer all other classes look for their bread. Upon this depends every other pursuit; it is the mainspring of every nation and gives character to any country. It is confined to no party and benefits the whole human race. Although the merchant, manufacturer, and mechanic are necessary in their several occupations and callings to complete the order of nature, yet the farmer stands high over all these, he is lord of the soil, he can look to his grain loaded with its golden burden, and his orchard bending with fruit, and exclaim, these are mine, the result of my labour and care, a degree of satisfaction is enjoyed by him which the professional man seldom knows.

In conclusion I would say I hope soon to see Agricultural Schools established in suitable places, where physical exercise may be united with mental culture, where farmer's sons may gain a knowledge of the various soils which produce the means of subsistence, for if we expect the rising generation who are destined to be agriculturists to acquire a thorough knowledge of practical agriculture, the best plan ought to be devised in that which is most applicable for agricultural practice.

May our Agricultural Societies, yearly exhibitions and premiums awarded, all tend to call forth talent and invite industry, and give us renewed courage to persevere in so honourable a cause, and may it be said that the United Counties of Leeds and Grenville have not been outdone in other parts of the world, in agricultural improvements, thus elevating our position as farmers, and becoming, what is within our power to be, an intelligent, wealthy, and free people.

SINGULAR PHENOMENA.—A very curious incident took place in the vicinity of Lyons, France, which is worth being noticed. A regiment of lancers were returning to their barracks during the rain, when the Colonel, looking at his soldiers, remarked, amidst the fog, that all the faces of his men were surmounted with a light of a blue color. It was electricity, and an immense danger threatened the whole regiment, when, with remarkable presence of mind, he suddenly ordered all his soldiers to point their lances in the ground, and immediately, as if by enchantment, a terrible detonation took place—the electric fluid had disappeared into the ground. Fortunately, the wood of the handle was not a conductor of electricity.

Promises made in time of affliction require a better memory than people commonly possess when they reach prosperity.

Slanderers are like flies that leap over all a man's good parts, to light upon his sores.

MEETING OF THE BOARD OF AGRICULTURE.

A meeting of the Board was held in one of the rooms of the University, in this city, August 14th, 1852. Members present—E. W. Thomson, Esq., Chairman; Hon. Adam Ferguson, Mr. Sheriff Ruttan, J. B. Marks, Esq., R. L. Denison, Esq., and the Secretary. T. C. Street, Esq., M. P. P., was also in attendance, by special request, as President of the Agricultural Association of Upper Canada.

The Minutes of the last meeting having been read and confirmed, the Secretary read a letter, containing several suggestions, from John Harland, Esq., of Guelph, who was necessarily engaged at home in harvest operations. Mr. Harland observes, in reference to some Australian Barley and Wheat, and Russian Oats, which had been committed to his care:—

“I took care to plant the Barley and Oats which were confided to me by the Board. The Oats look promising, but the Barley, although planted in a most favourable situation, is absolutely *red* with rust, and I fear will be useless. I do not see any other Barley in the neighbourhood similarly affected. I am preparing a piece of land whereon to dibble the wheat.

The Secretary also read a letter, dated London, England, from John Arnold, Esq., who has manifested much interest in the introduction of sugar-beet manufacture into Canada. The following is a copy:—

LONDON, July 18, 1852.

DEAR SIR,—

I am just returned from the great Agricultural Show at Leves, where I saw much to admire, particularly among the Agricultural Implements. I did not, however, feel justified in forming any opinion as to their utility, particularly in Canada, till I read this morning the testimonials in favor of Bentall's Broadshare Plough, and which pamphlet containing them I now forward by the same post as this letter.

I could not help thinking how extremely useful an instrument it would be in Canada, particularly upon pea stubble, where our time is so short, and six acres a day may be thoroughly cleaned by it. I cannot resist the satisfaction of sending one to Canada, and at the same time accompanying it with a smaller machine, being the Mangel Machine and Potato Plough, which is of small cost.

If the Agricultural Society of Canada like to take these implements at cost and charges, they will be placed at their service—if they should

think proper to decline, I shall very readily keep them on my own account. I shall do my endeavours that they arrive in time for your great Exhibition in September.

With regard to the Beet Root Sugar, I have had an interview with the Secretary of the B. R. S. Factory in Ireland—the result of which has been by no means encouraging—as he thinks the price of labour would be too high with us to make it profitable. It would require two gangs of men—many of whom must be skilled artizans—for the works are continued night and day. This opinion has discouraged me from proceeding further—at the same time, the question is still open, whether it might not be advantageous to do as Mr. J. Hespeller proposed, to go over to Germany and make himself acquainted with the mode adopted by the farmers there.

I remain, Dear Sir,
Yours truly,

JOHN ARNOLD.

Professor Buckland.

Resolved—That the Secretary communicate the thanks of the Board to Mr. Arnold, for the information and offers contained in his communication; and that a decision thereon be left to the Committee on Implements, at the approaching Exhibition.

The Chairman submitted to the Board a letter which he had received from the Hon. Malcolm Cameron, of which the following is a copy:—

AGRICULTURAL OFFICE,

Quebec, 29th July, 1852.

SIR,—

I have the honor to enclose a copy of a letter which I have addressed to the Lower Canada Agricultural Society recommending to their consideration the Act 14 and 15 Vic. chap. 127, which appears to have given general satisfaction, it being of very great importance to have unity of action and one general system throughout the Province.

There are, I believe, some amendments to that Act contemplated by those who took the greatest interest in the subject at its passage, and I, therefore, through you, beg to call their attention to it now, so that any suggestions or amendments may be transmitted to this office as early a day as possible.

I observe that Township Societies are not corporate bodies with power to hold real estate. I should wish to be informed if it is considered desirable that they should become so. And, I am further anxious for the views of the Board on the subject of Government aid, and the best means of making it efficient.

From all sources of information within my reach, I am not impressed with the advantages to be derived from Model Farms, but consider that Agricultural Teachers, and Scholarships, and

Itinerant Lecturers, would be more likely to awaken an interest in agricultural improvements.

I have the honor to be,

Sir,

Your obedient servant,

MALCOLM CAMERON.

E. W. Thomson, Esq.,

Chairman, Board of Agriculture,

Toronto.

[Copy.]

AGRICULTURAL OFFICE,
Quebec, 5th July, 1852.

SIR,—

I have the honor to enclose a copy of the Act 14 and 15 Vic., c. 127, which provides for the organization of Agricultural Societies in Canada West.

This organization has been found to work well, and with some amendments to be proposed at the ensuing session of Parliament, will, I believe, be very satisfactory.

As the Government has established this Office with a view to condense and arrange for practical use all the statistics of Agriculture, to attend to the Agricultural interest in the Executive and Legislative bodies, and to aid, by every possible means, its full development, I am most anxious to have such an organization of the Agricultural Societies of Canada as will enable me to correspond with one central Association in each section of the Province, which shall be in constant communication with every part of that section, and prepared and authorised to make such recommendations to this Office as it may seem best on behalf of the Agricultural interest.

I therefore have the honor respectfully to suggest that you submit to the Lower Canada Agricultural Society, the Act now forwarded with a view to the adoption of the principle in this part of the Province; and if such should be resolved upon, I will be glad to hear from you at your earliest convenience, so as to enable me to prepare such measures as may be necessary before the middle of August next, when Parliament is likely to meet.

I have, &c.

[Signed] MALCOLM CAMERON,
P. E. C.

P. E. Leclerc, Esq.,

President, L. C. Ag. Society,
St. Hyacinth.

After such deliberation on the several subjects embraced in the above communications, the Board was of opinion that, uniformity of action, as far as varying circumstances would admit, between the Agricultural Societies of both sections of the Province, would be mutually advantageous, and that every facility should be given to form a friendly and more frequent communication between the two great Societies of the Upper and Lower Provinces, and that the establishment of an

Agricultural Department in the Government, may be made subservient to this and other important purposes. It was agreed to recommend to the Minister of Agriculture, and through him to Parliament, the following modifications of the Agricultural Statute: To make each County, belonging to "United Counties," separate and independent for Agricultural purposes, under the Statute, whenever desired by such Counties. To reduce the present sum of £17 10s., required to be raised by Township Societies before they can organise, to £10. It was also recommended that Township Societies should be placed on the same footing as County Societies, as regards incorporation. With reference to the main principles of the Agricultural Society, it was deemed inexpedient at present to interfere, as further experience was required of their practical operation. The Board was decidedly of opinion, that uniformity of action among all the Societies, and regular returns and reports, made at stated periods, together with a prompt and cheap mode of publication and wide diffusion of the same, are objects of the highest importance to the Agricultural interests of the country.

The Board after giving the subject of Model Farms their consideration, agreed with the opinion expressed by the Minister of Agriculture, that they would be found, in the present state of the country, too expensive, and would frequently fail in securing the confidence of practical farmers. It was thought County Municipalities might be advantageously empowered to grant premiums for the best cultivated farms in their several jurisdictions; also, that the Board would constitute the best authority for establishing and controlling Model Farms, whenever such farms should be decided as desirable, by the expression of public opinion, in any County.

The Secretary was instructed to prepare a Report on the rise and progress of the Provincial Agricultural Association; also to communicate with the Municipal Authorities of the Town of Brockville, for the immediate payment of the grant made by that Body to

the funds of the Association, last year. It was also agreed to invite the Office-bearers of the Lower Canada Agricultural Society and those of the New York State Society, to the approaching Annual Exhibition, in Toronto. The President of the Association, T. C. Street, Esq., M. P. P., was requested to invite His Excellency, Lady Elgin, and suite, to honour the same with their presence.

It was resolved that the salary of the Secretary should be £100 per annum; that of the Treasurer, £50 per annum; and that the Secretary be authorised to employ what extra assistance he may require in the discharge of his duties, at the expense of the Board.

After the disposal of a number of details, referring principally to the Exhibition and the state of Finance, the Board agreed to adjourn to Monday, September 20th, to meet in the Secretary's office on the Show Grounds, at 2 o'clock P. M., when a full attendance is particularly desired.

The Agriculturist.

TORONTO, SEPTEMBER, 1852.

THE APPROACHING EXHIBITION.

The prospect of a great and successful Exhibition of the industry and resources of Upper Canada, to take place in this city, on the 21st to the 24th inst., becomes every day more encouraging. Toronto is most desirably situated for such a gathering, and the Corporation has nobly sustained the high character and public spirit of the Queen City of the West, by voting an additional grant of £600, to the funds of the Association, which, added to a previous grant of £200, makes a total sum of EIGHT HUNDRED! All that is now required is the zealous co-operation of the country, and as a moment ought not to be lost we trust that no indifference will any where be felt in sending *materials* for the Exhibition, and in supporting it by an attendance, which, in point of character and numbers, will demonstrate that Canadians are in right earnest

in promoting the high objects which the Association seeks to secure.

The grounds are most conveniently situated, north of Queen Street, adjoining the College Avenue, and the operations of putting up the fences, buildings, &c, are rapidly advancing. For the information of our readers, we subjoin a condensed programme of the proceedings of the Show-week.

MONDAY and TUESDAY, the 20th and 21st Sept., will be devoted to the entering of Stock and Articles for the Exhibition and the arranging of the same. All articles should be entered in the Secretary's books, not later than *Tuesday*. Such Articles as are entered on Wednesday morning, before 9 o'clock, when the books will *finally close*, will be subjected to a charge of 5s. each.

None but members can exhibit, except *Ladies*. Badges of membership can be procured of the Treasurer at 5s. each, admitting the purchaser, his wife, and children under fourteen years of age, to the Exhibition, during the week, without additional charge.

The Judges will breakfast on the Grounds, at 8 o'clock, on WEDNESDAY, and Members will be admitted at 2 o'clock, P. M.

The Public, or non-members, will be admitted during the whole of THURSDAY and FRIDAY, 7½d. each admission.

Arrangements will be made for addresses and discussions on subjects relating to the Agricultural interests of Canada, on the evenings of *Wednesday* and *Thursday*.

The PRESIDENT'S ADDRESS will be delivered on the Grounds on FRIDAY, at 2 P. M., when the awards of the Judges will be proclaimed.

Articles for the Exhibition from the United States, will be admitted *Duty Free*. Steam Boats will charge only half their usual rates during the week, and a list of Hotels, Taverns, and Boarding Houses will be prepared for public inspection, with their respective rates of charge, which, we are glad to be informed, will not exceed that of ordinary occasions.

We must not omit to mention that Mr. WHEELER, of this city, will be prepared to

supply *Life Members* with a Chain and appropriate SILVER MEDAL at the very low charge of *Two Dollars each*, and we hope that a sufficient number will avail themselves of the opportunity, (which they can do by giving in their names to the Secretary) so as to insure Mr. Wneeler against pecuniary loss.

THE LATE THOS. BATES, ESQ., AND HIS CELEBRATED TRIBES OF SHORT-HORN CATTLE.

We have thought that some brief notice of this enterprising and highly successful Agriculturist, would be interesting to a large portion of our readers, and we now proceed to redeem a promise made in a previous number. We are mainly indebted for the facts which follow to a memoir of Mr. Bates, which appeared in the *Farmer's Magazine*, vol. 31, and to some private memoranda, with which we have been favored by the Honorable Adam Fergusson, of Woodhill, an early and intimate friend of Mr. Bates. Mr. Fergusson has in his possession several excellent specimens of Bates' much admired *Duchess* tribe of the pure Short-Horn, which we hope to see at our approaching Provincial Exhibition; and we have great satisfaction in directing the attention of such of our readers as are desirous of procuring the best blood of this celebrated breed to be found on this continent, to the auction sale of George Vail, Esq., of Troy, N. Y., announced in another column.

Mr. Bates was born at Matfen, Northumberland, in the year 1775, and died July 26th, 1819. He removed with his father, at an early period, to Haydon Castle, near Corbridge, where he prosecuted his school studies for several years, and afterwards completed his education at the University of Edinburgh.

His commencement as a farmer may be reckoned from his occupation of one of his father's farms, called "The Eccles," on the banks of the North Tyne, near Hexham. But he soon removed, in the year 1800, to Halton Castle, which he occupied for 21 years; thence to Ridley Hall, on the banks of the South Tyne; and at length into Yorkshire, to the Kirkleavington Estate.

The attention of Mr. Bates was first directed to the breed of animals, with the progress, and, we might almost say, perfection, of which, his name is so honorably associated, by the late Mr. Waisted, of Burdon, who was allowed to be one of the best judges of Short-horns of that period.

It was on the farm of Halton Castle that Mr. Bates commenced his career as a breeder—a career which afterwards proved so successful, honorable, and enduring. Of the different races for which he became so widely celebrated, the "*Duchess*," "*Red Rose*," or "*Cambridge*;" the "*Oxford*," and the "*Waterloo*," are the most appreciated. The first of these, the "*Duchess*," has long been regarded, by the most competent and disinterested judges, as containing the finest specimens of Short-horn; and from it Mr. Bates derived a progeny, which brought him the great bulk of his prizes at the largest exhibitions for stock in the United Kingdom. As time and experience constitute the correctest test of matters of this kind, it is only necessary to mention that he continued in unbroken succession this race of cows, so far as to number them to *Duchess 65th*!

The origin of his *Duchess* stock has been related as follows:—A cow bought, by private contract, of Mr. Charles Colling, in 1804, so pleased Mr. Bates, that at Mr. Colling's sale in 1810, he determined to have, at any price, a heifer, then two years old, called *Duchess*, a grand-daughter of the cow he first possessed. *Duchess* was knocked down for the sum of 133 guineas. She was by the celebrated *Comet*, her dam by *Favorite*, grand-dam *Duchess*, by *Dairy Bull*, &c.

"From this animal, first crossed by a son of the old cow, came that produce which has earned for herself and owner not even a local or European, but really a *trans-atlantic* celebrity.—Still, however, with the foundation laid at Halton, it was not until Mr. Bates' purchase of, and removal to, Kirkleavington, that the fame of his stock could be said to be fairly established, or that he could command those prices and prizes, of which we shall proceed to give rather a review than a recapitulation."

Mr. Bates does not appear to have exhibited at any of the shows for upwards of a quarter of a century. At the first Great Yorkshire Agricultural Meeting, in 1838, he was very successful, and in the following year at Oxford, being the first show of the Royal Agricultural Society of England, he carried off four prizes, winning every thing for which he entered. His after career was one uninterrupted course of the most brilliant success, both at the great National Exhibitions, as well as at the chief Provincial Shows. His "*Red Rose*" or "*Cambridge*" tribe, both bulls and cows, were eminently successful at the Royal Society's Meeting at Cambridge, in 1840. His bulls, "*Duke of Northumberland*," "*Duke of Cambridge*," "*Cleveland Lad*," &c., are too

well known to require particularising in this place.

We shall here make room for an excellent article, copied from the *Farmer's Magazine* for June, 1850, by a writer perfectly competent to appreciate Mr. Bates' merits as a breeder; and we shall have occasion hereafter to say something of him in the capacity of a practical cultivator, or farmer.

REMARKS ON THE KIRKLEAVINGTON HERD OF SHORT-HORN CATTLE,

Which were sold by auction by Mr. H. Stafford, on Thursday, May 9, 1850, by John Ewart, Land Surveyor, &c., Newcastle-upon-Tyne.*

The sale of this celebrated herd took place on Thursday, May 9, 1850, in presence of a company, which, at the lowest estimate, could not be less than five thousand persons, including nearly every breeder of short-horn cattle of note in the United Kingdom, as also breeders from the continent of Europe, and from the United States of America. It may with confidence be maintained that on no similar occasion has so great an interest been excited amongst the breeders of this variety of the ox, so justly the pride of our country, as on that referred to above. And well, indeed, did the herd deserve the far-extended fame which attracted such a mighty gathering on the occasion of its dispersion, to be the *nucleus* of new, or to enrich collections already in being, in our sea-girt isles, in Europe, and in the great western quarter of our planet, beyond the Atlantic ocean.

To criticise in print, a herd, whilst it remains the property of the breeder, is obviously an improper intermeddling with private property, by which no good purpose can be answered, but which may be productive of controversy, liable to excite vexation. When, however, a herd is dispersed, as on the occasion under consideration, the reason for withholding an opinion of its merits, and of those of the several animals of which it is comprised, ceases. In fact, an event in the annals of rural affairs of such interest and importance as the sale of the Kirkleavington herd, not only demands a more permanent record than the ordinary notice in the columns of a newspaper, but now that the cattle in question no longer form a distinct herd, a monument of the incident becomes useful; and no repository for such can be so fitting as the pages of the *Farmer's Magazine*. The herd in question, comprising forty-eight cows, heifers, and heifer-calves, and twenty bulls and bull-calves, late the property of Thomas Bates, Esq., formerly of Halton Castle, afterwards of

* We observe in Mr. Vail's Catalogue the following remarks appended to the foregoing article, which will be read with interest by breeders on this side the Atlantic, in the prospect of the dispersion of Mr. Vail's herd.

"It may not be inappropriate to state that one of the four premium animals alluded to in the above extract, was the Ox old premium cow, and at the time of her exhibition she was in calf, and on the 24th of October, following, she dropped the bull-calf, Duke of Wellington, which I purchased, and he came out the next spring; and the heifer Duchess, which came out with him was sired by one of the other premium animals alluded to, viz: the celebrated bull, Duke of Northumberland, and my premium bull, Meteor, was the first offspring of these two valuable animals."

Ridley Hall, both in Northumberland, and lastly of Kirkleavington, near Yarn, in Yorkshire, displayed an eminence in every point of excellence, which has been very rarely attained. In a combination of those qualities which constitute excellence in the short-horn variety of cattle, it may be asserted with confidence, that the Kirkleavington herd, at the time of its dispersion, was unequalled by any other in existence. Magnificent size, straight and broad back, arched and well spread ribs, wide bosom, snug shoulders, clean neck, light feet, small head, prominent and bright, but placid eye, were features of usefulness and beauty which distinguished this herd in the very highest degree; whilst the hide is sufficiently thick to indicate an excellent constitution its elasticity, when felt between the fingers and thumb, together with the soft and furry texture of the coat, evinced in an extraordinary degree throughout the herd, excellent quality of flesh, and disposition to rapid taking-on fat. In the sixty-eight head of cattle not one could be characterised as *inferior* or even as *mediocre*—all ranking as the first class animals; and when an idea of inferiority arose, it was only in reference to a comparison with some of this splendid herd which, from their most extraordinary excellence, may demand especial notice.

The herd consisted of six families:—The Duchess the Oxford, the Waterloo, the Cambridge Rose, the Wild Eyes, and the Foggathorpe which are here enumerated in succession according to the prices which each realized at the sale; a synopsis of the pedigrees, prices and purchasers, being subjoined, to which it will be sufficient to refer for such particulars.

Of the Duchess family, which originated with Young Duchess, a two-years old heifer, got by Comet, dam by Favourite, and purchased by Mr. Bates, at Mr. Charles Colling's sale, in 1810, for 183 guineas, were four cows, three heifers, one heifer-calf, four bulls, and two bull-calves; the first of which that demands especial notice, is the Fourth Duke of York. This animal, now the property of Earl Ducie, is the *beau ideal* of bovine excellence. His magnificent size, and perfection in every point of excellence, entitle him to be considered as the brightest gem of the herd; and if not the very best bull in existence, he certainly cannot be surpassed. Grand Duke, Duchess 5th, and Duchess 55th, 59th, 61st, 62d, and 64th, all of the same family, are the finest imaginable specimens of the short horn tribe. Next in order is the Oxford family, consisting of four cows, two heifers, four heifer-calves, and three bulls of which Oxford 5th, Oxford 11th, and Second Duke of Oxford, and all animals of extraordinary excellence. The Waterloo and Cambridge Rose families were less numerous than the two preceding. The whole of the animals composing them possessed great excellence, although inferior to those previously noticed. The Wild Eyes, the most extensive family in the herd, consisting of twenty-five head, in which were nine cows, seven heifers, two heifer-calves, four bulls, and three bull-calves; and of which Balco, a remarkably fine yearling bull, and two three-year old heifers, Wild Eyes 22d and 23d, were prominent lots in the sale. The only remaining family now to be mentioned, is the Foggathorpe, descended from a cow of that name, bought by Mr. Bates, for which he gave one hundred guineas when she was of so advanced an age as not to be likely to breed. This family comprised two cows, one heifer-calf, and four bulls; of which Ebor, a yearling, sold for 99 guineas.

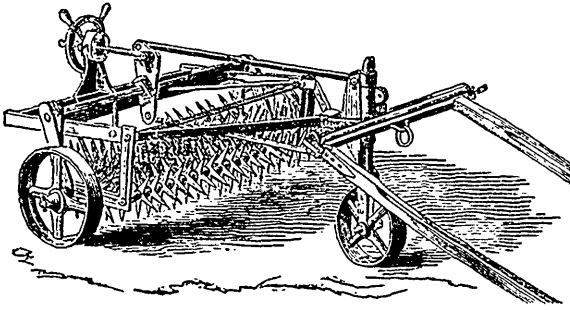
The sale of this extraordinary herd realized a total amount of £1,558, 1s., sterling—equal to \$29,268; and, great as this sum may seem, it is not in any degree extravagant to suppose that, had the identical animals been in existence in 1839, and put up for sale after Mr. Bates' unparalleled triumph as a breeder of short-horns, at the show of the Royal Agricultural

Society of England at Oxford, in obtaining four principal prizes with the only four animals entered by him on that occasion, the sixty-eight head of cattle would then have realized double the sum they did on the 9th inst. In support of this opinion, the writer can state, upon undoubted authority, that so great was the estimation in which the premium animals referred to were held, that an offer of 400 guineas each for the premium cow and heifer was refused; and that for the bull, Duke of Northumberland, Mr. Bates might have had almost any sum he might have asked; but he considered the animal valuable above all price. When the circumstances of the great yearly increase and diffusion of short-horns, for the very first class, in every part of the kingdom, for many years past, and the crushing influence which Free-Trade policy must have on the price of cattle, are considered, the proceeds of Mr. Bates' herd fully corroborates the writer's opinion

of its being the most excellent ever submitted for sale by auction.

THE NORWEGIAN HARROW.

At the last meeting of the Board of Agriculture, J. B. Marks, Esq., of Kingston, submitted a sketch of the above implement, and we have since received from him the following communication. We had a cut of this harrow in the hands of our engraver previous to seeing Mr. Marks' plan, which, though in principle the same, yet it differs in several of its details from the one here presented from an English publication.



BARRIEFIELD, KINGSTON,
21st August, 1852.

DEAR SIR,—

The plan of the Norwegian Harrow, which I submitted to the Board of Agriculture at its last meeting in Toronto, on the 4th inst., was kindly furnished by our friend Lieut. W. R. Davies, Royal Navy, Carmarthenshire, North Britain.—He says it is getting much in use in that country. It will do the work of three common harrows, and much better, in heavy or clay soil. With a strong team of four oxen or horses, it will do astonishing work. Should it not at first go sufficiently deep, put a log of wood or some other weight on the top of the frame, and it will then break up into bits the thickest furrow. Many farmers use no other, but finishing off with a light common harrow. When seed is sown, it gives a smoother surface; its novelty of rollers is very curious, and worthy the attention of our Provincial Agricultural Society. Can you induce some of our best implement makers to make one for the Society?

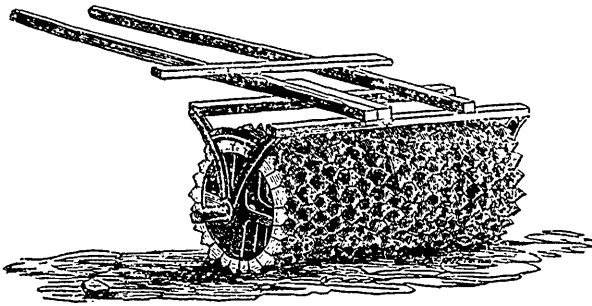
I remain yours very truly,
J. MARKS.

To Geo. Buckland, Esq.,
Secretary, &c. &c. &c.

This novel implement was originally imported into Scotland from Norway, by Mr. Frere of Edinburgh, but it has subsequently undergone several changes and improvements. The acting part of the machine was a frame containing four horizontal spindles, on each of which is fixed a set of cast iron

bosses, with teeth projecting from them like the rovets of a spur. These teeth revolve with the spindles, those on one spindle interworking with the others, so that they severally clear and clean each other. The effect in tearing and breaking down the soil is thorough and perfect, without any clogging of the teeth or derangement of the working parts. Its depth of working is readily adjusted, and the wheels are not essential, though often of much convenience for the purposes of locomotion. As a mere clod-crusher it is no doubt inferior to Cross-kill's—it leaves the ground light and loose, whilst the clod-crusher gives to it firmness and consistence. The Norwegian harrow acts to a considerable extent as a clod-crusher, while it penetrates the land to a considerable depth, and tears the surface to pieces. For preparing land for wheat it is particularly adapted, consolidating the soil while it prepares a good surface tilth.

The price of this implement in England, covering a width of four feet, is about £14; but with two axles, as in the plan submitted by Mr. Marks, the cost would be considerably less. It is much to be desired that some means should be taken to introduce this implement into Canada, an object we hope soon to see accomplished.



CROSSKILL'S PATENT CLOD CRUSHER ROLLER.

This is, beyond question, the most efficient Implement which modern mechanical skill has furnished the farmer for reducing to a fine condition, the driest and most stubborn soils. It consists, as shown in the figure, of a series of cast metal rings, or roller parts, placed upon a round axle, and acting independently of each other, thereby producing a separate action in turning round upon the headlands, without moving up the soil, and effecting a self-cleaning movement. The ordinary size of the roller is six feet and a half in width, with single shafts, and weighs about 27 cwt. The roller parts are 2 feet 6 inches in diameter, with indented or serrated surfaces, having a series of inner teeth at right angles to the centre of the axle, and pointing directly perpendicular into the clods, more effectually pulverising the roughest land into a fine and even surface mould.

This implement has been aptly termed "a roller and harrow combined." It has been used with much advantage on young wheat in the spring, when the soil requires consolidation, and is said to prevent the ravages of the wire-worm in many situations. Its high price, (varying, according to size, from £15 to £25 sterling) will form the principal hindrance to its adoption in Canada. We have seen an imported one on the farm of Messrs. Taylors, Paper Manufacturers, near Toronto.

DISTINCTION BETWEEN THE WHEAT-MIDGE AND CORN WEEVIL.

MR. EDITOR,—

A correspondent in your last number (Mr. Hutton) mistakes the larva of the wheat-midge, (*Tripula tritici*, Kirby,) *Cecidomyia tritici*, La-

treille,) for that of the corn weevil, (*Curculio granaria*, Linn.) The wheat-midge, the larvæ of which is so destructive to the ear of wheat before ripening, is a dipterous insect, whilst the weevil, which is injurious to the grain in the granary, is a coleopterous insect. This distinction is generally made by Entomologists, but seldom regarded by farmers. (Vide Kiellar, and Dr. Fitch in N. Y. Transactions, &c.)

Yours, &c., A. K.

THE NORTH WALES CATTLE.

SOUTH CAYUGA, NEAR DUNNVILLE,
August 16, 1852.

To the Editor of the Canadian Agriculturist.

DEAR SIR,—In late numbers of your valuable Agricultural Magazine, your correspondents have said much to prove which kind of cattle took the most prizes at Smithfield, or other shows; but I do not think they have proved what kind gives the farmer the most profit for raising, in this country, with the least outlay or expense, which I think an object; and as the avarice of manufacturers, merchants, and traders, do not seem to allow a profit to any one but themselves, I beg leave to say a few words upon that little item on cattle.

It is said, that, with free trade, low prices of grain, the farmer cannot afford to give ten dollars a-month, and board, to cut hay, mix bran and linseed tea for cattle of a tender kind, such as Durhams, Ayrshire, and Devonshire, particularly as there are kinds in this country that require neither of these things to be done. I do not like to see so many cattle come out of these cold winters, with hips a man might hang his hat upon; the ribs bare, and the deep furrow of poverty down the thigh. They often yield only the skin to the owner. I observe that native plants, trees, fruits, and even men, thrive much better than foreign ones here. But I have seen a kind of cattle lately that took my attention, and I wish to direct the attention of some of your readers to them, particularly our Dutch neighbours, whose pigs, sheep, and oxen, have long been too inferior, and who I am persuading to subscribe to your Maga-

zine of Agriculture, and improve their stock and general system of farming; and I hope to succeed, as it is said to be much easier to overcome a want of knowledge, than to overcome prejudice. When I lived in England, I fattened many Durham oxen with oil cake, and other artificial food, with great loss, but I usually bought a number of North Wales beasts, which were fed through the winter with straw, and a little hay, and then with grass in the summer, which paid much better than the stall-fed Durhams. You are aware, Mr. Editor, that the North Wales beasts are the hardiest constitution animals brought into the English cattle-fairs, and, I think, could bear this climate well, particularly as his skin, by nature, is thick enough to bear the blast of their mountains, and makes the heaviest and best leather carried to Leadenhall market, and gets 6d. per pound above most other kinds.

A short time since, a Mr. Naas, near Smithville, Niagara District, said to be a great grazier and butcher, from Wales, or England, imported a polled North Wales bull, (very quiet among other animals,) and with a half-bred Durham cow, seems to have bred some good, hardy cattle, and the females are said to be good milkers. I lately saw a young bull of this stock which took my attention. He came out of the last severe winter better than any other that I have seen before, although he was kept in an open yard, with two other young bulls, a year older, with horns, which allowed him nothing to eat but that which they left of timothy hay and straw. They do not know what bran, with cut hay and linseed tea mixed are, neither do they require it. This animal paid very well for his winter-keep, and looks better than his winter-companions (and this kind grow large enough.) I wish I could say that of others, and I hope this stock will be increased, as they suit this climate and living better than any I have seen. I am surprised that the North Wales oxen are so little known here. I think I could keep one of these animals, and three or four sheep, with the food that would keep a Durham, Ayrshire, or Devonshire, or three of one to two of the other, and have them come out of the winter in better condition—both kinds fed with timothy, or clover, hay and straw.

If I can, I will prevail upon my Dutch neighbours to adopt the plan of English farming, carried out from 1800 to 1830, on clay lands, similar to these, with scarifiers, drills, harrows, and double plough, for spring-sowing, planting corn, potatoes, and making their summer fallows. These are not the times for theory and speculation, and these implements, made with wrought iron, last many years, and are not very expensive, and are always valuable. If I can put only a ten-dollar bill into the pockets of any of your numerous readers, by their perusal of these few lines, I

shall feel much pleasure in having been a little useful, and

Remain, Dear Sir,

Yours, very sincerely,

ROBERT F. COOK.

P. S.—I have seen native cattle fed entirely with straw, look as well after winter, as foreign cattle that have eat one-and-a-half or two tons of hay.

R. F. C.

QUERIES.—BEST TIME FOR CUTTING GRASS.—THE ALPACA, &c.

ORILLIA, August 7, 1852.

Editor of Canadian Agriculturist.

SIR,—I have noted down a few questions which I hope you will answer as soon as convenient:—

Is there no certain rule for the cutting of hay in this country? *The American Agriculturist* says, "Cut Timothy and Redtop when they begin to ripen their seeds. Cutting before grass is ripe, makes the roots bleed and die out."

Canadian Agriculturist, 1850, says, "All the cultivated grasses are in the best condition for being made into hay, when in blossom, and should on no account be allowed to ripen their seeds before being mown."

N. E. Farmer, 1852, says, "Grass cut after the seeds are fully formed, is much more nutritious than when cut sooner."

When cows calve at liberty, they eat their "cleaning" (after birth.) Is this a provision of nature, or a medicine?

I am not aware whether other animals have this habit.

The *N. Y. Journal of Commerce*, 1846, mentioned that a company had been formed for the introduction of the Peruvian Alpaca into the United States. Have they succeeded? and as they thrive in the west of Ireland, might they not do in Canada?

In the *Agriculturist*, for 1849, there is an extract from the *Scottish Ag. Journal*, which gives an account of a plough or hoe, capable of being drawn by a man or boy, and which enables one person to accomplish the work of five. Should not some public-spirited individual import one of these implements as a pattern? It would be just the thing for Canada, where the farmers cannot find time to cultivate their gardens.

I remain, Sir, yours truly,

C.

No absolute rule can be laid down, or acted upon, as to the exact time when grass should be cut for hay, since many disturbing circumstances frequently arise to modify this, as well as most

farming operations. The nutritious property of hay is found in the stalks and leaves; hence, as a general rule, the best time for cutting is when the grasses are in full bloom. If the object be reproduction, then the seeds must, of course, be allowed to ripen; and just as this process becomes matured, the stalks and leaves deteriorate for food, a large portion of saccharine and other soluble matter being converted into woody fibre, a substance comparatively indigestible and innutritious.

We never knew any bad effects arise from the propensity of cows to eat the placenta, after calving; and the disposition to do so, appears to partake of the nature of an instinct, like the licking of the calf immediately after birth. It is the general practice, however, to remove the placenta whenever practicable. We are not aware of any similar habit in other animals.

We can throw no light on our correspondent's query respecting the Alpaca. Much was said a few years ago about the introduction of this animal into Britain, but not having heard anything of it, of late, the natural influence is, that public expectation has not been realized. We have heard nothing more of the plough or hoe alluded to since the first commencement. Many new inventions of this nature will not stand the test of lengthened experience, and have consequently an ephemeral interest only.

EAST OXFORD FARMER'S ASSOCIATION.

We have much pleasure in complying with the wishes of the members of the *East Oxford Farmers' Club*, by devoting a portion of our space to the proceedings of their first meeting, as reported for the *Western Progress*, trusting that their beneficial example will be extensively copied. Farmers' Clubs are amongst the most efficient instrumentalities for raising the social status of the Farmer and advancing both the science and practice of his art.

Sir,—The pressure of matters at this busy season will be considered a sufficient excuse for not having sooner furnished the report of a meeting which was held, pursuant to public notice, in the schoolhouse near the Town Hall, on the 7th July, the objects of which will be fully explained in the opening address delivered by Mr. Alexander, the Superintendent of the Schools, in

this Township. After the meeting had been organized—

Mr. ALEXANDER rose and said,—“They were assembled here upon this occasion, as he understood, to establish a Farmer's Club, or Association, which shall have for its object and purpose the diffusion of sound Agricultural views throughout this section of the country. He (Mr. Alexander) esteemed it a privilege to be invited to take part in this movement, in which he felt a deep interest, and from which he expected important results. The most essential of these, and that which they had more immediately in view, was the introduction of a better system of husbandry—of a system which, while it would bring the farmer greater remuneration for his labour, would also prevent the deterioration of the soil. But the practical working of such an Association would be found beneficial in other respects, namely, in cultivating the powers of reflection and observation, in creating a thirst for knowledge and improvement, in conducing to the general, mental and social elevation of the community.

“As to the mode of action suggested of holding periodical meetings, either monthly or quarterly, for the purpose of discussing all questions relating to the management of the farm, he (Mr. Alexander) considered it not only thoroughly practical, but peculiarly adapted to the wants and necessities of a young country. What an animating sight it would be to see their Town Hall crowded, one evening in every month, by practical and intelligent men, assembled to elicit, by free and manly discussion, right views of the most economical methods of conducting all field operations, and of the management of the stock on the farm. One cannot suggest more certain means of breaking up all erroneous impressions which every one holds, more or less to his cost—of extending the blessings of knowledge to the many, and of calling forth a salutary spirit of emulation and enterprise in the land.

“Respecting the system of rotation most generally adopted throughout Canada, during the first seven years of settlement, the land cannot be said to sustain any serious injury until the roots are removed; but he (Mr. Alexander) would desire to mention a startling fact, which appeared in the February number of the *Canadian Agriculturist*, and which tells a sad tale of the system of farming pursued in older settled parts—in two of the Northern States. It is therein mentioned that 12½ bushels of wheat per acre is the present average of the State of New York, that of Ohio being 16 bushels. Thirty years ago, the former averaged 30 and the latter 35 bushels per acre. By injudicious cropping, they have carried off the phosphate of lime, silica, and other fertilizing substances, without adopting the

proper means to renew them. In some sections of Canada, the same effects are observable, only in a less degree. The proper rotation of crops upon different characters of soil, would be an interesting and important subject of investigation at future meetings of this Association. But how many subjects might be named of deep interest to the good farmer? The proper management and application of manure, the selection of seed, the potatoe rot, rust, wireworm, and other evils which the farmer has to contend against; the relative proportion of stock to a given number of acres, the advantages of paying more attention to sheep and the dairy, the kinds of sheep, cows, and other stock best adapted to this climate and market, the cheapest and most expeditious methods of restoring impoverished lands, by ploughing in clover, buckwheat, &c., aided by gypsum, are some of the many subjects upon which the farmer ought to possess the fullest information. How perfectly adapted is such an Association to diffuse widely knowledge of this useful character, if all the leading settlers throughout the country would make it their pleasure and duty to head the movement—those farmers who (as Mr. Hind observes in his admirable work on Agricultural Chemistry) are annually reaping double the average amount of produce their neighbours are vainly endeavouring to obtain, and whose fields and homestead present an appearance of order and superior arrangement.—Such men, of whom there are many in every township, are of great value in their respective neighbourhoods. Such are the persons eminently qualified to lead the discussions at the meetings of this Association.

“In conclusion, he (Mr. Alexander) would desire to make a few remarks respecting the capabilities of this Province, and its many natural advantages. He might with truth say of this western section, extending from Lake Ontario to Lake Huron, that a finer tract of land is not to be found, as regarding the natural fertility of the soil, a country richly watered, with abundance of water power for mechanical and manufacturing purposes, and he might add, that although they had, elsewhere, occasional visitations of sickness, it was, upon the whole, one of the healthiest parts of this continent. Those who have adopted this land as their home have great cause to be satisfied. Upon what, then, does the rapid advancement of Canada depend? Upon the spirit of enterprise, the advantageous employment of the industrial labour of her population, upon the growth of intelligence and virtue. He would only wish to add that it afforded him more than ordinary satisfaction to find this movement emanate in a township with which he was officially connected, and that he hoped soon to see many such associations established in this county.”

At the conclusion of the above Address, a Constitution was proposed and adopted, and the following officers appointed for the current year:—*GEORGE ALEXANDER, President; HY. PEERS, Vice-President; L. C. TEEPLE, Secretary; and JOHN VROMAN, Treasurer.*

THE COMMITTEE.

Wm. Burgess (Reeve), Joseph Peers, Wm. Garbutt, Wm. Peers, Stephen Cook, Wm. Paulin, sen., Wm. Chambers, Robert Vandecar, James McCallum, Peter Lampman, John Green, sen., James Faulkner, Jas Petit, Hiram Sprague, John Guild, John Rutledge, Thomas Hart, John Green, jun., Thos. Lazenby, John Leak.

The President taking the chair, the subject of the management and application of the farm yard manure and of gypsum was introduced, which led to a lengthened and interesting discussion, of which I regret not being able to give a report.

Mr. Garbutt gave a most able exposition of his views and system, dwelling particularly upon the benefits arising from turning and piling the manure in the yard, early in the season, so that it may undergo the process of thorough fermentation before being applied to the land, the principal object of which was to destroy the vitality of all the seeds of noxious weeds. When carted out on the fallow, it ought to be ploughed in with as little delay as possible. Half the best properties of manure were generally wasted from the want of proper preservation. His remarks, which were highly approved, elicited replies from Messrs. Henry Peers, Rice, Paulin, and Chambers, who gave further illustrations of their experience. All present manifested a deep interest in the proceedings, and seemed to look forward with zeal to the future meetings of the Association.

The next meeting was appointed to be held in the Town Hall, on Tuesday evening, the 24th of August, at Seven o'clock. The inhabitants of other townships are hereby specially invited to attend at every meeting. The subjects of discussion at the next meeting to be, the selection of seed, the best method of storing potatoes, turnips, and other roots, and the further consideration of the application of manure.

Hoping to be able to render a prower report of the proceedings of future meetings,

I am, &c.,

L. C. TEEPLE, Secretary.

East Oxford, 6th August, 1852.

The barbers in towns in China go about ringing bells to get customers. They carry with them a stool, a basin, a towel, and a pot containing fire. When any person calls to them, they run to him, and, planting their stool in a convenient place in the street, shave the head, clean the ears, dress the eyebrows, and brush the shoulders, all for the value of a farthing.

NIXON'S IMPROVED GRAIN DRILL.

We expected to have presented our readers this month with an engraving of Nixon's Improved Grain Drill; but the cut has not yet come to hand. William Nixon, the Patentee of this improved machine, has after several years of study and experimenting, succeeded in combining in one machine, a Grain and Turnip Drill of a cheap, simple, substantial and complete construction. One great advantage connected with this machine is the fact that it will not be easily put out of order. The only castings connected with it are one small wheel and pinion, and the other parts are square pieces of wood, which can be replaced by any mechanic.

The quantity of grain to be sown and the depth of the drill can be regulated at pleasure, and the machine is so arranged as to be immediately altered to sow every kind of grain or plaster broadcast regulating the quantity as before.

It is altered to drill turnips by merely lifting out every other beam leaving four which will be the proper distance apart.

In next number we may give further particulars in connection with this construction. In the meantime any information may be obtained by application by letter to Wm. Brown, & Co., at Roach's Hotel, King Street, Toronto.

THE CATTLE CONTROVERSY.—Mr. Parson's reply to Mr. Tye did not reach us in time for the present number. We publish entire Mr. Sotham's communication without any remarks of our own, leaving our readers to draw their own conclusions. Our time at present being otherwise wholly pre-occupied. Besides we are no *umpires* in this disputed case.

A NEW RAKING MACHINE has been invented by Mr. J. Begg, of Pickering, which will, we understand be exhibited at the approaching Provincial Fair. The drawing sent is not sufficiently accurate for engraving. We hope to give a full explanation of this implement hereafter.

BRITISH NATIONAL SOCIETIES.—We exceedingly regret that want of space prevents us this month from noticing the recent Exhibitions of the English, Scotch, and Irish Agricultural Societies; some instructive facts connected therewith we shall, however, notice hereafter.

RECEIVED.—J. Jones, Stanford; A Young Farmer; which shall receive attention in our next.

MARKETS.—The latest accounts from the United Kingdom confirm the prevalence of the potato blight to an extent, which connected with somewhat unfavorable weather for the harvest, was producing an upward tendency in the grain market. The weather in Canada has been of late, warm and dry, and the grain crops have been safely received. Wheat has not been uniformly good, and in certain localities the weevil has been very destructive. Drought too, in some places has injured the crop generally. Upon the whole, however, the produce of the year may be regarded as an average, and we hear little of the potato disease. Wheat is coming into the Toronto market freely, and a brisk business is doing from 3s 6d to 4s and upwards, per bushel.

Liverpool Markets.

Boston, Sept. 2, 1852.

The Corn market has been quiet with a decline in flour of 6d a 1s per barrel, and on Wheat 1d a 1½d per 70 lbs, in consequence of the weather again becoming favourable. Indian Corn is a shade easier. Brown & Shipley's Circular quotes yellow at 24s 6d, mixed 21s, and white 28s 6d per quarter. Wheat—white 6s 10d a 7s. Red, 5s 6d per 70 lbs. Flour—Western Canal, 21s a 21s 6d. Canadian, 20s 6d a 21s. Ohio, 22s 6d. Sour, 19s.

ANGLO-AMERICAN MAGAZINE. Toronto, T. Maclear.

The *Anglo-American* for this month contains several well-written, original papers, and a variety of interesting selections. The illustrations are, Sir Thos. More, The Fashions, Auction Sale, and a View of Hamilton. These are very creditable to our Wood Engraver, Mr. Allanson. The first article is a short sketch of Hamilton, its rise, and progress. We have another paper on Emigration to North America, followed by, The Chronicles of Dreedpaily. There is one very fine paper—on early closing—entitled, The Voice of Nature. There is a genuine earnestness of feeling in this sketch. It will amply repay a perusal. We have a continuation of the Editor's Shanty, and Mr. Maclear himself is announced by the barking of the Major's dog—a very rustic announcement, certainly. However, those ills we can't remove, we must endure. We warmly commend this number to the kind consideration of our readers.

THE EDINBURGH REVIEW, Toronto: Thomas Maclear, Yonge street.

The contents of this ably conducted Quarterly are The Police system of London, Campbell's modern India, Dutch Diplomacy and Indian Piracy, the Marquis of Rockingham and his contemporaries, Lives or Lord Clarendon's friends, and our Defensive Armament.²⁷

UNCLE TOM'S CABIN, Toronto: Thomas Maclear, 1

Mr. Maclear has made a decided hit in republishing this work at half a dollar. It is the most popular work of the day, and may be read with profit by old and young. Its pictures are true to life. It is illustrated by Mr. Allanson.

MR. SOTHAM ON HEREFORD CATTLE.

To the Editor of the Canadian Agriculturist.

Piffardina, Livingston Co.,
New York, July 26, 1852.

Dear Sir,—I truly grieve for the "suffering condition" of Mr. Parsons' family, and should be exceedingly sorry to disturb his distracted mind, at present, with an answer. I know full well a husband's and father's anxiety for a sick family, and would not think for a moment of trespassing on his time that should be devoted to them, therefore will postpone it until his mind is more tranquil, and his family restored to health. In the interval, I shall answer the remarks and make a few statements to the Editor. I deny that I set a "*bad example*," by questioning the motives of those who differed from my views. When a man writes a book, or pens a letter for public perusal, he is subject to public criticism. Every man has a right to oppose him, whose opinions differ, and has a perfect right to point out anything that shows his judgment to be in error, or his object in writing. Professor Low wrote a book; his object was to make money by it, and as a matter of course looked to those whom he thought would pay the best. As regards judges of animals—they are public men, and are subject to public criticism, if they take upon themselves the *responsibility to extol one breed over another*. When you or any of your correspondents can *prove* an "*untruth*" in any of my letters, (and I think I have given you every opportunity to detect me,) you are, any of you, at liberty to *reprimand* me to your heart's content, but I must first demand the *proof*, then I will not complain,—and will retire from the field disgusted with my own actions.—No gentleman will accuse a man of an untruth, without first proving it. As regards Professor Low, and Mr. Youatt, I shall not retract one word, but must confess I did not expect to be accused of "reckless assertions, and most unwarrantable assumption," for saying what I did. No man is infallible; although you seem to have pinned your faith to those, with an obstinacy which regards anything that may differ in the smallest degree with their dogmas as an innovation—an heresy not to be tolerated. Both were unquestionably men of talent; they, however, are liable to error, like others, and I think the conflicting statements I quoted from Youatt in my last, was sufficient to condemn the *whole book* to any one professing a candid, well-informed, and truth-seeking mind; and I cannot help thinking, the very quotation you made from the "Professor," though not quite so conflicting, was sufficient to show the *unsoundness* of his opinion; but I think I can find many sentences in the book worse than this. He says, from your

quoting, "the two breeds have been sometimes crossed with one another; but although fine animals have been produced by a first cross, the future progeny rarely equals the parents of pure blood. Unless, therefore, the Herefords are crossed until they become Short Horns, the proper course seems to be to preserve the two breeds in a state of purity." Produce me a breeder if you can, with a "candid and truth-seeking mind" that can reconcile himself to this, or place the least confidence in a man who makes such an assertion. Every *practical* breeder is well aware of the uncertainty of crossing, and the utter *impossibility* of "crossing a Hereford into a Short Horn." I have not the least doubt but the blood of each would leak out at intervals, "for ever." It is a long time since I read the "Professor's" book; but when I did I was impressed with the idea that it was not *sound* authority. I will get this text book and read it with a "candid and truth seeking spirit," and fearlessly criticise any part of it, that does not meet my approbation, notwithstanding his exalted talent and your partiality towards him.

I think your criticism on the late Mr. Smythers was premature. It was the *truth*, not "boasting." I ask what could be more conclusive of the Hereford triumph, than to fairly beat the Short Horns with one third less in number, and those exhibited principally by tenant farmers, it plainly showed that the wealth and influence of Short Horn breeders could no longer *conceal facts*, and that they were obliged to retire from competition thoroughly satisfied with their decided defeat; but the clandestine manner in which they did it, was the most glaring and *unsatisfactory*. I refer you to the remarks of the editor of Mark Lane *Express* for his opinion on that subject; you will find it in the same paper that contained Mr. Smythers' letter.

The class for cows and heifers at the Smithfield show has generally been the most part Short Horns, and in which they have had but little competition. The best of the Hereford Cows are kept until they are too old to feed for exhibition, and frequently as long as they will breed. I have known several cows in breeders' herds, sixteen, seventeen, and eighteen years old, and this will be the case, as long as they are so fast increasing, and in such demand they are gradually and *confidentially* gaining ground in every quarter. Lord Beswick is a convert—Sir Francis Lawley, Fisher Hobbs, Esq., and many others. The influence of these gentlemen,—their care in breeding, supported with more capital, will aid to increase the number shown, but the withdrawal of the Short Horn is so *plain* that they are thoroughly satisfied, after being beaten with so long odds in their favor. It seems to me that the question is "set at rest

for ever," and that it is not "boasting," but reality. I do not understand the tables given in your last paper, of Smithfield Show, in 1850, and I think they must be made more *comprehensive* before any one can do so. As the cow and heifer class appears there, I should say there was no Hereford cow or heifer shown. This was my impression, and for the reason above stated. The latter table of the New York State Society is plain and "comprehensive," and I think true. Mr. Corning and myself are the only importers of the Herefords. I purchased nearly the whole, and have *defended* them ever since they have been in this country,—and can say with truth that I never *commenced a controversy*.

If my trial for milk and butter had been accepted I should have removed my cows off the flats to the upland of a neighbor, as I am perfectly satisfied it produces the most milk—the former runs more to flesh—which is the reason there are no dairies kept there, the whole attention is paid to feeding steers.

You and your worthy cotemporary Mr. McDougall, are in possession of the *facts* relating to my cattle at Black Rock, where I sold all my milk. You saw them at different times, therefore I leave that with you. I was always much over-stocked—one of my greatest evils; and to the detriment of the Herefords, where judgment was weak and prejudice so strong.

In the spring of 1851, I was nearly out of hay on the first of April, and had 124 head of cattle on hand, of different ages and breeds. My Hereford calves all raised on linseed jelly, and I had to buy hay at sixteen dollars per ton and fetch it six and eight miles *in the mud*. In this calamitous and trying situation, I was determined to seek some better place for my Herefords, and as they calved, I let every calf suck the cow until I drove them away, and arrived at this place on the 26th of April; but was obliged to leave at Darian (half-way) two 2 years old heifers, and calves, and an old cow sixteen years old, with her calf, and a sick heifer, for several weeks, to recover from their weakness. The "two bulls" that lay out in the straw yard most part of the winter on nothing but straw, were with them, *low in condition*, and when they commenced their new career here, *all* presented a sorry picture. They had not a lock of hay after the first day, for they would not eat it. The old grass left on the ground was all they had,—for the truthfulness of which I will refer you to Hon. Allen Ayrault, of Genesee, President of Livingston County Bank, for further proof of this assertion, if mine is at all doubted by any of your readers. The calves all lay with the cows, eighteen in number, until the New York State Fair at Rochester, when they were driven

straight from their pastures for exhibition. Only three of them were "dry," and they were near calving, but in better condition than the rest.—I think those who noticed the calves, must *conscientiously say* that they *all were fat*, and showed plainly that their dams were good nurses. This was my object in taking so many.—The cows were low in flesh and had not recovered from their poverty in the spring. The two 2 years old heifers and their calves that I was obliged to leave behind, were all at the fair.

I have sold all the bull calves and bulls that were there exhibited, except 1, which I reserved for my own use, and which was imported in the heifer the previous summer. Two went to Kentucky with the cows, sold one in Maryland, and the remainder in York State. One of the two bulls now in Kentucky, owned by John J. Fowles, Esq., Henderson County, is the best bull I ever saw; a more perfect animal for beauty, symmetry, and quality, cannot be produced. He took the first premium at the American Institute in 1850,—second at the fair at Rochester,—and I will now show him against any Short Horn Bull in Canada or York State for \$50, and the expenses of meeting half way. I am thoroughly satisfied that his present owner will comply with these conditions, and allow him to come; and, I have no doubt, will be willing to risk a similar sum, if accepted. He was previously a Short Horn breeder, but was thoroughly dissatisfied with the breed from *occular and demonstrative proof*. This may be called boasting; but it is the only way to arrive at *the truth*. This bull was let to Mr. Edward Hallock & Brothers for two years in Ulster County, and who showed him at the Institute. I will procure the remarks made of him there, for another communication, *which shall be "more brief,"* with a true descriptive account of him. Now is the time *or never*, for Short Horn breeders to *accept*; they must either do this or say no more about Herefords. I propose to have a meeting of Hereford, Devon, and Short Horn men, to appoint the Judges. The second Bull I sold to go to Canada, though not so good a bull, he will speak for himself. I have no objection to risk his progeny against any Short H. Bull in Canada. A. Hamilton Farmer, Esq., can tell where he is, as I have mislaid the name of the purchaser; he is one of the company. I have only one Bull calf for sale, and have sold so closely that I am under-stocked for the first time, and my cattle, I am sorry to say, are too fat to be driven far for exhibition, but the present state of things forbids me showing anything in Canada, were I inclined to do so. I shall show a few at our State Fair. I have only one bull, besides the yearling, and that is an imported one from Mr. Smythers, which I keep in low condi-

tion for use. The reason the number of Herefords have been less at the Smithfield show, was, that they were by no means, well represented there, in proof of which a great number of graziers of high reputation, viz.:—Messrs. Rowland, Ledbrook, Ferry, Hewett, Manning, the three Pains, Bull, and many others equally noted, who are purchasers every year of a large quantity of the very best Steers Herefordshire produces, seldom or ever exhibit an animal; the reason of which, as some of them have stated to me, is, that “winning a prize entails a certain loss, while the breeding and feeding of them is almost neglected by the wealthy owners of the sod, and who force their fashionable Short Horns for that purpose, regardless of expense or trouble.” The following is from a letter to me from William Cother, Esq., Middle Astor, Oxfordshire, the well known Cotswold Sheep breeder:—“I cannot pursue this subject further without transcribing the opinion of an eminent breeder, Mr. Bates, of Kirkleavington, at page 426, Farmers Magazine, December, 1840. ‘I visited Hereford about 50 years ago, and was then and continue still, an admirer of the best variety of cattle (Herefords,) but I consider and have for 10 years been convinced that the very best Short Horns (*which are only a few*) are capable of improving all other breeds of cattle in the United Kingdom, as well as the ordinary Short Horns which are far from a good breed, and inferior to the Herefords, Devons and others.’” And so would any moderate judge of stock conclude, says Mr. Cother, from taking a survey of the great Smithfield Christmas Market, where and when, some of the best of nearly every kind are pitched. The Herefords reigning paramount to any other breed in *numbers and quality combined, making more money per head* than a like number of any other. To this Mr. Editor, I think you can fully testify. The Hereford graziers, amongst them the names I have above mentioned always make a point of offering for sale at this market. For further information on this subject, see the yearly report of it. Now Mr. Editor, you know well the soundness of Mr. Shaw, Esq., Editor of the Mark Lane Express. You know his responsibility, his standing, with the agricultural community, and the council of the Royal Agricultural Society, and his *correctness in reporting all their transactions*; let me ask you as a “*straightforward*” Editor, to examine my quotations thoroughly, and see whether I have misquoted anything from him. I feel assured you cannot detect a single instance. I have cut from the Mark Lane Express the decision of the Herefordshire Farmer’s Club, which you will please publish. You have misquoted my passage from Youatt’s, if you refer to my manuscript you will see your error or my copy is wrong.

It should be, They are even more kindly feeders than the Devons, and will live and grow fat when a Devon will *scarcely* live, instead of “*cease*” to live.

My next letter shall be more brief, I could not explain all I wanted without occupying so much space in this.

I am, Dear Sir,

Yours sincerely,

WM. H. SOTHAM.

COWS FOR DAIRY PURPOSES.—At the last quarterly meeting of the Hereford Farmers’ Club, a discussion took place on the subject of the capabilities of Herefords as milkers; in the course of which Mr. Rowan, a practical chemist of Hereford, explained that the land of Herefordshire was greatly deficient in the phosphates, which were most essential to the formation of milk. It had been observed that in Cheshire the milking properties of the cows had very much deteriorated, from the fact that the cheese made from their milk was exported from the country, nothing being supplied to the land in its stead with similar elements. An analysis of the milk had proved that the curd was very rich in phosphoric acid, and the remedy for the deterioration consisted in the application of bone dust. The fact that Herefordshire was very deficient in the phosphates would in a great measure account for the non-milking properties of our cows; and a good milker brought here from another country would in a few years, most probably, become a very bad one.—The chairman, Mr. Lingwood, said, this had been the case with a Suffolk cow of his own, and he was compelled to feed her. Mr. Haywood inquired whether upon the application of bone manure, the difference in the quality of grass would be perceptible. Mr. Rowan replied that it would and then observed that the geological formation of Herefordshire and Cheshire was in some respects similar; the greater part of the former resting upon the old, and of the latter upon the new red sandstone. Mr. Newton observed that Gloucestershire was a dairy county, and its soil had a good deal of blue lias clay in it, which was very rich in phosphates. The Chairman added that many of the farms were on the oolite formation. Mr. Rowan said, a very cheap method of supplying phosphate to the land was by the use of coprolites, which could be obtained from Essex and the eastern parts of England. They contained about 80 per cent. of phosphate of lime. The Chairman feared that Herefordshire was at too great a distance from Essex. Mr. Rowan replied that they might be got to Gloucester by rail at a cheap rate, and thence to Hereford by canal. After some further discussion, the meeting arrived at the following decision:—“It is considered that much may be done to improve the milking properties of the Hereford cattle intended for the pail, if made to calve in the month of May, and at about two years old, and if due regard was paid to the herbage and the management of the milking. That the Hereford cattle are considered superior to those of any other breed, in so far as they

combine the aptitude to fatten with their character of milkers. It is also observed that the pastures of the county of Hereford, from the deficiency of phosphate in a large portion of the districts are not well adapted for dairying.”

HORTICULTURE.

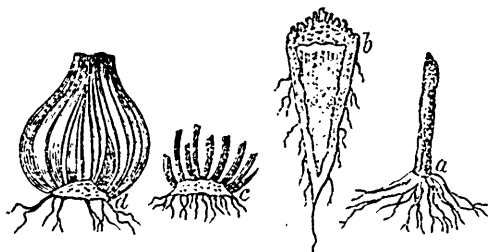
THE SCIENCE AND PRINCIPLES OF GARDENING.

PROPAGATING BY DIVISION OF THE ROOTS.

Every root has what is called the crown or neck, and in some tuberous roots, the potato, a similar part is called the *eye*, attached to which is the body of the root, and from this the fibres with their feeding tips or mouths are produced.

The crown, neck, or eye, is in most roots the

only part of them that can send up a stem. The exceptions to this, are the roots of mint, horse-radish, iris, Jerusalem artichoke, couch or quitch grass, and a troublesome weed in gardens called ash-weed, from the leaf resembling that of the ash, the smallest piece of the roots of any of which will grow, because they seem to be rather underground stems than real roots. Rhubarb, likewise, and sea-kale, will generally produce plants from a piece of the roots, though entirely destitute of eyes. They are, however, a great length of time in performing this process, and the practice of propagating them in this manner cannot be recommended for gardening purposes. Dandelions, sow-thistles, and the like, might also be adduced as further illustrations of this principle, and teach us the fallacy of attempting to destroy them by merely hoeing off their tops, as the only method of getting rid of them is to eradicate every particle of the roots.



Roots to show the neck or crown; a, in shrubs and trees; b, on the carrot; c, on herbs; d, on bulbs.

It will follow, that with these, and a few other similar exceptions, roots will only be capable of being divided when they have more crowns or eyes than one, as in the small bulbs that grow at the base of the larger bulbs in lilies, daffodils, tulips, and snow-drops; the eyes in potatoes, and rhubarb; the crowns in primroses, auriculas, seapinks or thrist, dahlias, peonies, and double rockets; and the side branches in border box and carnations.

In many of the plants just mentioned, such, for instance, as bulbs and primroses, the different crowns may be easily separated from each other by the hand, as they may generally be broken off or pulled asunder, with a good portion of root attached to each division, and being thus well provided with roots, will grow without the slightest difficulty. These remarks are also applicable to dwarf-box, which only requires to be slipped or broken off, with a few roots to each division, to render success certain, as it will seldom grow without each piece is allowed to retain a few roots. But there are others, such as dahlias, peonies, and rhubarb, which cannot be properly separated by the hand, and with these the crown or eye ought to be cut with a sharp knife, so as not to tear or bruise the parts; and each division should, if possible, have a piece of the body of the root, and also some fibres, with their tips uninjured.— This, however, is not indispensable, for the crown or eye alone will often grow without possessing any fibres at the time of planting, as is the case with auriculas; though the fibres will, in very

few instances, succeed, without having some part of the body of the root, or of the crown, attached to them.

The chief points then to be attended to in the propagation of plants, by dividing the roots, is to see that each division has, at least, a few roots, and either a bud or eye, or the rudiment of one.

This mode of multiplying and increasing plants, it will be seen, is almost as natural as propagation by seed, except that, by the latter, plants diffuse their own seed, and increase their own species; while, by the one now under consideration, the assistance of man is necessary to perform the operation for them. It is now, however, very seldom practised, except with a few common sorts, and herbs, as by the methods yet remaining to be detailed, a much greater number of young plants may be obtained.

The Tomato.

Professor Rafinesque, of France, says of this vegetable, “it is deemed very healthy and an invaluable article of food.”

Dunglison says:—“It may be looked upon as one of the most wholesome and valuable esculents that belong to the vegetable kingdom.”

A writer in the *Farmer's Register* says:—“It has been tried by several persons with decided success. They were afflicted with chronic cough, the primary cause of which, in one case, was supposed to be diseased liver, in another, diseased lungs. It mitigates and sometimes effectually checks a fit of coughing.”

The method most commonly adopted in preparing this fruit for daily use, is to cut them into slices, and serve with salt, pepper, and vinegar, as you do cucumbers.

To stew them, remove them ripe from the vines, slice up, and put them in a pot over the stove or fire, without water. Stew them slowly, and when done, put in a small piece of good butter, and eat them as you do apple-sauce. Some add a little flour bread, finely crumbed, or a couple of crackers pulverized.

SCIENTIFIC.

CANADA AT THE GREAT EXHIBITION.

The following respecting Canada occurs in the official reports published by the Imperial Commissioners of the great Exhibition of 1851.

"Of all the British Colonies, Canada is that whose exhibition is the most interesting and the most complete, and one may even say that it is superior, so far as the mineral kingdom is concerned, to all countries that have forwarded their products to the Exhibition. This arises from the fact that the collection has been made in a systematic manner, and it results that the study of it furnishes the means of appreciating at once the geological structure and the mineral resources of Canada. It is to Mr. W. E. Logan, one of the members of the Jury, who fills the office of Geological Surveyor of Canada, that we are indebted for this collection; and its value arises from the fact, that he has selected on the spot most of the specimens that have been sent to the Exhibition, and has arranged them since their arrival in London. The arrangement that he has adopted, which is entirely technical, includes eight divisions, viz:—Metalliferous minerals, and metals obtained from them; Minerals requiring complicated operations to render them fit for use; Lithographic limestone and minerals employed in jewellery, and in the manufacture of various kinds; Various kinds of clays and refractory sandstones; Rocks furnishing whetstones, hones, and polishing stones; Rocks and minerals in use for improving soils; Materials used in construction, and rocks serving for architectural decoration. Combustible minerals. All these classes include materials, of great interest, for industrial purposes, and we think it useful to mention some more specially. The ores of iron require notice first of all for their abundance and excellent quality as the magnetic oxide is worked in upwards of ten different localities. The mines of Marmora, the most important of all, are situated in the west of Canada, and are worked in a mass of ore more than 100 feet thick. The magnetic ores obtained from them (4.) are accompanied by pig iron from the works established on the spot, and belonging to the Marmora Iron Company. The Jury has recognized the good quality of their products by making honourable mention of this Company; and the same is awarded to Dr. J. Wilson (2.) who has exhibited magnetic iron ores from South Sherbrooke, and phosphate of lime from Burgess. Ordinary mention has also been made to Mr. Lancaster of Vaudieul (6.) Captain Mortin of St. Vallier (9.)

Messrs. L. Seer of Eustache (16.) E. Caron of St. Ann, Montmorency (19.) G. Duberger of Murray Bay (22.) who have exhibited ores of iron and iron ochres of different kinds. Massive hydrous oxide of iron is an important mineral amongst the iron ores of Canada, and is workable in large masses in several localities. We may mention, particularly, that of St. Maurice, which for more than half a century has supplied the iron works and foundries of that name. The Honorable J. Ferrier, the proprietor of the mines, whose products are exhibited in No. 5, has added to the ores, specimens of pig and other iron, besides slags and ashes obtained during the working of the ores. The iron of St. Maurice is of good quality, and the products exhibited show that the establishment proceeds with regularity, in a metallurgical point of view; these considerations have induced the Jury to award a Prize Medal to the proprietor. The exhibition of Canada includes the ores of zinc, lead and copper, from several localities. The ores of copper from Lake Superior and Lake Huron are remarkable for their richness, and that called "Bruce Mine" on Lake Huron has been worked for some years. The Mining Company of Montreal (the proprietors of this mine,) have erected an establishment for working the ores on the spot, according to the methods adopted at Swansea, and the objects sent by this Company (10.) exhibit by the side of the ores the various products of smelting, besides the specimens of black and refined copper. Specimens of copper and native silver, from the Island of St. Ignace, on Lake Superior, are added to these, and the Jury has awarded to the Company a prize Medal for these various objects. The existence of spangles and pepites of gold have been proved by actual investigation, in several rivers in the East of Canada, and honourable mention is made of the Chaudiere Mining Company (12.) who exhibit pepites of native gold collected in the washing of those streams. Messrs. Bedin & Lebert (15.) are also awarded with a mention for the white quartzose sands which they exhibit, which are used with advantage in the manufacture of flint and crown glass. The last award that we have to mention adjudged to Mr. Logan (1.) who has exhibited iron ores, lithographic stones, minerals, and various rocks. Our colleague has not thought it right to add to these the geological map he has made of Canada, a matter which the Jury greatly regret, not because they would then have been able to adjudge a higher reward for this beautiful work,—for the position of Mr. Logan, as member of the Jury, would render this impossible,—but because of the great interest it would have added to the Canada exhibition. The lithographic stones exhibited by Mr. Logan belong to a palæozoic rock, occurring at Marmora, where the magnetic iron ore has been mentioned as forming a deposit of enormous thickness. These stones are remarkably homogeneous, and fine grained; the degree of finish of the drawings that Mr. Logan has caused to be made upon them giving every promise of the quality being good. The geological position of the stones is interesting and the reporter is not aware such material having been previously found in the old rocks, since up to the pre-

sent time, those who practice lithography seek for stones from rocks of the oolitic series. The discovery of Mr. Morgan proving that the palæozoic rocks may also furnish good lithographic stones, increases the resources available for this important branch of engraving and drawing. We must also notice, amongst the articles exhibited by Mr. Logan, a cast of the foot-steps of an animal discovered in one of the argillaceous schists of the palæozoic period. When the schists was first laid bare to a certain extent, Mr. Logan observed the impression of footsteps repeated several times; and he had the upper bed removed to satisfy himself as to whether they were confined. Their existence, under these circumstances, fully proves that the markings were made at the time of deposit of the bed, and thus carries back the existence of the quadruped animal to the earliest silurian epoch. The length of the track discovered was eight feet, and as many as twenty impressions of each foot are traceable. Besides these is an impression between the foot-marks, which may be regarded as the trail either of the abdomen or the tail of the animal. It would carry us beyond the proper limits of this report if we were to give even a sketch of the geology of Canada, and those who wish to become acquainted with the subject, must be referred to the report addressed by Mr. Logan to the Governor General of Canada, and published by order of the legislative Assembly of the colony. We must however, mention the presence of phosphate of lime and gypsum; the former disseminated in large prismatic crystals in the metamorphic limestones occurring in thick beds at Burgess, while the gypsum is found in many localities forming large irregular masses, intercolated in the upper members of silurian series, especially at Oneida Seneca, on the Grand river. The gypsum has an even fracture, is foliaceous, and a fine white color, and being very pure, may be used for the manufacture of plaster for casting.

W. E. LOGAN, ESQ.

[From the Pilot.]

W. E. Logan, Esq., Provincial Geologist, has just received a beautiful bronze medal, accompanied by a letter bearing the autograph of His Royal Highness Prince Albert, for his valuable services rendered to the Exhibition of Industry of all Nations. The medal, which is bronze, is about 2½ inches in diameter, and bears on one side the effigies of the Queen and her Royal Consort, and on the other three beautiful figures, intended to represent Fame crowning Industry in the presence of Commerce. Above is the motto:—

"Pulcher et elle labor palma decorare laborem."

The whole is a well deserved prize to a gentleman whose exertions on behalf of the Exhibition were as untiring as they were unostentatious. The following is a copy of the letter:—

Sir,—I have the honor, as President of the Royal Commission for the Exhibition of 1851, to transmit to you a medal that has been struck by order of the Commissioners, in commemoration of the valuable services which you have rendered to the Exhibition, in common with so many eminent men of all countries, in your capacity of juror. In requesting your acceptance of this slight token on our parts of the sense entertain-

ed by us of the benefit which has resulted to the interests of the Exhibition from your having undertaken that laborious office, and from the zeal and ability displayed by you in connexion with it, it affords me much pleasure to avail myself of this opportunity of conveying to you this expression of my cordial thanks for the assistance which you have given us in carrying this great undertaking to a successful issue. I have the honor to be, very respectfully yours,

ALBERT.

W. E. Logan, Esq., F. R. S.

THINGS TO BE DISCOVERED.

It is only five years since the first piece of gutta percha was introduced into our country, and it was introduced into England but a very short time before that. Nothing was known about it at all then, in comparison with what is known now. Its usefulness for many purposes is beyond calculation, for it has qualities different from all other productions, and is fitted for those purposes which no other substance can supply.

India rubber also possesses qualities, and is applied to purposes, for which there is no substitute. Liebig considers that we are vastly indebted to glass, cork, india rubber, and platina, for our modern advancement in chemical science. This is true, and we have no substitutes for these substances. We are not yet acquainted with all the useful substances in the vegetable world; we believe there are new and useful products yet to be discovered in our forests and prairies. With all the extent of country which we possess, and the vast amount of forest standing grand and dark in many of our States, pitch appears to be the only gum produced in our country, and no dye-woods but that of the yellow oak bark, is gathered for public use. India rubber and gutta percha are foreign products; gum arabic, gum shellac, gum copal, &c., are foreign products. Logwood, red wood, the best quality of indigo, cochineal, lac—in fact about all our dyes are foreign products.—Is our country, with all its varieties of climate, and soil, so barren that we have to send abroad for almost everything we need, except food, wood, and leather? We believe that too little attention has been given to our native products; we may be mistaken, but this is our opinion. Some useful discoveries of new substances may soon be made in our country, if our people, especially our planter, who are so intelligent and observing, would devote some of their time in making experiments and examinations with the object in view of adding new home products to the markets of our country.—*Scientific American.*

WATER.—Some four-fifths of the weight of the human body are nothing but water. The blood is just a solution of the body in a vast excess of water—as saliva, mucous, milk, gall, urine, sweat, and tears are the local and partial infusions effected by that liquid. All the soft, solid parts of the frame may be considered as ever temporary precipitates, or crystallizations (to use the word but loosely) from the blood, that mother-liquor to the whole body; always being precipitated or suffered to become solid, and always being redissolved, the forms remaining, but the

matter never the same for more than a moment, so that the flesh is only a vanishing solid, as fluent as the blood itself. It has also to be observed, that every part of the body, melting again into the river of life continually as it does, is also kept perpetually drenched in blood by means of the blood-vessels, and more than nine-tenths of that wonderful current is pure water. Water plays as great a part, indeed, in the economy of that little world, the body of a man, as it still more evidently does in the phenomenal life of the world at large. Three-fourths of the surface of the earth is ocean; the dry ground is dotted with lakes, its mountain-crests are covered with snow and ice, its surface is irrigated by rivers and streams, its edges are eaten by the sea; and aqueous vapour is incessantly ascending from the ocean and inland surfaces through the yielding air, only to descend in portions and at intervals in dews and rains, hails and snows. Water is not only the basis of the juices of all the plants and animals in the world; it is the very blood of nature, it is well known to all the terrestrial sciences; and old Thales, the earliest of European speculators, pronounced it the mother-liquid of the universe. In the later systems of the Greeks, indeed, it was reduced to the inferior dignity of being only one of the four parental natures—fire, air, earth, and water; but water was the highest in rank.—*Westminster Review*.

EFFECTS OF THUNDER.

Are the telegraphic wires likely to be more effectual than rivers or canals in causing the absence of thunder storms? I answer most certainly, yes; for iron and copper wires are much better conductors than air, water, &c.; since the telegraphic wires exceed in length, by some hundreds of miles, all the canals and rivers in England put together, it follows that if rivers and canals were conductors of the electric fluid, by how much more is that fluid drawn off from the atmosphere by the telegraphic wires by induction and hence the disruptive discharges diminished and with them the quantity of rain is consequently lessened. Professor Farady in his recent electrical researches, has thrown much light on this subject by his very beautiful investigations, and his extensive discoveries in this valuable branch of physical research have far surpassed in importance those of any other enquirer, either in ancient or modern times, and he says—"The power of conduction is common to all substances and the question of discharge is a mere question of time. In some substances, such as the metals this communication takes place with extreme rapidity; in others, such as air, water, shellac, &c., the process is difficult and slow—so slow as to admit of such substances being considered as insulators." Again the progress of electrical discharge by conduction through metallic or other substances involves the idea of velocity, and hence Professor Wheatstone has, by a beautiful series of experiments, shown that the velocity of an electrical discharge is at the rate of 576,000 miles in a second of time. Again atmospheric electricity when travelling along the elec-

tric wires has been known to disarrange magnetic needles at the stations, and to prevent this an arrangement has been made at the posts nearest to the stations to carry the communicating electro-current over the tops of these posts fixing on the tops of the posts points, which attract the atmospheric electricity when the current is passing over the posts, and carries it down the posts into the earth, while the current from the battery at the previous station is left to pass on its course uninterrupted, for it will jump over spaces, as atmospheric electricity is known to do to take the easiest and most powerful conductor towards the earth, and hence I do conceive the telegraphic wires, and also the rails, carry off by conduction much electricity from the air, and thereby reduce the frequency and intensity of our thunder storms. W. H. WHITE.

—*Mark Lane Express*.

SMALL BEGINNINGS OF GREAT INVENTIONS.—I like the story of the apple that fell on good Sir Isaac Newton's nose; of Dr. Franklin and his kite; of little Benjamin West inventing the camera obscura, in his darkened bedroom, when getting well of a fever, and little dreaming—mild young Quaker—that somebody else had invented it, two years before, on the other side of the Atlantic, 4,000 miles away! Most of all do I affect the traditional anecdotes relative to painting and engraving. Touching the last, it is curious that nearly all the legends concerning it should be connected with that very humble adjunct to domestic economy, the wash-tub. A bundle of wet linen, thrown on a steel cuirass which had been engraved in aniello, and on which a faint impression of the pattern came off, was the germ of plate engraving, the little *radiculum* from which the works of Wooley, and Landseer, and Coutins were to spring. A hard day's wash, souring the always somewhat acid temper of Dame Alice, wife of Master Albert Duier, drove him for refuge to his wood-blocks, and goaded him to the devising of that marvellous art of cross-hatching, in wood engraving, as lost and ignored, for centuries afterwards, as the cunning trick of staining ruby glass, or tempering poignard blades.—*Dicken's "Household Words."*

POTATOE DISEASE.—A correspondent of the *London Times*, adopting the signature of "An Eye to the Potatoes," in the course of some admirable observations on this subject, makes the following remarks:—"The potatoes again show unmistakable symptoms of disease—the leaves and stems appear withered and burnt, and these symptoms were developed immediately after the great thunder-storm of Friday week last—those plants alone escaping which were under the shelter of some walls. The same effect was produced upon some potatoes of my own, apparently by the same cause, while residing in Guernsey, some few years back; and the present result tends to confirm me in an opinion which I was then led to adopt, owing to the development of the disease appearing to be immediately consequent upon the

liberation of a large amount of atmospheric electricity, that the potato rot is due to the formation of ozone, which is an atropic or electric and more active form of oxygen.

Now, as the potato disease has been generally found to be the precursor of cholera, some of our chemical philosophers may be led to put the ozone theory (at least, so far as regards the potato disease) to the test of experiment. Surely, nothing would be easier than to ascertain the influence of an atmospheric ozone upon a potato plant; and if it could be shown that all the symptoms of the disease can be thus artificially produced, at least we should have advanced one step towards the discovery of a remedy for it, and, may be, afterwards, for that more terrible scourge, the cholera. Catarrhal complaints, I find, have been very general among my own friends, since the late storms, and that this is an ozonic effect Professor Schonbein, to whom we owe the discovery of the substance or principle itself, has placed beyond doubt. Dr. Faraday, too, recently showed, by some experiments performed at Brighton, that ozone is generally present in the breeze blowing from the sea; whereas that coming across the down is free from it. Those who have consulted Dr. Faraday's admirable map of the cholera in his late voluminous and philosophic report upon the subject, will not have failed to observe that the places where the pestilence committed the greatest havoc were mostly either on the banks of rivers near the sea, or on the coast itself; and that in the inland districts the scourge was comparatively powerless.—*Liverpool Paper.*

ADULTERATION OF FOOD.

I have perused with mingled feelings many of the investigations of the London *Lancet* in reference to the adulteration of food, so much practised in the present day, and I cannot resist the conclusion that the disclosures there made, present humanity in a most degraded aspect. One portion of the body politic is presented to our view as seeming to take supreme delight in preying upon the life's blood of the rest of the commonwealth. The siren lures her votaries by her enchantments, and by the promise of an endless store of pleasure; the highwayman lays wait for his victim for the sake of his cash; and the prowling miscreant watches his opportunity to rifle the till of his fellow-being, to help on a miserable existence: against all these, however, we may so far be on our guard. The love and the pursuit of virtue, will lead us in safety beyond the enchanted ground of the charmer, and the wise and effective laws of society may shield us from the assaults of a common foe. But this class of deceivers to which I more especially refer, first disarm us of suspicion by fair promise and false appearance, and then, like the vampire which soothes its victim while it is intent on his destruction,—they take advantage of the position they have secured, and make their gains accordingly. What an appalling amount of commercial dissimulation and degrading deception has been revealed by these investigations of the *Lancet*. So

glaring indeed is the deception, and so gross and outrageous are the snifts resorted to, solely with a view to make money that one can scarcely believe that human beings possessing ordinary reasoning faculties could be so far demonized as to engage in it; or, after it was discovered, that society would be so long suffering as still to permit them to occupy a position among the haunts of men. I have often thought that these investigations must be conducted upon some sort of Oxy-Hydrogen Microscopic principle, for as that instrument will discover animalcules of a thousand varied shapes, roaming at large in a drop of water, so must all these ingredients that are discovered in our coffee, our sugar and our other articles of commerce, be so magnified, and receive an existence as it were, which in reality, without this instrument they did not possess. But it is not so.—I must believe, however humbling the belief, that men can be found so utterly destitute of the slightest claim to the feelings of nature or humanity, as to employ their time in mixing up the food of their fellow-beings with deleterious and poisonous substances, and seemingly too without the slightest compunction.

As regards the article Tea, I have often satisfied myself of the absurdity of giving the name Tea, to the mixture you purchase, unless it be as a general term, for it would be impossible in many cases to say whether the leaves of the hawthorn, sloe-thorn, privet, currant, or tea plant, predominate most in an infusion. But if they kept only at that mild deception, the injury would not be great, for I believe that an infusion of the leaves of the red currant would be drunk by lovers of tea, with as great a relish as would the fairest infusion of that far-famed plant. Not content, however, with the first mixture, the old used up rubbish is purchased again from the hotel-keepers and other large consumers, and it is retouched, and mixed with verdigris and all sorts of abominations to make it once more fresh and pungent; then it is ready for market as genuine green tea. Then as to coffee, to expect it free from burnt peas, burnt corn or chicory would be almost hopeless. So far have they carried the deception in this way, that in Paris they actually manufacture the coffee beans out of a kind of paste, composed of all sorts of material, and sell the beans thus manufactured to those knowing families that like to grind their coffee themselves in order to have it free from mixture. It is no use attempting it, we live in mixed society and must of necessity exist upon mixed food, and mixed drink, and every sort of mixture, however distant may be their family relationships. I believed, however, that the adulterating process was bounded by certain well defined limits, and beyond that, we might expect something genuine. I had fancied, for example, that mustard and red pepper, two articles I am very fond of, were beyond the pale of adulteration; but alas for my credulity. In mustard, so far has the deception gone, that while in nearly all articles, some pure specimens may be found, not one pure sample of this commodity could be discovered. Even the finest Durham mustard was discovered to be a vile adulteration, so thickly mixed up with turmeric and other poisonous dye stuffs, that if you use it, you do so at your peril. Then comes my favourite spice—red pepper, which for a climate such as this, is invaluable for every day use. It is now however, so changed, that it would be impossible to recognize it. As this is among the last disclosures I will allow the *Lancet* to speak for itself.

"In none of the investigations of the *Lancet* Commissioners have the disclosures made been more startling than those now brought before the public respecting cayenne pepper. Of twentyeight samples examined, it was found that twentyfour were adulterated, twentytwo contained mineral or coloring matter, and only four were found to be genuine. In thirteen of the samples red lead was found in large

and poisonous quantities. In seven of the samples were found venetian red, red ochre, brick-dust or some other analogous ferruginous earth. In six of the samples were found a large quantity of salt, combined with red lead and a red ferruginous earth; the purpose of the salt is supposed to be to bring out the color and the acid taste of the genuine portion of the cayenne. The other ingredients were vermilion or sulphuret of mercury, a highly deleterious substance, cinnabar, turmeric, ground rice, and husks of white mustard seed. It is remarked as a peculiarity of red lead and vermilion, or sulphuret of mercury, that not only are they highly poisonous, but when taken into the human system are not eliminated as in the case with some poisons, but remain in the body, the doses gradually accumulating, until they seriously affect the health of those who use them. The diabolical miscreants who are guilty of manufacturing these poisonous frauds, deserve hanging much more than the starving and desperate wretches who commit burglary, or rob on the highway."

Farewell! red-pepper, farewell—deeply do I regret to say so:—but ere we part,—again Farewell. P.

THE CHEMISTRY OF NATURE AND ART.

The rustling of rose leaves by the wandering winds, the falling of gentle showers on beds of thyme, and the brushing of a lady's dress against the orange geranium, send forth sweet tinkling perfumes, which, although unseen by the eye, regale the senses and delight the heart. From what rich storehouse do flowers and scented shrubs draw their choice sweets; how curious must be the laboratory in which they have been distilled, how subtle the combinations, how intricate the processes; hath art done anything to compare with nature in the production of such odoriferous treasures? The laboratory of a flower is a mysterious place; the most offensive matters of the stable, the offal of the streets are transformed there into the fragrance of the wall-flower and the perfume of the mignonette. But art has her mysteries too, and she is also lavish with her sweets. Within a very short period, chemistry has made many discoveries in the production of artificial odors. Some of the most delicate perfumes exhibited at the World's Fair were made by chemical artifice, from cheap and otherwise offensive matters. Heretofore the scents of shrubs and flowers used by the rich, the fair, and gay, have been obtained from emulsions of those flowers and shrubs themselves. But now from the fetid fusil oil the practical chemist has obtained an ether oil which has the perfume of sweet pears: this is obtained by distilling it with sulphuric acid, acetate of lead and alcohol. Sweet-scented apple oil is obtained in the same manner, only the bichromate of potash is employed instead of the acetate of lead. An oil fragrant as the pine-apple, is obtained from a soap made with butter, and distilled along with alcohol and sulphuric acid; an oil which imitates that derived from almonds, and which is so extensively used for scented soap, is made from offensive coal oil distilled along with nitric acid. Dr. Hoffman, one of the jury of chemists at the Great Exhibition was deeply impressed with the importance of these discoveries, and in a letter to Liebig he particularly directs his attention to them. The component parts for the production of pear oil, he states, are one part by measure of fusil oil, two parts of sulphuric acid, six of alcohol, and two parts of the acetate of lead. The oil of bitter almonds is quickly made by having a glass worm with two tubes, through one of which flows nitric acid, and through the other, benzole; when they meet they unite, forming the nitrate of benzole, which is the substitute for the oil of bitter almonds. The most extravagant prices

have heretofore been asked and obtained for strong scented oils, their prices must soon come down to a more moderate standard.

Chemistry has demonstrated the fact, that the perfumes of flowers are but ether oils, but the flower is still the most skillful chemist, for it neither finds its acids, alkalies, fats, nor alcohol ready made; it collects them from the air, the earth, and the falling rain. This new branch of chemistry should arrest the attention of our chemists, for there can be no doubt of the fact, that an endless variety of perfumes can be obtained by the distillation of oils, fats, acids, alkalies, and alcohol together. The chemist cannot produce a single blade of grass; in the true sense of the term—although it is so named—there is no such a thing as "organic chemistry;" he only works with non-vital matter, but at the same time, it is certainly a triumph of science to imitate nature in any of her productions; this the chemist has done in those new productions which we have described. There are hundreds of other discoveries yet to be made—they are waiting to reward industrious and persevering experimenters.—*Scientific American.*

THE NEW YORK CRYSTAL PALACE.

We understand that this work will go on; the Company is to have the Building ready by the 2nd of May, next year, at "Reservoir Square," in this city. Some important regulations have been adopted to carry out the objects of the Society, and for this purpose, some discordant elements have been removed. A number of designs have been presented for the building, but only two are worth looking at; they are—the English one by Paxton, and the American one by Bogardus—we have had an opportunity of looking at both plans, and we must say, that the one of Mr. Bogardus is far the best in every respect—in beauty, grandeur, originality, strength, simplicity, and economy. If erected, as it should be, it will be an honor to our country. It is in the Doric style of architecture, and is of a circular form, with a tall tower in the centre, rising grandly above all. The whole area of 400 feet in diameter will be embraced at one glance, while the changing points of beauty, owing to its form, and the regularity of its columns, will be like a panorama to visitors. And one grand element in the calculation—a truly American one—is, that after it has accomplished its object in the Exhibition, it can be taken down in parts, and fitted up into a number of public or private dwellings. All the parts are so cast and fitted, that they can be taken to any part of the world, and will all dovetail together. This is a very different feature from the London Crystal Palace. Whatever the projectors of this Crystal Palace may do for the improvements of the arts, it will add to their reputation if this noble design be adopted by them.—*Scientific American.*

DISCOVERY IN TELEGRAPHING.

George Little, an electric telegraph engineer, has made a valuable discovery in the production of uninterrupted streams of electricity, to work telegraphs, without the use of batteries. He informed us that he had been experimenting for six years, in London, with a view to obtain this result. He has brought his working models along with him, and we have examined some of the messages which they print; they are like Bain's chemical messages. He calculates that his discovery will effect a saving of \$200,000 per annum to our Telegraph Companies. He does not use platinum, mercury, nitric acid, nor sulphuric. If this invention effects such a saving, it will be hailed as a

boon by all classes; for the telegraph, we believe, is far from being perfected. Perhaps it may be the means of working a line 3,000 miles long across the Atlantic; something which cannot be done with our voltaic batteries at present.—*Scientific American.*

MISCELLANY.

USE THE PEN.

Use the pen! there's magic in it,
Never let it lag behind;
Write the thought, the pen can win it
From the chaos of the mind;
Many a gem is lost for ever
By the careless passer by,
But the gems of thought should never
On the mental pathway lie.

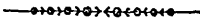
Use the pen! reckon not that others
Take a higher flight than thine,
Many an ocean cave still smothers
Pearls of price beneath the brine;
But the diver finds the treasure,
And the gem to light is brought:
So thy mind's unbounded measure
May give up some pearl of thought.

Use the pen! the day's departed
When the sword alone held sway,
Wielded by the lion-hearted,
Strong in battle! Where are they?
All unknown the deeds of glory,
Done of old by mighty men—
Save the few who live in story,
Chronicled by sage's pen.

Use the pen! the sun above us—
By whose light the chemist's art
Stamps the forms of those who love us,
Showing us their counterpart—
Cannot hold so high a power
As within the pen's enshrined,
When, with genius for its dower,
It daguerotypes the mind.

Use the pen! but let it never
Slander write, with death-black ink;
Let it be thy best endeavour
But to pen what good men think:
So thy words and thoughts securing
Honest praise from wisdom's tongue,
May, in time, be as enduring
As the strains which Homer sung.

J. E. CARPENTER.



AN EXTENSIVE FARMER.—The extensive operations of a gentleman farmer of Maryland, are noticed by the *Eastern Star*. He cultivates with his own servants—numbering near four hundred—some nine or ten farms—about six thousand acres of land, including timber land—and raises annually betwixen thirty and forty thousand bushels of wheat and a much larger quantity of corn, besides various other valuable products. Besides the extensive operations in Talbot, he has a plantation carried on the State of Mississippi, worth several hundred thousand dollars, and his annual income from his estate here, and his plantation in the South cannot fall short of \$150,000, six times as much as the income of the President of the United States. His residence is one of the most splendid in this country, being the homestead of the Lloyd family since their first settlement in Maryland.

EXPERIENCE OF ANIMALS.

Animals are prompt at using their experience in reference to things from which they have suffered pain or annoyance. Grant mentions an ouang-ouang which, having had, when ill, some medicine administered to it in an egg, could never be induced to touch one afterwards, notwithstanding its previous fondness for them. A tame fox has been cured from stealing eggs and poultry, by giving them to him scalding hot from the saucepan. Le Valliant's monkey was extremely fond of brandy, but would never be prevailed on to touch it again after a lighted match had been applied to some it was drinking. Two carriage horses, which made a point of stopping at the foot of every hill, and refused to proceed in spite of every punishment, were considered beyond cure, but it was suggested at last that several horses should be attached to the back of the carriage, and, being put into a trot, be made to pull the refractory horses backwards. The result was perfectly successful; for thenceforth they faced every hill with speed, and were not to be re-trained till they reached the summit. A dog, which had been beaten while some musk was held to his nose, always fled away whenever it accidentally smelled the drug, and was so susceptible of it, that it was used in some psychological experiment to discover whether any portion of musk had been received by the body through the organ of digestion. Another dog, which had been accidentally burned with a lucifer match, became angry at the sight of one, and furious if the act of lighting it was feigned. There are, besides, so many instances recorded of even higher degrees of intelligence, that it is impossible to deny that animals arrive at a knowledge of cause and effect. Strende, of Prague, had a cat on which he wished to make some experiments with an air-pump; but, as soon as the creature felt the exhaustion of the air it rapidly placed its foot on the valve, and thus stopped the action. A dog, having a great antipathy to the music of the violin, always sought to get the bow and conceal it. The well-known story recorded by Plutarch proves the application of accidentally acquired experience. He says that a mule, laden with salt, fell accidentally into a stream, and, having perceived that its load became thereby sensibly lightened, adopted the same contrivance afterwards purposely; and that, to cure it of the trick, its panniers were filled with sponge, under which when fully saturated, it could barely stagger. The expectation of the recurrence of an event is the impression of a former circumstance, which, from certain causes and a resemblance of certain points, we are again led to entertain and to see fulfilled. The application of experience is traceable in the lower orders of life. The razor shell-fish buries itself deep in the sand when left by the ebbing tide, and is attracted to the surface by a little salt being dropped into its hole. A movement of the sand immediately follows, and presently half the fish becoming visible, the fisherman draws it out with an iron prong; but, should he fail in seizing it, or relax his hold, the fish rapidly disappears, and it will not rise again, although more salt be thrown to it. It seems thus to be aware of its danger, for it will come forth on a fresh application of salt, should it not have been touched in the first instance. Borley says that he saw the attack of a lobster on an oyster. Lobsters, like most other crustacea, feed principally on shell-fish, which they extract with their claws, and in the instance in question the oyster closed its shell as often as the lobster attempted to insert itself; after many failures, the lobster took a small stone, which it placed between the shells as soon as they were separated, and then devoured the fish. Monkeys in the West Indies have been seen to resort to the same device. Crickets, if disturbed, withdraw quickly into their holes, and

re-appear again soon; but, if the disturbance be repeated, they remain altogether within them. A fox escaped from a trap in which it may have been caught, remembers the danger, and is not again to be deceived. Birds are equally suspicious. The quail which has once been cut into the net by the call-pipe, will not allow itself to be caught again; but some, like the redbreast and titmouse, are not easily alarmed. A wasp encumbered by the struggles of a large fly, which it had caught, bit its wings off, and then bore it away with ease; the same with a sand wasp, which attempted to draw a small moth into its hole, but, being prevented by the wings of the insect, it separated them and the legs from the body, and thus secured it. Duges saw a spider which had seized a bee by the back, and effectually prevented it from taking flight; but the legs being at liberty, it dragged the spider along, which presently suspended it by a thread from its web, leaving it in the air to dangle till it was dead, when it was drawn up and devoured.—*Thompson's passions of Animals.*

LAUNCH AT PORT STANLEY.

On Saturday afternoon, the 7th inst., we had the pleasure of witnessing the launch of a fine new vessel which has been building this summer here. The weather was everything that could be desired, and a great display of female beauty was the result. A great concourse of people arrived throughout the day and kept pouring in from all quarters, in carriages, buggies, and on horseback, up to four o'clock, when it was fully expected that she would be ready to move off. It was, however, half-past five o'clock, before she finally started, when she glided majestically into her destined element amid the loud applause of the vast crowds of people assembled. There could not have been less than two thousand persons present; the wharves, piers, and neighboring hills were completely covered. The ceremony of christening the craft was performed by Miss Hope, daughter of Adam Hope, Esq., London, who, as she was gliding gently off the ways, broke a bottle of the juice of the grape just over the vessel's stern, and proclaimed her the *Isaac Buchanan*, of Port Stanley. She is named by her owners, as a mark of respect, after a gentleman who has been long known in Canada, who takes a lively interest in everything appertaining to the interest of his adopted country. The *Isaac Buchanan* measures 101 feet keel, 24 feet beam, and 9 feet hold; will register about 250 tons or 300 tons burden; is a fine model of a schooner, and, no doubt exists with those who understand these matters, will prove a fast sailer, combined with great carrying properties. She will be rigged as a fore and aft schooner, has a centre board, a beautiful wheel for steering, and has one of the latest improved capstans, taking up very little room with a heavy double purchase. Her cabin is being fitted up very tastefully, being roomy and not much of the vessel's stowage being taken up; she will have an extra room, with two berths, for an occasional passenger, who may want to enjoy the scenery of our lakes, and is not pressed down to a few days time. She is owned by Capt. Pollock, who takes command of her, well-known on the lakes for his gentlemanly conduct and thorough seamanship, Hodge & Co., the Forwarders, and two gentlemen in London. She was designed and built under the superintendance of Capt. Moses Fletcher, who has a high reputation for building staunch and quick vessels.—It is worthy of remark, although Port Stanley is surrounded by the very best of timber, that this should prove to be only the third vessel ever known to be built here.

As far as we can learn, the *Britannia* was built in 1828, the *Sterling* in 1830, and, after the lapse of 22

years, the *Isaac Buchanan*. We trust the example set by the spirited owners may be followed up, and that we may at least have the pleasure of witnessing a launch once a year. She has been built we believe, with the intention of being placed on the route between this and Montreal, and trust our merchants will give her a generous support, wishing her every success upon whatever Lake she may be employed, and that she may soon recompense her owners.—*Canadian Free Press.*

NOBLE CONDUCT OF A NEWFOUNDLAND DOG.—

The dog Rolla, belonging to Mr. Adams, 66 Courtland St., on Sunday last performed one of those heroic deeds of humanity for which the Newfoundland breed is remarkable. An interesting little boy, about ten years old, while playing near the water at Hoboken, lost his balance and fell in. The tide sweeps along the shore there with great rapidity, and the little fellow in a few moments was carried apparently beyond the reach of human assistance. The lad it seems could swim a little, but just as his strength was giving way, the dog, at a short distance from the spot, quick as thought dashed through the crowd, leaped into the water, and in a minute more, had the boy by the collar, secure between his teeth. To bring him ashore, back to that peculiar spot, however, was an impossibility, owing to the force of the current; so that the only hope was to make a point of land some distance ahead, (between Jersey City and Hoboken) and for that quarter Rolla steered his course, amidst the applause and excitement of the spectators. On went the noble animal, bravely buffeting the tide, and careless of the shouts of applause, all the while keeping the boy's face out of the water. He reached the goal at length with his precious burthen, safe and sound, but a little frightened; and no sooner had he laid him down than the noble animal sunk exhausted on the sand. He was instantly surrounded by a numerous crowd of people, who had been eye-witnesses of the scene, vying with each other in snowing kindness to the heroic animal that had thus risked his own life to save that of a helpless human being. Some idea of the labor performed by the dog is laid in fact that the entire distance he had to swim is said not to be less than *two miles!*

One of the saddest things about human nature is, that a man may guide others in the path of life without walking in it himself, that he may be a pilot, and yet a cast-away.

Cincinnati used to sell heavy contracts for whiskey for the army; but this sort of "military spirit" is now dead, and coffee is substituted.

He who wants good sense, is unhappy in having learning; for he has thereby only more ways of exposing himself.

The shortest and surest way to live with honor in the world, is to be in reality what we would appear to be.

Never laugh at those who do not dress as well as you do. They may know a good deal more than you do.

You may glean knowledge by reading, but you must separate the wheat from the chaff by thinking.

The face of truth is not the less fair of all the counterfeit wizards that have been put upon her.

Nothing great can be effected without trouble and labour.

Do good with what thou hast, or it will do thee no good.

Truths, like roses, have thorns about them.

OSTRICH FEATHERS.

"A fashion," said a descendant of Abraham—a dealer in feathers—to us one day, "travels in circuits, and generally performs a revolution every ten or twelve years." He found out that feathers had their regular duties to perform in the fashions in about the periods stated, hence he kept a sharp look-out for those of good quality during the intervals. The finest feathers, and those which are most prized, once belonged to that much maligned fowl, more valuable than a hundred Shanghai bari fowl—the ostrich.—The finest feathers are plucked from tame ostriches, not from wild ones, as is generally supposed. It will no doubt be useful information to some people to be informed how to clean such feathers. This is done by squeezing them with the hands in strong soapsuds and then rinsing them in clean water; this is for white plumes. After being washed they are run through a very weak solution of the sulphate of indigo, and afterwards exposed to the fumes of sulphur in a tight box, the same as is done by milliners when sulphuring straw hats. After exposure to the fumes of sulphur they are hung upon cords to dry. To color ostrich feathers, they are tied up loosely in cotton bags, in such a way as the fibres will not be tangled, and then boiled in kettles along with the dyestuff. Scarlet can be died with cochineal, tartar, and the chloride of tin, in a kettle with boiling water. It takes about half an hour to colour. Yellow can be coloured with the chloride of tin, and yellow oak bark. Green can be coloured with fustic, and the sulphate of indigo. Black can be coloured with a little copperas, blue vitriol, fustic and logwood.—The fibres of these feathers are curled by drawing them over the edge of a blunt knife, between the thumb and finger: this is a secret in the art of dressing them. In these countries from which these feathers come, they are submitted to a bleaching process by the natives. They are exposed to the sun and dews for two or three weeks, and carefully washed with soap and pipe-clay.

HOT SUMMERS.

The excessive heat which prevails at present gives some interest to the following account of remarkably hot summers:—"In 1132 the earth opened, and the rivers and springs disappeared in Alsace. The Rhine was dried up. In 1152 the heat was so great that eggs were cooked in the sand. In 1160, at the battle of Bela, a great number of soldiers died from the heat. In 1276 and 1277, in France, an absolute failure of the crops of grass and oats occurred. In 1303 and 1304, the Seine, the Loire, and the Rhine and the Danube were passed over dry-footed. In 1393 and 1394 great numbers of animals fell dead, and the crops were scorched up. In 1440 the heat was excessive. In 1538, 1539, 1540, 1541 the rivers were almost entirely dried up. In 1556 there was a great drought over all Europe. In 1615 and 1616, the heat was overwhelming in France, Italy and the Netherlands. In 1646 there were 58 consecutive days of excessive heat. In 1678 excessive heat. The same was the case in the first three years of the eighteenth century. In 1718 it did not rain once from the month of April to the month of October. The crops were burnt up, the rivers were dried up, and the theatres were closed by decree of the Lieutenant of Police. The thermometer marked 36 degrees Reaumur, (113 of Fahrenheit.) In gardens which were watered, fruit trees flowered twice. In 1723 and 1724 the heat was extreme. In 1746, summer very hot and very dry, which absolutely caldined the crops. During several months no rain fell. In 1748, 1754, 1760, 1767, 1778, and 1788, the heat was excessive. In 1811, the year of the cele-

brated comet, the summer was very warm and the wine delicious, even at Susenes. In 1818 the theatres remained closed for nearly a month, owing to the heat. The maximum heat was 35 degrees (110 75 Fahrenheit.) In 1830, while fighting was going on on the 27th, 28th, and 29th of July, the thermometer marked 36 degrees centigrade (94 75 Fahrenheit.) In 1832, in the insurrection of the 5th and 6th of June, the thermometer marked 35 degrees centigrade. In 1835, the Seine was almost dried up. In 1850, in the month of June, on the second appearance of the cholera, the thermometer marked 34 degrees centigrade. The highest temperature which man can support for a certain time varies from 40 to 45 degrees (104 to 103 of Fahrenheit.) Frequent accidents, however, occur at a less elevated temperature."—*Galvani's Messenger.*

FLAT ROOFS.

All the new houses which have been built in New York recently, have what are termed flat roofs; that is, the roof is nearly level and slants but slightly from one side to the other. The old huge peaked roofs are fast disappearing; we wonder how they ever came into use. The inventor of them must have been a man full of conical ideas. The flat roofs are covered with tin and well painted. If a fire takes place in a building, it is easy to walk and work on the flat roof, so as to command the fire if it be in the adjacent building; this cannot be done on peaked roofs. Flat roofs are cheaper and more convenient in every respect. We advise all those who intend to build new houses to have flat roofs on them. It is far better to have a flush story at the top of a building than a peaked cramped up garret which is only comfortable for travelling on the hands and knees.—*Scientific American.*

FEMALE EDUCATION.

From the Canadian Family Herald.

In a previous number we made a few incidental remarks on Female Education while noticing the Examination of Adelaide Academy, an Institution established in Bay street, with a view to a successful and thorough prosecution of this paramount work. Happily we need not here discuss the importance of female education. This, in itself an exhaustless theme, has been conceded on all hands so far as to render a recurrence to first principles, altogether unnecessary. Nor need we again revert to the institution already named, as so well fitted to carry out the desired end. We wish at present only to congratulate our readers upon the progress of the good work throughout society at large. We have passed the first stage. The necessity of female education is not now discussed, when the topic is introduced; but the kind of education adapted to the development of the female faculties, and the best means to apply the kind of instruction fixed upon. These are now the points of consideration and it is well that the subject be calmly pondered. Whether shall it be Common School or High School education? Shall it embrace not only the simple elementary branches, that may fit one to move respectably in a subordinate sphere of life, or shall it combine with these, the practical elucidation of the Sciences? Shall the female mind be prepared and consolidated by a thorough gradation in Mathematics, to grapple with abstruse speculations? Or, with a due regard to the affections and finer feelings of Woman, shall the female faculties be

drawn out and refined by disquisitions on Poetry, Music, and the Fine Arts? Shall it be considered more conducive to the best interest of society, that a musical problem from Mozart be preferred to a problem from Euclid; or that the development of a Poplar tree on the sewing frame, shall supersede the digestion of a popular treatise on Astronomy? Shall it be considered more in keeping with the wants of the age that the female fingers be trained to paint a lily or a butterfly, or that the mind be prepared by a sound and judicious study of Botany and Entomology to unfold the varied mysteries of the one, or expatiate on the beauties of the other. We speak not now of accomplishments, but of sober study. These points being settled to the satisfaction of society, then comes the grave question,—How is the education fixed upon, to be conveyed? Is it conformable to the dictates of prudence that boys and girls be left to pursue their studies in one school-room, or must the girls be separated from the noisy, boisterous, and sometimes even ruthless merriment of the boys, that they may be surrounded by more retired and gentler associations. These are important considerations for all, in reference to the mode of teaching. We would, on this point, simply ask,—What lesson does nature inculcate?—How do we find boys and girls circumstanced in every-day life,—do they belong to respective groups of society, separated by a broad line of demarcation, or are they to be found mixed up indiscriminately, in the palace, as well as in the humble cot? In whatever way nature has arranged them we would say, in this way they will be best educated. Nature has said, these two portions of the social fabric go to make up one whole. Their aim in life is one—mutual comfort, mutual affection, and mutual relationship. They are nourished by the same food, affected by the violation of the same organic laws, cheered by the same hopes fascinated by the same fairy creations of nature; why then should they be separated in their system of education? why should not their sympathies and their affections, and their mental faculties be alike developed in the society of each other as they are when under the parental roof. What would be thought of the parents who would isolate the several members of their family by putting the daughters in one department of the building and the sons in another, allowing them to see each other, perhaps through the window as they walked in the garden, or as they went to Church on Sunday, there to occupy separate pews, or separate standing places, as is the custom in the churches of Eastern Europe. Why, they would be looked upon as insane, or at least doing all in their power to subvert the well being of society. But we find no such dreamy theorizing, happily, in that society in which our Queen is the centre. We find that from infancy to youth the different members of a family enjoy each others society, and find their greatest comforts there, until the time when the dictates of reason and nature demand that their most endeared affections be centred in their own respective homes. But are they even here isolated—no, the very reverse;—that filial affection which so sweetened the swiftly passing moments in their parental home, is brought more vigorously into play to animate and gladden that home in which they are at once the bulwark and the centre; and according as that affection has been developed in early life, will it in its matured state be more elevated and ennobling. This seems somehow the less on which nature furnishes, and as such should not be subverted in our mode of conveying instruction if we wish to be successful. We will look at other elementary points in next number.

If it is the lesson of nature, as indicated in our last closing remarks, that boys and girls, being indiscriminately commingled in the respective family circles to which they belong, would be most successfully educated in the same commingled state, then another lesson is

inseparably connected with it. We must infer that our Educational system has so far been fighting against nature, and it is not difficult to see that society has been injured in consequence. Hitherto our training has been such as is not calculated to produce the greatest community of feeling or similarity of sentiment. After reaching a certain stage of their progress, for example, the one party has been trained to elaborate an essay, while the other elaborates a watch-chain. The mind of the one is bent so far to meet the incidents of every day life; the mind of the other roams in an Elysian sphere, far removed from either the duties, or the encumbrances of life. Such an education when matured, necessarily produces coquetry and deception on the one hand, and distrust and want of confidence on the other; and even when this barrier seems so far removed as to allow two similarly minded young persons to enjoy each others society, the deception and evasion must still be practised, as if it were a sin to love. All this results from beginning wrong in our educational system. We would say then let boys and girls romp and rollick together at school, it will tend to the healthy development of their muscular organization;—let them attend the same classes, and stimulate each other to overcome the little difficulties which lie in the way of their intellectual progress, and it will conduce to a more vigorous development of the mental faculties. Many a young man when circumstanced in life as the sun and centre of a little happy family circle, looks back with feelings of chastened delight, to the happy hours he spent in the company of his affectionate sisters, when under the paternal roof, and he attributes to their society, and to their influence, the purity of his own mind, and the refinement of feeling which enabled him to pursue a happy, because a virtuous, course. A person so circumstanced may baffle all the conventionalities of life, but there are many young men, equally well disposed, but not so highly favoured in the allotments of life. They are left to form associates of their own class, and necessarily are deprived by the customs of society of that refining education which would result from a commingled system of instruction. It is firmly engraven upon our own mind that among the greatest of our juvenile difficulties, was the daily competition with two or three girls, that right or wrong would keep the top of the class. In many of the schools in the cities of America boys and girls are taught together. In all common schools in Scotland boys and girls are taught in one apartment. In England there is in reality no common school system; but in nearly all the schools, of whatever name, boys and girls are taught in separate apartments. The same is the rule here; but nevertheless of that, having taken cognizance of the system in its various ramifications, we decidedly prefer the Scotch parochial school system; but would wish it, as in many isolated portions of the States, carried out to the highest of our High Schools. It is evident that girls would require to devote part of their time to needle work, which boys would not require so to devote, and that this must be done while their fingers are yet pliant and delicate, in order to insure expertness in the use of the needle: but that could be overcome by being practised at different hours, while boys would be devoting their time to architectural or mechanical drawing, or modelling, or some such work that would not necessarily come under the scope of female education—that is to say, something which belonged more immediately to the prosecution of mechanical pursuits. What good reason can be assigned that our High Schools should be shut against girls? It is surely a part of the remnants of that feudal system of the middle ages, which looked upon the female as an inferior being, and only fitted for the drudgery of life. We question not here the prominence given sometimes, by feats of chivalry, to

the happy fair: these were, at best, exceptions to the rule, and were too transient to affect the mass left beyond the pale. It belongs to this age alone, in an eminent degree, to exalt woman to that high position which a benign Creator so highly fitted her to occupy, as the companion and the friend of man;—and how much better would society be, if the lingering dregs of that anomalous state were entirely dissipated. Let us then, for the sake of all interests in society, have our school system, from its simplest to its highest stage, open alike to boys and girls, and let them be trained in one apartment, that the natural delicacy and gentleness of the one may soften down the asperity of the other. We are aware that grave doubts are entertained, by persons well acquainted with the practical working of the school-room, as to the prudence or propriety of such a course of procedure.—It is the opinion of such, that, from the ages of 15 to 18, young women study much more closely and attentively, when by themselves, than they are found to do, when mixed with lads of a similar age; and that associations are often formed, in such cases, that have an injurious effect upon the respective parties, in all their after career. We, at once, admit the force of the objection, in so far as it applies to our higher seminaries of learning, but have been in the habit of attributing any difficulty that may arise from such a source, to the want of a more thorough adaptation of our school machinery to the requirements of such a system. Even if it were the case, that there is in the mixed system, not so great a desire for application, beyond a certain age; this, we think, would be remedied by the lively competition of the various members of the classes; and we are convinced that, at all events, it would very greatly improve the feelings and manners of the male sex, and would prepare the female portion of society much better to fulfil the high station to which, in after life, they may be called. It is all nonsense to try to deal with abstractions in education. It is better to educate beings, as nearly as possible, for the places they are to occupy in life, than to educate them to fill fancied spheres of existence; and as one great end in life—however much it may be neglected in our educational system—is, to create and cherish a unity of feeling, a harmony of sentiment, and an interchange of affection in society, as a whole; no means, we believe, are so highly conducive to the attainment of this desired end, as the daily and progressive polishing of the future society, in the inchoate development of its component parts, by our educational machinery, in all its branches.

RAZORS.—Barbers often tell us that razors get tired of shaving, but if laid by for twenty days they will then shave well. By microscopic examination it is found that the tired razor, from long stopping by the same hand and in the same direction, has the ultimate particles or fibres of its surface all arranged in one direction, like the edge of a piece of cut velvet; but, after a month's rest, these fibres re-arrange themselves heterogeneously, crossing each other and presenting a saw-like edge, each fibre supporting its fellow, and hence cutting the beard, instead of being forced down flat without cutting, as when laid by. These and many other instances are offered to prove that the ultimate particles of matter are always in motion, and they say that in the process of welding, the absolute momentum of the hammer causes an entanglement of orbits of motion, and hence a re-arrangement, as in one piece; in the cold state, a leaf of gold laid on a polished surface of steel, and stricken smartly with a hammer, will have its particles forced into the steel so as to permanently gild it at the point of contact.—*Scientific American.*

Our time is like our money. When we change a guinea, the shillings escape as things of small account. When we break a day by idleness in the morning, the rest of the hours lose their importance in our eyes.

A CURIOUS FACT.—A modern philosopher, taking the motion of the earth on its axis at seventeen miles a second, says, that if you take off your hat in the street to bow to a friend, you go seventeen miles bare-headed, without taking cold.

The "Athenæum," in a very lively paragraph, directed to merciless correspondents, says: "Think twice, before you write once." Punch begs leave to amend even this excellent counsel, and says: "Think twice, and then don't write at all."

Excellence is never granted to man but as a reward of labor. It argues, indeed, very small strength of mind to persevere in habits of industry without the pleasure of receiving those advances, which, like the hands of a clock, while they make hourly approaches to their point, yet proceed so slowly as to escape observation.

Industry is not only the instrument of improvement, but the foundation of pleasure. He who is a stranger to it may possess, but cannot enjoy; for it is labor only that gives relish to pleasure. It is the appointed vehicle of every good to man. It is the indispensable condition of possessing a sound mind and a sound body.

He who can wait for what he desires, takes the course not to be exceedingly grieved if he fails of it. He, on the contrary, who labors after a thing too impatiently, thinks the success when it comes, is not a recompense equal to all the pains he has been about it.

I am sent to the ant to learn industry; to the dove to learn innocence, to the serpent to learn wisdom, and why not to the robin red breast, who chaunts it as cheerfully in Winter as in Summer, to learn equanimity and patience?

GREAT SALE OF SUPERIOR THOROUGH BRED SHORT-HORN CATTLE.

The Subscriber will offer for sale, his entire herd of choice short horns, comprising 50 head, young and old at Public Auction, on Wednesday, the 13th of October, 1852, at One o'clock, P. M. at his Farm 2½ miles from the City of Troy; reserving to himself one bid on five Cows and Heifers and one Bull, say six head in all, and these to be pointed out previous to the commencement of the sale; this sale will be made public when the six animals are brought to the stand for sale. Should any gentleman advance on the single bid made by the proprietor, the highest bidder will be entitled to the animal. It is proper to say, the severe drought in this vicinity reducing the hay crop one half, has decided the proprietor to make this sale at the time named, instead of next June, which he had purposed to do.

The well established reputation of this herd in this Union, and in Canada, and the splendid herd it has measurably sprung from viz; the famed herd of that eminent English breeder, the late Thomas Bates, Esq, renders it hardly necessary to comment upon its superior merits. It may not however be inappropriate to remark, that the establishment of this herd was commenced in 1838, and that the most careful attention has since been paid to its breeding, and it now contains mostly all the reserved stock of two former public sales. Since 1840, the proprietor has imported from the late Mr. Bates, and his friends and late tenants the Messrs. Bells, 7 head of short horns; and besides these he has now on the passag across the Atlantic, shipped 21st. June, on board the Packet Ship Kossuth, Capt. J. B. Bell, a superior yearling roan Bull, having many crosses of the famed Duchess Bulls of Mr. Bates. Including this latter animal and

the two beautiful red roan 3 year old Heifers, which came out from England last September, "Yarn Lass" and "Yorkshire Countess" and the beautiful Heifer Calf of the latter animal, got in England by the Duchess Bull 5th Duke of York, there will be 14 head of this imported stock, and its immediate descendants. There have been sold from this herd but three Heifers from these importations, and these Cows were sold at \$500 each. All young Bulls bred from these Cows, except those now offered for sale, have also been sold at private sale, at \$300 each, most of them while quite young.

Besides these 14 head of high bred animals, the noble premium Cow, *Esterville, 3rd*, bred by E. P. Prentice, Esq., of Albany, and her equally fine 2 year old, red and white Heifer bred by me, got by the Bates Bull Meteor, and three of the famed milking Willey tribe, the same tribe of Cows as the Heifer Ruby, bred by me to Mr. S. P. Chapman of Madison Co. and which Cow was awarded the first premium by the New York State Agricultural Society, for producing the largest quantity of butter in 10 days in June, and 10 days in August, on grass pasture only, being a fraction over 40 lb. in those 20 days. There are other valuable tribes in the herd, as the printed catalogue will show.

The Catalogue will be ready for distribution about the 1st of August, and will exhibit richness of pedigrees rarely to be met with, showing the descent of the most of the animals, from the best animals on record in the English herd book. Having received an invitation from H. Stratford last winter to forward a list of the pedigrees of my herd to be inserted in the forthcoming volumes of the English herd book of which Mr. Stratford is now the Editor, several pedigrees were sent to him of the animals here offered for sale, and will appear in said book.

A credit of 9 months will be given on all sums up to \$300, and 9 and 18 months on all sums over \$300, for approved paper, with interest payable at some Bank in this State.

GEO. VAIL.

Troy, New York, July 9, 1852.

Letters  Patent.

TIME & LABOR SAVED ARE MONEY EARNED!

B. P. PAIGE & Co., SOLE PATENTEES.

THE Subscribers having had secured to themselves the exclusive right to Manufacture and vend to others to use, in the Territory of Upper and Lower Canada,

SEVERANCE'S PATENT IMPROVED HORSE-POWER AND THRASHING MACHINE,

One of the most Valuable Machines ever invented for saving labor and time, respectfully inform the Public that having greatly enlarged their Extensive Establishment on Wellington Street, now extending through from Prince to George Street, which will give them ample room and accommodations, they trust, to enable them hereafter to supply the whole Farming Community of Canada, with a machine that will thrash and clean more grain in a day with less expense and more neatness than any other Thrashing Machine in use, and requiring but Two Horses.

We beg leave to say to our Customers & Friends, that we are again prepared to furnish those in want of Thrashing Machines, with an article superior even to those heretofore manufactured by us. Our long experience in making, and the very liberal patronage we have enjoyed in the sale of our Machines, has, together with a constant determination to produce an article that will never fail to excel all others, caused us to watch carefully all the improvements that could be made from time to time, until now we feel confident in saying, that for durability, neatness of Work and amount of it they can do, our Thrashing Machines are unequalled by any in use, and while the grain is thrashed clean, and none of it broken or wasted, it is at the same time perfectly cleaned, fit for the mill, or any market.

One of the above named Machines, will give a man, with proper diligence and attention, an income of from five to eight hundred dollars a year, as appears by the statements of a great number of gentlemen, who thrashed last season, and have kindly given us permission to refer customers to them for information in regard to the operation of our Machines.

Whereas, Letters Patent were obtained, bearing date March 5, 1849, on said Machine, the public are cautioned against purchasing, using, and manufacturing any imitation article, as all infringements will be dealt with according to the law of the land. All the genuine Machines will be accompanied by a Deed, signed by B. P. PAIGE, the owner of the right, giving the purchaser the right to use or transfer the same.

All orders addressed to us, or to **WILLIAM JOHNSON**, our Agent, will be promptly attended to. Machines shipped to any Port in Upper or Lower Canada, and every one warranted to be as good as recommended.

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The Agents for the sale of the above Machine in Canada West are as follows:—Workman, Woodside & Co., Toronto; Foswell Wilson, Ancaster; Horatio A. Wilson, Westminster; M. Anderson & Co. London; Mr. Samuel Young, Asphodel. 66s-6m

Montreal, August 1852.

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