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# THE CANADIAN AGRICULTURIST

## AND Transactions

OF THE  
BOARD OF AGRICULTURE OF UPPER CANADA.

VOL. IV.

TORONTO, MARCH, 1852.

NO. 3.

### AN ESSAY ON AGRICULTURE.

BY E. W. THOMSON, TOWNSHIP OF YORK,  
CHAIRMAN OF THE BOARD OF AGRICULTURE, TO WHICH  
A DIPLOMA WAS AWARDED BY THE DIRECTORS OF THE  
AGRICULTURAL ASSOCIATION OF UPPER CANADA.

Agriculture is doubtless one of the oldest, most honorable and important pursuits among civilized nations. Without it the food of man must have been limited to the flesh of wild animals, and the spontaneous productions of the earth. Commerce could not exist to any extent; the arts and sciences would be almost unknown; and society could not advance in improvement beyond a state of comparative barbarism. But the culture of the soil enables men to produce more of the necessary food than they require, so that a part only of the inhabitants of a country are required in this pursuit, while the remainder are enabled to turn their talents and ingenuity to other useful callings—the products of which are given to the agriculturist in exchange for food.

This is the origin of the division of labor, which is at the foundation of all political economy, and true governmental policy. This division and sub-division of labor is adopted more extensively the more a nation becomes enlightened and prosperous. Without such distribution of pursuits, little wealth could be accumulated by nations or individuals. In order that every man should be independent of the services of all others, he must manufacture and produce everything with his own hands, which in a social and civilized state of society he receives from them. This would so occupy his time and talents, that he could only produce the bare necessities of a primitive state of life; his food must be obtained by hunting, fishing and digging roots,—his clothing, the skins of animal; his shelter, a rude hut; and his only beverage—Water.

From this mode of living also, the earth must soon contain more inhabitants than could subsist

on its spontaneous food, and part must, therefore, die of starvation.

Agriculture became one of the sustaining arts of life as soon as man was ordained to earn his bread by the sweat of his brow. In the Garden of Eden, whose fertile soil and genial climate, appear to have combined in maturing a continual variety and unfailling succession of vegetable sustenance, agricultural operations were unknown, for that which came spontaneously to perfection required no assistance from human ingenuity; and where there is no deficiency, there can be no inducement to strive for improvement. That period of perfection, however, was but transitory; and the Deity who had placed man in the garden to dress it and keep it, eventually drove him thence,—to till the earth from whence he was taken. From that time to the present Agriculture has been an improving art, and there is no reason to doubt, but that it will go on advancing as mankind continued to increase.

Man in his greatest state of ignorance is always found dependant for sustenance upon the produce of the chase; but as their number increase in proportion to the extent of territory they occupy, it becomes necessary to resort to other means in order to secure the necessaries of life: and although flocks and herds will produce the means of subsistence, yet it becomes essential to resort to improved modes of husbandry, in order to produce the necessary food for those flocks and herds; and man in a state of civilization soon resorts to a different mode of living; for while he finds it incumbent upon him to provide for the sustenance of his cattle, he also finds that a portion of the produce of the soil is necessary for his own comfortable subsistence.

Thus circumstanced, experience and observation soon teach the importance of employing manures, the proper time to commit the seed to the soil, and other necessary operations; and in northern climates where art and industry have to compensate for deficiency of natural advantages, increase of numbers induces increased ex-

ertion, and more accurate observation. Man-kind, it has been truly said, seem to thrive and civilize in proportion as they multiply, and by a recurrent action multiply as they thrive, civilize and prosper. Thus necessity compels to invention and stimulates to improved modes of cultivation, the introduction of new species and of more fruitful varieties of agricultural produce, in order to keep pace with increasing population; thus resting upon a basis of facts, vindicates the wisdom of Providence, and refutes the superficial theory of over production.

It is under a combination of these circumstances that the agricultural produce of England has increased from the insignificant amount that was its value at the time of the Norman invasion, to the enormous annual amount of £200,000,000! And it is certain that in this country and in other parts of the world, the produce is a small portion of what the soil is capable of producing, under a thorough system of cultivation. Agriculture is the art of obtaining from the earth food for the sustenance of man and his domestic animals; and the perfection of that art is to obtain the greatest possible produce at the smallest possible expense.

Upon the importance of this art it is needless to insist, for by it every country is enabled to support in comfort an abundant population; on this its strength as a nation depends, and by it its independence is secured. An agricultural country has within itself the necessaries and comforts of life, and to defend its rights and independence there will never be wanting bands of patriot soldiers.

Of the delights that the cultivation of the soil is capable of producing, facts in abundance exist in the devotion with which many of the most eminently gifted men have applied themselves to it, and the delight we all experience on beholding a highly cultivated piece of land; a proof of the infinite wisdom, that has so ordered the events of this life, as to make the most devoted attention to what is useful the highest source of rational enjoyment.

Let us then endeavor to make some enquiry into the best method of bringing about the results to which we have alluded, and what procedure is most conducive to that end. At the early settlement of any section of this country, the soil, abounding in vegetable mould, required early the attention necessary to keep under the luxuriant growth of noxious weeds, to secure an abundant return to the husbandman, of almost any crop he properly put in the ground; but from too rank a growth the wheat crop is liable to lodge and rust. This, for several years, has been almost the only drawback the new settler experiences, if he is careful to provide himself

with clean seed and sows in proper season. But as the absorption of vegetables and other organic matters contained in the soil is constantly going on by cropping, some means must be resorted to that these fertilizing principles may be supplied, in order that the productiveness of the soil may be maintained; and it is fortunate for us Canadians that we have it in our power to avail ourselves of the experience of those countries, whose practice has taught those engaged in the cultivation of the soil, what is the proper course to pursue that this important result may be produced. One of the first requisites is a knowledge of the deficiency of the soil, and what is proper to apply in order to supply that deficiency. Every farmer of experience knows that barn yard manure is the best possible fertilizer, and that its benefits are alike perceptible on all soils, for this simple reason, that it returns to the soil that of which it was necessarily exhausted, in order to produce the material of which the barn-yard manure is composed. But as the necessary quantity of this valuable material cannot always be had, scientific men have been led to give their special attention to the discovery of substitutes, and while no author worthy of attention, has ever recommended an abandonment of the produce of the stable and barn-yard, they have written much to show how the quantity and quality of the material may be increased, and what may be used with advantage as substitutes; and some of those are extremely valuable, because of their cheapness in transportation and application. It will also be discovered when we turn our attention to the subject, that there are sources from which valuable manures may be procured, that have as yet, in this country, been entirely neglected.

Nothing has been discovered more beneficial than a judicious rotation of crops. Clover and turnips are said to be the two main pillars of British Husbandry, they have contributed more to preserve and augment the fertility of the soil, for producing grain, to enlarge and improve breeds of cattle, and sheep, and to produce a supply for the butcher's stall all the year round, than any other crops. Mangold & Wurtzel, the Belgian Carrot, and Parsnips, are all highly valuable for the same purpose, and when fed in a proper manner, contribute largely to increase the quantity and quality of the manure heap, and most valuable as preparatory crops for the production of grain, as every farmer of experience well knows; and when a supply of milk and fresh butter is an object during the winter or early spring, (and who will deny that it is a comfort to have them), then roots, if we except the turnip, must be invaluable. Much might be said on this subject, but as the limits of this essay will not permit of details be-

ing given, I refer my brother farmers to the many valuable articles given in our agricultural periodicals on the subject.

I will now proceed to the consideration of a question that has been too little attended to by Canadian Farmers. I mean the proper construction and arrangement of farm buildings, with a view of adding to the comfort and consequently to the profit of their stock, and also the saving of the manure. This subject of itself would furnish matter for an essay of moderate length; I shall therefore merely state, that in the construction of farm buildings, the first thing to be regarded is the convenience of their situation, and to this end must be considered the best means of shelter, feeding, and watering of live stock; the carriage of crop and manure, and the preservation of the produce. The object of the Farmer ought to be to combine as many of these advantages as possible. But in a special manner ought he to pay attention to the construction of Drains and Tanks, for the collection and preservation of liquid manure, the value of which is not generally understood or regarded. A most able and comprehensive description of the various kinds of manures will be found in the American Farmers Encyclopædia, under that head. And well worth the attention of every farmer is a work recently published by M. M. Rogers, entitled Scientific Agriculture, in which the following passage occurs:—

“The urine of men and animals, is the most valuable and the most neglected of all manures, that of the cow, and the hog, is said to be more valuable because it contains more solid soluble matter than that of any other domestic animal. The efficiency of urine as a manure is due to the large quantity of urea ammonia, and phosphates, and consequently of Nitrogen which it contains; recent urine generally exerts an unfavorable influence on growing vegetation, it is most beneficially applied after fermentation has fairly commenced and before it reaches the final stage of the process.”

The following calculation has been made relative to the value of this article in a city containing a population of 30,000 inhabitants, with a proportionate number of animals. If we allow the quantity of urine voided by each individual, to be 600 pounds yearly, such a city would furnish 1,200,000 lbs., or 540 tons; this estimated at the price of guano would be worth \$21,000! Now if we estimate the horses and cows at 500 each, and that each animal voids as much urine as two persons, the amount would be 80,000 pounds or 40 tons, which would be worth \$1,600. Here then is a loss, if we reckon guano at \$40 per ton, of \$23,200; or manure enough

to produce in the ordinary crop of wheat over 16,000 bushels in a single year. These calculations may not be minutely correct, but they are sufficient to show that this manure is very valuable, and might be made a source of profit to every Farmer; hence the necessity of his constructing his farm-buildings with a view to its preservation.

The cow-house should be a spacious, well-lighted and well-ventilated building, in which the cows or oxen may be kept dry, clean, and moderately warm, a temperature of about 60° is perhaps the best. It is a mistaken idea that cattle suffer materially from dry cold; it is the wet and damp walls, yard, and driving rains and snows of winter, that are so injurious to them. The Dutch Farmers are very particular, they have their cows regularly groomed, and the walks behind them sprinkled with sand, a clean and dry bed, a portion of a trough to give them water, and another portion for their oil cake or mangold or turnips, and a rack for their dry food, with all the necessary comforts therewith, such as regular feeding, a lump of rock salt in the manger, and occasional variations, if possible, in the food; these are the chief points to be attended to in the stall management of cattle. (A. F. C.) And here let me remark that although the general improvement of our cattle may, and doubtless will, be facilitated by the importation of fine animals, yet much, very much can be done, by a judicious selection from those we have; and by adopting such a thorough system of keeping and feeding, as will bring our young animals to early maturity and develop their valuable points; and by always selecting the best to breed from, by observing the deficiencies and defects, and crossing with a view to the remedying of such defects.

It was by adopting and steadily pursuing this judicious course, that the celebrated breeder Collins, and others, were enabled to bring their animals to such a degree of perfection, and to realize from their sale such largely renumerating prices.

No more mistaken idea can be entertained by a farmer than to suppose he is gaining when he withholds the trifling expense necessary to provide comfortable accommodation, and abundance of nutritious food his cattle. Such mistaken ideas are to be placed on a par with his, who withholds the manure from his land because he dreads the expense of applying it, and in consequence reaps half a crop.

Another very important subject that deserves prominent attention is *Drainage*, which it is thought by many should be the very first care of Farmer, as being that on which the success of the his subsequent operations very materially de-

pends. The removal of unnecessary supplies of water, whether arising from the tenacity of the surface soil retaining too much water, or from springs exuding to the surface, is unquestionably necessary; and was thorough drainage more extensively practised in this country, it would be found immensely beneficial. In England and Scotland it is very generally practised with the most favorable results.

Extensive tracts in Great Britain and Ireland that were formerly perfectly useless have by thorough drainage been, within a few years past, brought into profitable tillage. Such would no doubt be the result in Canada; and large tracts that now produce nothing but mosquitos and fevers, might be the most fertile lands in the country. But as the subject cannot be fully discussed here, I recommend attention to the article on draining in the American Farmer's Encyclopedia, where will be found a correct description of the most approved methods adopted in Great Britain and Ireland.

Professor Johnston in his Address before the New York State Agricultural Society says;—“Amongst the greatest of those practical improvements in the treatment of the land, by means of which British Agriculture has been advanced to its present condition may be mentioned, a judicious rotation of crops. In this work Flanders was probably earliest among modern European countries to make decided and important advances. The introduction of thorough drainage to a certain extent and in a certain way, under drains have been made in almost every country in Europe, and are at least as old as the time of the Romans. But the necessity and almost universal profit of the system, as it is now understood and practiced was first demonstrated in Scotland, and owes its general introduction to Mr. Smith, of Deanston.

“As the accompaniment of thorough draining, we have the introduction of deep and sub-soil ploughing. These practices have renovated shallow, worn-out soils, by bringing up new materials; have opened a passage for the roots to descend deeper in search of food; and have provided a more ready outlet for the surface water into the drains below.”

The same author also refers to the judicious application of lime, the use of bone dust, the extensive culture of green crops, the making of home, and the purchasing of various kinds of manures, and to a great extent the rearing and fattening of improved breeds of stock, for the conversion of one form of produce into another, which meets with a more steady market, or is otherwise more profitable; the principles of nutrition and feeding, both for plants and animals, from early youth to full maturity, the introduc-

tion of improved implements—these are what are termed “High Farming;” and such are generally the practical methods by which British husbandry has been advanced to its present condition, and by similar processes we, in Canada, arrive at the same results; and we should not cease to strive until we have improved our natural advantages to the fullest extent of which they are capable.

But the most important element to secure the prosperity of the Farmer, it should ever be borne in mind, is a thorough, careful, and painstaking attention to every minutia of his business; that every branch thereof be attended to in its proper season, that there be no clashing, or wasteful expenditure in any part of his work. Fences good, and lawfully repaired, when necessary. Gates and buildings should be in good repair; he must sow under proper conditions in Spring and cultivate well in Summer, if he would reap an abundant harvest in Autumn. If he desires comfort and independence, he must take care that there is no recklessness or neglect of anything. Tools must be kept in order and in their proper places, that they may always be ready for use when required. With proper attention to such matters, and with a cheerful, ready-handed industry, his life will be one of rational enjoyment, and he will have the satisfaction of aiding in an eminent degree, in placing his country on a substantial basis. For a highly improved state of Agriculture must be the means of exalting a nation and of contributing to its enduring happiness and prosperity. On this foundation must all other classes build their prosperity; mechanics, traders, and commerce must flourish or decline, as this first and greatest of occupations advances or recedes.

We live in an age of the world when we have reason to be thankful; an age in which the best energies of the human mind are turned to the study of the most effectual means of advancing the science and art of Agriculture; and the chemical experiments and investigations that have occupied the minds of eminently learned men, have opened a wide field for investigation, which we have reason to hope will not be left unoccupied by the youth of our country, under the enlightened system of Common School Education, (to say nothing of our higher institutions of learning) that now pervades the land. And although every farmer cannot be a chemist, nor is it necessary he should, yet there are many special points that might be enumerated, in regard to which Chemistry may be said to have been, or is capable of becoming of obvious money value to the farmer. Examples are not wanting that clearly indicate the kind of connection which exists between practical agriculture and practical chemistry, and the use to which scien-

tific knowledge may be put in advancing this important art, which it is the object of Agricultural Associations, and the individual interest of us all, to promote.

But in bringing to our aid all our mental and bodily powers, and illustrating what is already in the power of man and what he hopes to accomplish, in reference to agriculture, by the application of all the practical and scientific knowledge he can bring to his aid, he should not forget to acknowledge how very limited his power is and how futile his capacity after all, and how much he is dependant upon the over-ruling power of Him who permits a mysterious fungus to attack the potato plant, and for years spread famine, misery, and discontent, amongst millions of industrious tillers of the soil! A diminutive fly, season after season, is seen to hover over our fields and proves utterly destructive to the wheat crop! Disease and death may come amongst our flocks and herds, and they are swept away! Such things as these ought to prevent us from boasting of our attainments and enforce upon us piety and humbleness of spirit, which the occupation of the farmer is peculiarly calculated to inspire and foster; while at the same time they should not restrain us from any and every inquiry by which they may be removed or mitigated.

All such enquiries and investigations increase the knowledge and admiration of the contemplative farmer, and teach him to view with wonder and admiration the many inscrutable ways of providence, and to adopt the language of one who was well qualified to judge on subjects of this nature, who has said:—

“No pursuit has such a variety of interests, nor can any business or profession vie with it in happiness or independence; the intelligent farmer has every day some fresh incident, some new progress to observe; the advance of his crops, the condition of his stock, and the result of his experiments, and his life is passed in the midst of all that should make it agreeable; its attractions are felt by the highest, and it is a profession that never degrades. No profession or occupation can in these respects compare with it, and without affording large profits, it begins by giving much that large profits and years of labor end with.”

#### NOTICE.

A Meeting of the Board of Agriculture will be held in the City of Toronto, pursuant to adjournment, on Tuesday, the 20th of April, 1852, at 10 o'clock, A. M.

(By order)

G. BUCKLAND, Sec.

TORONTO, Feb. 26, 1852.

## The Agriculturist.

TORONTO, MARCH, 1852.

### CANADIAN PROGRESSION.

Much has been said and written of late on the necessity and advantages of providing a more suitable course of instruction for the rising generation of the farming community; and accordingly the establishment of Agricultural Colleges, with experimental farms attached, has been urgently recommended, and in several European countries actually commenced, with results, so far, that must be regarded, on the whole, as satisfactory and encouraging. Anterior to experience there could scarcely exist a doubt in any well informed mind tolerably acquainted with the wants and condition of the Agricultural classes, of the beneficial tendency of such an instrumentality. From the fruits already produced in the old world, the question of Agricultural education has of late been warmly espoused in the new; and great exertions are now being made in more than one State of the neighboring Republic, for the founding of Agricultural Colleges, in a great measure, at the public expense; although at present, we believe, no such institution has been commenced in any part of the Union. For some time past an effort has been made by several patriotic and far-seeing men, to establish an Agricultural Bureau at Washington, under the superintendence of a Minister of Agriculture, similar to what exists in France, and other European countries. This valuable addition, however, to the United States Government, has, as yet, been but imperfectly accomplished; but of its ultimate, and, perhaps, speedy triumph, in such a country, and among a progressive and intelligent people, there cannot exist the shadow of a doubt.

It has been a too common mistake committed by writers and tourists, who seldom take but a hurried view of the country bordering on the north of the great lakes, to look upon the British American Provinces as being a long way behind the United States, in social and industrial progress. That we formerly suffered under some physical disadvantages in the way of navigation

ready means of transport, must be acknowledged; but most of these difficulties have already been removed, and when, after an auspicious commencement, our projected net-work of Railways is completed, connecting the most westerly portions of these Provinces with the Atlantic, British America, by means of her immense lakes and rivers, will in respect to the great question of easy and cheap intercommunication, be equal, if not superior, to any other portion of the world!

There is a vast deal of popular ignorance on this subject on both sides of the lakes, as well as the Atlantic. We believe that Canada, at least, will favorably compare in healthy growth, and agricultural skill and improvement, with any section of the States. The position which the Agricultural art—the origin and precursor of all others,—occupies in the estimation of the Legislature and the public mind, is higher in Canada than in any State of the American Union, at the present moment. We make this remark in no boastful spirit, and with a consciousness that the aggregate resources of this country,—agricultural even,—as well as manufacturing, and mining, have, as yet, only here and there been touched. To show, however, that our present agricultural position is by no means a low one, and that the future is full of hope and promise, we need only remind the reader of the following facts.

The Canadian Legislature makes a liberal grant annually, for the improvement of agriculture and the mechanical arts, through the agency of Societies, which now exist in every County, and in very many of the Townships, throughout the Province. A Board of Agriculture has recently been brought into operation, and a Professorship of Agriculture established in the University of Toronto, with an experimental farm attached; and similar agencies are being introduced in Lower Canada, which also presents a wide and promising field for diligent and enlightened culture. The Normal School in Upper Canada recognizes the claims of Agriculture, by making its principles a prominent part of its prescribed course of study, and in a short time, as soon as a sufficient number of competent teachers have been trained, more or less of the principles of this invaluable art will be taught in every

common school throughout the country. And now, since our last issue, Government have created a new Department in the State—presided over by a MINISTER OF AGRICULTURE!—thus honoring the calling of the farmer, which is as noble as it is indispensable, with a prominent position in the Councils of the Sovereign. These things we regard as encouraging signs of the times, and indicate for this young country a progressive improvement, whose limits are not easily definable,—full of hope and promise.

We have much pleasure in calling the attention of the reader, in connexion with the above remarks, to the following admirable article from the *Horticulturist*, for January. We had previously marked these very portions of Major Patrick's address for insertion; and, as the introduction is written in Mr. Downing's usually felicitous style, and abounds in salutary admonitions, always seasonable, and too little understood or appreciated, we think that we shall be doing good service to the cause of moral and intellectual, as well as agricultural improvement; to rural taste and enjoyment, as well as domestic refinement and happiness; by making room for the *whole*. Seldom has any thing come under our notice better calculated to foster the progressive spirit of a higher and Christian civilization among the rural population. But few there are who adequately appreciate the moral power and elevating influences of a neat and well ordered Home,—where the proprieties of domestic life are observed and respected; the intellect and the heart improved by occasional *retirement* for study and meditation; and the natural affinities of the social and domestic affections, strengthened and brought into play by the mutual exchange of kind offices and attentions. This class of enjoyments can be but slightly affected, under free institutions, by the acts of the Government, or by mere outward organizations; for they are the legitimate effects of the healthy exercise by *individuals*, of an enlightened and virtuous *free will*, in accordance with that truly wonderful, beneficent, and unalterable system of laws,—natural and moral,—originating in divine wisdom, and sustained and directed by infinite power!

## THE HOME EDUCATION OF THE RURAL DISTRICTS.

While the great question of Agricultural Schools is continually urged upon our legislatures, and, as yet, continually put off with fair words, let us see if there is not room for great improvement in another way—for the accomplishment of which the farming community need ask no assistance.

Our thoughts are turned to the subject of *home education*. It is, perhaps, the peculiar misfortune of the United States, that the idea of education is always affixed to something *away from home*. The boarding-school, the academy, the college—it is there alone we suppose it possible to educate the young man or the young woman. *Home* is only a place to eat, drink, and sleep. The parents, for the most part, gladly shuffle off the whole duties and responsibilities of training the heart, and the social nature of their children—believing that if the intellect is properly developed in the schools, the whole man is educated. Hence the miserably one-sided and incomplete character of so many even of our most able and talented men—their heads have been educated, but their social nature almost utterly neglected. Awkward manners and a rude address, are not the only evidences that many a clever lawyer, professional man, or merchant, offers to us continually, that his education has been wholly picked up away from home, or that home was never raised to a level calculated to give instruction. A want of taste for all the more genial and kindly topics of conversation, and a want of relish for refined and innocent social pleasures, mark such a man as an ill-balanced or one-sided man in his inner growth and culture. Such a man is often successful at the bar or in trade, but he is uneasy and out of his element in the social circle, because he misunderstands it and despises it. His only idea of society is display, and he loses more than three-fourths of the delights of life by never having been educated to use his best social qualities—the qualities which teach a man how to love his neighbour as himself, and to throw the sunshine of a cultivated understanding and heart upon the little trifling events and enjoyments of every day life.

If this is true of what may be called the wealthier classes of the community, it is, we are sorry to say, still more true of the agricultural class. The agricultural class is continually complimented by the press and public debaters,—nay, it even compliments itself, with being the “bone and sinew of the country”—the “substantial yeomanry”—the followers of the most natural and “noblest occupation,” &c. &c. But the truth is, that in a country like this, knowledge is not only power; it is also influence and position; and the farmers, as a class, are the least educated, and therefore the least powerful, the least influential, the least respected class in the community.

The state of things is all wrong, and we deplore it—but the way to mend it is not by feeding farmers with compliments, but with plain truths. As a natural consequence of belonging to the least powerful and least influential class, the sons and daughters of farmers—we mean the *smartest* sons and daughters—those who might raise up

and elevate the condition of the whole class, if they would recognize the dignity and value of their calling, and put their talents into it—are no sooner able to look around and choose for themselves, than they bid good bye to farming. It is too *slow* for the boys, and not *genteel* enough for the girls.

All the education of the schools they go to, has nothing to do with making a farmer of a talented boy, or a farmer's wife of a bright and clever girl—but a great deal to do with unmaking them, by pointing out the superior advantages of merchandise, and the “honourable” professions. At home, it is the same thing. The farmer's son and daughter find less of the agreeable, and attractive, and more of the hard and sordid at their fire side, than in the houses of any other class of equal means. This helps to decide, them to leave “dull care” to dull spirits, and choose some field of life which has more attractions, as well as more risks, than their own.

We have stated all this frankly, because we believe it to be a false and bad state of things which cannot last. The farming class of America is not a rich class—but neither is it a poor one—while it is an independent class. It may and should wield the largest influence in the state, and it might and should enjoy the most happiness—the happiness belonging to intelligent minds, peaceful homes, a natural and independent position, and high social and moral virtues. We have said much, already, of the special schools which the farmer should have to teach him agriculture as a practical art, so that he might make it compare in profit, and in the daily application of knowledge which it demands, with any other pursuit. But we have said little or nothing of the farmer's *home education* and social influences—though these perhaps lie at the very root of the whole matter.

We are not ignorant of the powerful influence of *woman*, in any question touching the improvement of our social and home education. In fact it is she who holds all the power in this sphere; it is she, who really but silently, directs, controls, leads and governs the whole social machine—whether among farmers or others, in this country. To the women of the rural districts—the more intelligent and sensible of the farmer's wives and daughters, we appeal then, for a better understanding and a more correct appreciation of their true position. If they will but study to raise the character of the farmer's social life, the whole matter is accomplished. But this must be done truthfully and earnestly, and with a profound faith in the true nobility and dignity of the farmer's calling. It must not be done by taking for social growth the finery and gloss of mercenary customs and observances. It is an improvement that can never come from the atmosphere of boarding schools and colleges as they are now constituted, for boarding schools and colleges pity the farmer's ignorance, and despise him for it: It must, on the contrary, come from an intelligent conviction of the honesty and dignity of rural life; a conviction that as agriculture embraces the sphere of God's most natural and beautiful operations, it is the best calculated, when rightly



understood, to elevate and engage man's faculties; that, as it feeds and sustains the nation, it is the basis of all material wealth; and as it supports all other professions and callings, it is intrinsically the parent and superior of them all. Let the American farmer's wife never cease to teach her sons, that though other callings may be more lucrative, yet there is none so true and so safe as that of the farmer,—let her teach her daughters that, fascinating and brilliant as many other positions appear outwardly, there is none with so much intrinsic satisfaction as the life of a really intelligent proprietor of the soil, and above all, let her show by the spirit of intelligence, order, neatness, taste, and that *beauty of propriety*, which is the highest beauty in her home, that she really knows, understands, and enjoys, her position as a wife and mother of a farmer's family—let us have but a few earnest apostles of this kind, and the condition and prosperity of the agricultural class, intellectually and socially, will brighten, as the day brightens after the first few beams of golden light tinge the eastern horizon.

We are glad to see and record such signs of daybreak—in the shape of a recognition of the low social state which we deplore, and a cry for reform—which now and then make themselves heard, here and there, in the country. Major Patrick—a gentleman whom we have not the pleasure of knowing, though we most cordially shake hands with him mentally, has delivered an address before the Jefferson county Agricultural Society, in the state of New York, in which he has touched with no ordinary skill, upon this very topic. The two pictures which follow are as faithful as those of a Dutch master, and we hang them up here, conspicuously, in our columns, as being more worthy of study by our farmers' families, than any pictures that the "Art Union" will distribute this year, among all those that will be scattered from Maine to Missouri.

"An industrious pair, some twenty or thirty years ago, commenced the world with strong hands, stout hearts, robust health, and steady habits. By the blessing of Heaven their industry has been rewarded with plenty, and their labours have been crowned with success. The dense forest has given place to stately orchards of fruits, and fertile fields, and waving meadows, and verdant pastures, covered with evidences of worldly prospect. The log cabin is gone, and in its stead a fair white house, two stories, and a wing with kitchen in the rear, flanked by barns, and cribs, and granaries, and dairy houses.

But take a nearer view. Ha! what means this mighty crop of unweeded thistles bordering the road. For what market is that still mightier crop of pigweed, dock and nettles destined, that fills up the space they call the "garden?" And look at those wide, unsightly thickets of elm, and sumach, and briars, and choke-cherry, that mark the lines of every fence!

Approach the house, built in the road to be convenient, and save land! Two stories and a wing, and every blind shut close as a miser's fist, without a tree, or shrub, or flower to break the air of barrenness and desolation around it. There it stands; white, glaring and ghastly as a

pyramid of bones in the desert. Mount the unfrequented door stone, grown over with vile weeds, and knock till your knuckles are sore. It is a beautiful moonlight October evening; and as you stand upon that stone, a ringing laugh comes from the rear, and satisfies you that somebody lives there. Pass now around to the rear; but hold your nose when you come within range of the piggery, and have a care that you don't get swamped in the neighbourhood of the sink spout. Enter the kitchen. Ha! here they are all alive, and here they live all together. The kitchen is the kitchen, the dining-room, the sitting-room, the room of all work. Here father sits with his hat on and in his shirt sleeves. Around him are his boys and hired men, some with hats and some with coats, and some with neither. The boys are busy shelling corn for sump; the hired men are scraping whipstocks and whittling bow pins, throwing every now and then a sheep's eye and a jest at the girls, who, with their mother, are *doing-up* the house-work. The younger fry are building cub-houses, parching corn, and burning their fingers. Not a book is to be seen, though the winter school has commenced, and the master is going to board there. Privacy is a word of unknown meaning in that family; and if a son or daughter should borrow a book, it would be almost impossible to read it in that room; and on no occasion is the front house opened, except when "company come to spend the afternoon," or when things are brushed and dusted, and "set to rights."

Yet these are as honest, as worthy, and kind-hearted people as you will find anywhere, and are *studying out* some way of getting their younger children into a better position than they themselves occupy. They are in easy circumstances, owe nothing, and have money loaned on bond and mortgage. After much consultation, a son is placed at school that he may be fitted to go into a store, or possibly an office, to study a *profession*; and a daughter is sent away to learn books, and manners, and *gentility*. On this son or daughter, or both, the hard earnings of years are lavished; and they are reared up in the belief that whatever smacks of the country, is vulgar—that the farmer is *necessarily* ill bred, and his calling ignoble.

Now, will any one say that this picture is over-drawn? I think not. But let us see if there is not a ready way to change the whole expression and character of the picture, almost without cost or trouble. I would point out an easier, happier, and more economical way of educating those children, far more thoroughly, while at the same time the minds of the parents are expanded, and they are prepared to enjoy, in the society of their educated children, the fruits of their own early industry.

And first: let the *front* part of that house be thrown open, and the most convenient, agreeable, and pleasant room in it, be selected as the *family room*. Let its doors be ever open, and when the work of the kitchen is completed, let mothers and daughters be found there, with their appropriate work. Let it be the room where the family altar is erected, on which the father offers the morning

and the evening sacrifice. Let it be consecrated to Neatness, and Purity, and Truth. Let no *hat* ever be seen in that room on the head of its owner, [unless he be a Quaker friend;] let no *coatless* individual be permitted to enter it. If father's head is bald, (and some there are in that predicament,) his daughter will be proud to see his temples covered by the neat and graceful silken cap that her own hands have fashioned for him. If the coat he wears by day is too heavy for the evening, calicoes are cheap, and so is cotton wadding. A few shillings placed in that daughter's hand, ensures him the most comfortable wrapper in the world; and if his boots are hard, and the nails cut mother's carpet, a bushel of wheat once in three years, will keep him in slippers of the easiest kind. Let the table which has always stood under the looking-glass, *against the wall*, be wheeled into the room, and plenty of useful (not ornamental!) books and periodicals be laid upon it. When evening comes, bring on the lights—and plenty of them—for sons and daughters—all who can—will be most willing students. They will read, they will learn, they will discuss the subjects of their studies with each other; and parents will often be quite as much instructed as their children. The well conducted agricultural journals of our day throw a flood of light upon the *science* and *practice* of agriculture; while such a work as Downing's Landscape Gardening, [or the *Horticulturist*,] laid one year upon that centre table, will show its effects to every passer-by, for with books and studies like these, a purer taste is born, and grows most vigorously.

Pass along that road after five years working of this system in the family, and what a change! The thistles by the roadside enriched the manure heap for a year or two, and then they died. These beautiful maples and those graceful elms, that beautify the grounds around that renovated home, were grubbed from the wide hedge-rows of five years ago; and so were those prolific rows of blackberries and raspberries, and bush cranberries that show so richly in that *neat garden*, yielding abundance of small fruit in their season. The unsightly out-houses are screened from observation by dense masses of foliage; and the many climbing plants that now hang in graceful festoons from tree, and porch, and column, once clambered along that same *hedge row*. From the meadow, from the wood, and from the gurgling stream, many a native wild flower has been transplanted to a genial soil, beneath the homestead's sheltering wing, and yields a daily offering to the household gods, by the hands of those fair priestesses who have now become their ministers. By the planting of a few trees, and shrubs, and flowers, and climbing plants, around that once bare and uninviting house, it has become a tasteful residence, and its money value is more than doubled. A cultivated taste displays itself in a thousand forms, and at every touch of its hand gives beauty and value to property. A judicious taste, so far from plunging its possessor into expense, makes money for him. The land on which that *hedge row* grew five years ago, for instance, has produced enough since to *doubly pay* the expense of grubbing it,

and of transferring its fruit briars to the garden, where they have not only supplied the family with berries in their season, but have yielded many a surplus quart, to purchase that long row of red and yellow Antwerps, and English gooseberries; to say nothing of the scions bought with their money, to form new heads for the trees in the old orchard.

These sons and daughters sigh no more for city life, but love with intense affection every foot of ground they tread upon, every tree, and every vine, and every shrub their hands have planted, or their taste has trained. But stronger still do their affections cling to that *family room*, where their minds first began to be developed, and to that centre-table around which they still gather with the shades of evening, to drink in knowledge, and wisdom, and understanding.

The stout farmer, who once looked upon his acres only as a laboratory for transmuted labour into gold, now takes a widely different view of his possessions. His eyes are opened to the *beautiful* in nature, and he looks with reverence upon every giant tenant of the forest, that by good luck escaped his murderous axe in former days. No leafy monarch is now laid low without a stern necessity demands it; but many a vigorous tree is planted in the hope that the children of his children may gather beneath the spreading branches, and talk with pious gratitude of him who planted them. No longer feeling the need of taxing his physical powers to the utmost, his eye takes the place of his hand, when the latter grows weary, and *mind* directs the operations of labour. See him stand and look with delighted admiration at his sons, his *educated sons*, as they take hold of every kind of work, and roll it off with easy motion, but with the power of mind in every stroke.

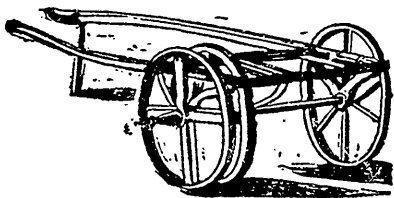
But it is the proud mother who takes the solid comfort, and wonders that it is so easy after all, *when one knows how*, to live at ease, enjoy the society of happy daughters and contented sons, to whom *the city folks* make most respectful bows, and treat with special deference as truly *well-bred ladies and gentlemen*.

Now, this is no more a fancy picture than the other. It is a process that I have watched in many families, and in different states. The results are everywhere alike, because they are natural. The same causes will always produce the same effects, varying circumstances only modifying the intensity."

#### LAND PRESSER.

The Land Presser, or as it is sometimes called, the Presser Roller, is an exceedingly simple and useful implement, especially on light porous soils. It is used extensively both in England and Scotland, and has in some measure superseded Drills, being about one-eighth the cost of those machines,—infinitely less liable to derangement,—and by pressing the land where the seed

is to be deposited, this roller gives a firmer bottom, into which the roots can penetrate, and it is said to operate very beneficially in retarding, if it does not altogether prevent, the operations of that insidious enemy to the farmer,—the wire-worm. One horse will, with this implement, go over about two acres of land in a day; the soil should be previously well cultivated, leaving the drills closely pressed at any desired distance, for the reception afterwards of the seed.

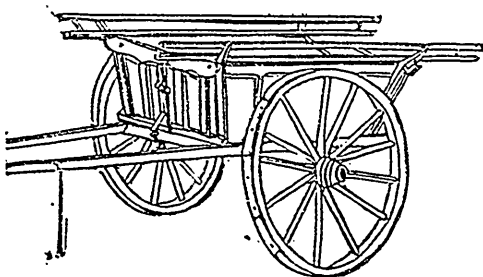


The above cut will give the reader a general notion of this machine, which may be made to vary in size and weight, as may seem desirable. It usually consists of a rectangular frame about 3½ feet long, and about 4½ feet in breadth, with an axle carrying the two heavy pressing-wheels seen on

the right,—made of iron,—with a light wheel attached to the opposite end of the axle, on the left, for the purpose of assisting in turning, &c. The pressing-wheels are about 3 feet diameter, and weigh upwards of 2 cwt. each; their breadth on the rim from 5 to 8 inches, which is sloped off on both sides to an angle of about 70°, leaving a cylindrical band in the middle of about 1½ inches in breadth.

Upon all light, loose soils this implement is found of great use in preparing the land for all descriptions of crops, but more especially wheat, which, in many cases, cannot be otherwise profitably produced. In England the application of the Presser is found exceeding beneficial in preparing even heavy land, recently in sod, for wheat; and, as before stated, the ravages of the wire-worm, after such application, are generally much checked.

The price of these Machines in England ranges according to size, from five to seven or eight pounds sterling; some being fitted up with as many as six pressing wheels, which weigh about 12 or 13 cwt., and come to a considerably higher price.



#### IMPROVED SCOTCH CART.

The above cut represents a farm vehicle that is in very general use in Scotland, and with some slight modifications, in many parts of England. This cart is fitted with wrought iron axles, case hardened, chilled boxes and brass caps. It has an improved cast iron nave, which adds both strength and durability to the wheels; and a frame, or rathes, which is easily put on and taken off, and admirably adapted for carting

grain and hay. The price of this cart, made of the best materials, is from £12 to £15 sterling, and with proper care and ordinary use it will last half a century.

It has now been proved beyond a doubt in many parts of Great Britain that in the ordinary progress of the hay and corn harvest, the use of one horse carts is attended by a considerable saving, both in animal power and manual labor, as compared with the employment of heavy waggons. Mr. Hannam, of Yorkshire,

the intelligent and well known agricultural experimentalist, calculates this saving at 20 per cent. He observes that to move a bulk from one spot to another, in the way that field operations are carried on by a continuous chain of loading at one end and discharging at the other, seldom less than three carts are employed, and that in the usual practice of the Southern Counties, one horse occupies the stand-cart or wagon, and three horses, each of the other two that are in motion; the work thus going forward with seven horses. If two horses in a cart are used, five will be the number engaged; and, if four, the number will be nine. Mr. Hannam then shows, from many years experience on his own farm, that the same amount of work, when at a moderate distance, may be performed by *three horses in separate carts*. The following are the reasons assigned:—1st. A horse thus banessed draws more in proportion with equal ease. 2nd. The mis-application of his strength in the constant draught of a heavy carriage is prevented. 3rd. He moves more briskly and freely, and turns, &c., with less loss of time; and when any check occurs, the loss is saved that takes place by the hindrance of a large number; and lastly, there is a certain convenience and ready manageableness which can be better felt than calculated or described.

Whether, and to what extent, the improved one horse cart would be generally advantageous in Canada, we possess, at present, no facts to warrant an absolute decision. On large farms, and in districts not hilly, having tolerably good roads, such carts might, we think, be advantageously introduced. We could like to hear from farmers who have thought on, or have had any experience in, this matter. A saving in labor, by the employment of improved implements must be the principal means of enabling us to meet the present low range of prices for agricultural produce.

The following calculation of Mr. Dryden, bearing upon the present subject, as published in the Transactions of the Highland Society, will, perhaps, be interesting to the reader:—

“That the state of the road has a very material influence upon the animal power required to draw a given weight over it, every person is well aware, but few persons regard the difference between the labour

of drawing a carriage over a road in good condition, and the same road when out of order. This has been, however, experimentally determined, and we commend to every farmer and every overseer the careful and steady consideration of the results thus obtained. In these trials it was found that a light carriage, with four wheels, weighing with its load 1000 lbs., required a force of traction as follows:—

On a turnpike road, when hard and dry,	30½ lbs.
On the same road when dirty, . . . . .	39 “
On a hard compact loam, . . . . .	53 “
On an ordinary bye-road, . . . . .	106 “
On a turnpike road newly gravelled, . . . . .	143 “
On a loose sandy road, . . . . .	204 “

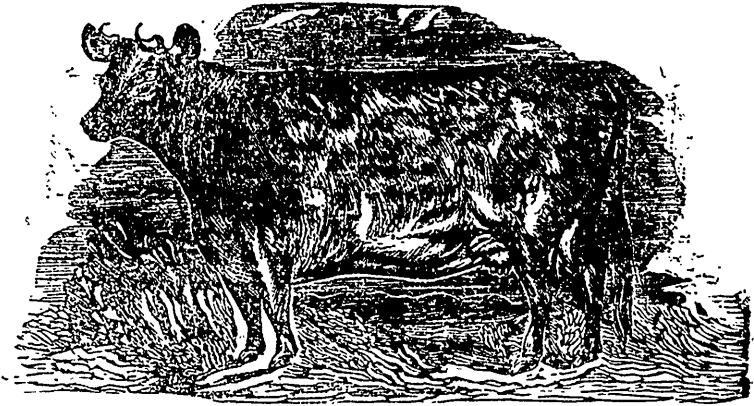
“The care with which all drivers avoid the newly gravelled portions of a road is well known, yet few of even the best whips, I think, are aware of the enormous difference of pressure upon the collar shown by the above table to exist, when the load is passing over a hard and dry turnpike road, and the same road when newly gravelled, composed of loose sandy materials.”

PLOUGHING.

From a letter received from a gentleman connected with the Hampshire County Society, we gather the following facts in relation to the trial of stubble ploughs, at the late exhibition of that society at Northampton. There were ploughs in use from four different manufacturers, but after a long trial, Ruggles, Nourse, Mason & Co.'s No. 37 was decided to be the best, on account of its great ease of holding, and its superior work.

A feat never before performed in ploughing, was accomplished by one of the contestants, who used Stubble Plough No. 38 of the same manufacturers. Starting his horses at one side of the field, he set the plough, and then let it run by itself to the end of the lot, a distance of 35 rods. Then it was just touched sufficiently to guide it round to the next furrow, when it *set itself*, and went through without a hand being touched to it. This is a quality which has long been desired, and it is manifest that the plough which can do its work well, without being held, has little need of any other recommendation.—*N. E. Farmer.*

VALUE OF THE ARTICHOKE AS AN AGRICULTURAL PRODUCT.—Recent investigations of this common root show that 100 parts by weight of the tubers contain 23.96 of alimentary substance, being richer in nitrogenous, fatty, and saccharine matters, and in phosphates than potatoes. It therefore follows that the Artichoke would prove most valuable for the fattening of pigs, cows, and animals generally, and its cultivation for this purpose is well worth the attention of farmers. As the tubers do not contain amylaceous substances, and are very easily soluble and digestible, it would be best to mix them with other aliments more resistant and less humid; such, for example, as dry fodder, bran, and grains, which would be ameliorated by the mixture. As to the difficulty of limiting their spontaneous reproduction, that may be prevented by the cultivation within boundaries, especially of plants which are cut down in the green, making weeded or hoed plants succeed them. The stems of the young artichokes also constitute a good green fodder.—*Proceedings of the French Agricultural Society.*



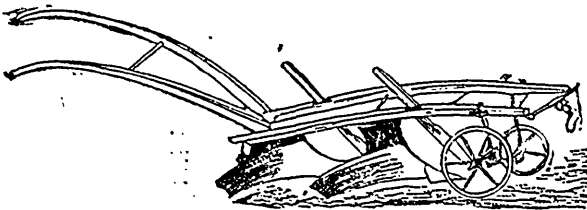
### AYRSHIRE CATTLE.

This breed, as its name denotes, was first brought into notice, and improved in the County of Ayr, in Scotland, where it eventually obtained all the characteristics of a distinct breed, and it has established its character, both there and elsewhere, for distinguished milking properties. Professor Low gives the following as descriptive of the breed:—

“The modern Ayrshire may stand in the fourth or fifth class of British Breeds with respect to size. The horns are small, and curving inwards at the extremity after the manner of the Alderneys. The shoulders are light, and the loins very broad and deep, which is a conformation almost always accompanying the property of yielding abundant milk. The skin is moderately soft to the touch, and of an orange-yellow tinge. The prevailing colour is a reddish brown, mixed more or less with white. The muzzle is usually dark, though often it is flesh-coloured. The limbs are slender, the neck is small, and the head is free from coarseness. The muscles of the inner side of the thigh, technically called the twist, are thin; and the

haunch frequently droops much to the rump, a character which exists likewise in the Alderney Breed, and which, although it impairs the symmetry of the animal, is not regarded as inconsistent with the faculty of secreting milk. The udders are moderately large, without being placid. The cows are very docile, and gentle, and hardy to the degree of bearing to subsist on ordinary food. They give a large quantity of milk, in proportion to their size and the food consumed, and this milk is of excellent quality. Healthy cows, on good pastures, will give from 800 to 900 gallons in the year, although, taking into account the younger and less productive stock, 600 gallons may be regarded as a fair average for the low country, and somewhat less for a dairy-stock in the higher.”

The Ayrshires, in regard to early maturity and fattening purposes, are much inferior to the short horns, Herefords, and some other improved breeds—their chief recommendations consist in their hardy constitution and superior excellence as Dairy Stock. There are as yet but few of this breed in Canada, but in exposed localities where dairying is extensively carried on, they would probably be found well adapted, and yield a good profit.



### DOUBLE PLOUGH.

This implement is in frequent use on most of the light soils in England—in summer working the land, and preparing for turnips, wheat, &c. It possesses important advantages in enabling the

farmer to get over a larger quantity of ground in a shorter space of time than with the ordinary plough, with a considerable saving of horse power. These ploughs being fitted with wheels are easily managed, they are steady in action,

perform their work thoroughly, and three good horses are sufficient for ordinary occasions. We have seen in Michigan and Wisconsin, ploughs of a similar kind, without wheels, adapted to the breaking up of grass-land. Upon well cleared farms in Canada they are certainly worth a trial.

#### THE LOW PRICE OF WHEAT—ITS REMEDIES

*To the Editor of the Canadian Agriculturist.*

SIR:—It is a well known fact that the commercial policy of the mother country has had a steadily depressing influence on the wheat growing-agriculturists of Canada; so much as to leave just grounds to fear that the production and export of wheat as an agricultural product must, to a great extent, cease.

Under these circumstances it is time that the Canadian farmers were waking up and turning their attention to the culture and production of some other more encouraging, and, if possible, more remunerating crop. I, for one, must confess that it is a matter of utter impossibility, considering the present state of the markets, for a farmer to make both ends of the year meet without any other resource than that of his crops, which cost him (say for wheat) at the lowest calculation, about three shillings, or three shillings and six pence per bushel when delivered at the market, and which he is often compelled to sell for 2s. to 2s. 6d. per bushel, not being able to realize any more.

In consequence of these depressing considerations I am induced to make application to you, and to request that you will be kind enough to furnish all the necessary information regarding the culture of the flax and tobacco plants in Canada, or any other plant that, in your opinion, would be more remunerating than that which is now considered the staple product of the Canadian farmer, the nature of the soil that each may respectively require, the quantity and quality of seed best adapted to the soil and climate of Canada; the proper time to sow and reap, and the state the land should be in when sown; the best mode of saving after being cut, the average crop per acre, cost of raising, and its value in the Toronto or any other market, and your opinion of their production and culture as forming part of the agricultural pursuits of the Canadian farmer, together with any other information that your position and experience as a Canadian agriculturist may be able to command.

I am, &c.

HENRY WHITE,  
*P. L. Surveyor.*

Beaverton, Feb. 13th, 1852.

We hope to be able to give the information which our correspondent asks before long. The Commissioner of the Canada Company has ordered all the best modern treatises on the culti-

vation and preparation of flax and hemp published in the British Islands, and has generously promised to present them to the Board of Agriculture, for the purpose of preparing from their contents a series of articles for this journal. We are much in hopes that wheat has seen its lowest price, probably for some years to come. It is, however, of the greatest consequence in practical husbandry that as great a variety of productions should be raised as is practicable; thereby preventing the soil from utter exhaustion, which is the inevitable result of frequently recurring crops of the same kind in this country, where ample and suitable manures are not generally available. A wider range of cultivated productions would likewise benefit the farmer in the long run, by diminishing the numerous chances of failure which so seriously affect those who mainly depend upon one or two articles; such for instance as wheat, which hitherto has been the principal money producing crop of the Upper Canadian farmers. Wheat must long continue a principal crop in this country, but the farmer should avail himself of several auxiliaries.—*Editor.*

#### COST OF RAISING WHEAT, &c.

*To the Editor of the Canadian Agriculturist.*

DEAR SIR,—Many thanks for the copies of your most useful paper. I sincerely hope the Essays you have published, and are publishing, will draw forth further observations from practical men, and lead to discussions which cannot fail to be beneficial. One so seldom sees on paper, in Canada, the thoughts of thinking Canadian Farmers, that our experience is derived almost solely from personal observation, or from intercourse with brother Farmers whom chance throws in our way. The encouragement given by the publication of farmers' essays, and the prizes awarded to such will no doubt have the effect of drawing out the light of some minds, which has been too long hid under a bushel, and will probably lead to experiments being made and results communicated, which may confer great benefits upon great numbers.

With the view of thus eliciting the experience of others for our mutual benefit, I herewith send you some remarks which I conceive to be interesting, and which a List of Queries sent by the Board of Registration and Statistics for replies thereto, has led me to a fuller consideration of, than I had ever before entered into.

Whilst replying to them all, I was particularly attracted by the question—What is the Cost of raising Wheat? To this I had never paid any very particular attention, and was much struck to find that it stands somewhat thus. Supposing it to be under the summer fallowing system, by which probably 9-10ths of all our winter wheat is raised—also supposing that the average crop in

Upper Canada is 17 bus. per acre, which I believe is not disputed:—

Dr.		
To two years' Rent or Interest of cleared land, at 10s. per acre, - -	£1 0 0	
To one-third of expense of manuring (the other two-thirds being charged to the following crops) 25s. per acre,	0 8 4	
Seed - - - - -	0 7 0	
To three ploughings and draggings, and water-furrowing and rolling, per acre, - - - - -	1 0 0	
To Cradling and Binding, - - - -	0 5 0	
To threshing and cleaning 17 bushels, at 4d. per bushel, - - - - -	0 5 8	
To drawing in and taking to Mill or Market, 2d. per bushel, - - - -	0 2 10	
	£3 8 10	

These prices are not more than the actual cost. The rent of 10s. per acre is not too high, considering that the cleared land has to pay the interest for the wild, and the other prices are such that no farmer could afford to do the work for less. Deducting, then, the 8s. 10d. for the straw, the actual cost of raising an acre of wheat is £3; and, taking 17 bushels as the average, the cost of raising wheat is 3s. 6d. per bushel—and the selling price at present in Belleville is only 3s. 3d. I may here remark that the average crop of this county for 1851 is about eleven bushels per acre, owing to the depredations of the weevil, which is fast travelling West—having come into the County of Hastings from the East, about two years since, and its ravages having extended this year to within six or seven miles of the Western Boundary; and it is well worth observing that its ravages have been much more destructive on late sown than on early sown wheat. The acreable produce given above (say eleven bushels) has not been made up from the census lists of this year; but the Commissioner here has promised me a sight of them, and, when I have accurately ascertained the average of all the crops grown in the county, I will send them to you, with pleasure, as this description of information must be very interesting to all your Agricultural readers;—and I hope in every county some one will take the trouble of computing the acreable yield of every description of crop.

Having ascertained, then, Mr. Editor, that even with an average crop the expense of raising wheat is 3s. 6d. currency per bushel, and this year as high as 5s. 5d. per bushel in this county (for the expenses are about the same *per acre*, whether the crop be large or small)—is it not high time for us farmers either to try to increase our averages, or turn our attention to the cultivation of other descriptions of produce? Having occasionally grown flax in the North of Ireland, I think it would be found to be very suitable, both to our climate and soil, and it being easily compressed, it would form an article of advantageous export.

How far the Provincial Association would be warranted in importing good seed and suitable machinery for scutching (such as could be attached to a common horse power) is a subject well worthy of grave consideration. The culti-

vation of this crop has done a vast deal of good to other countries, and much and valuable aid has been given by many *public bodies* to foster its growth and preparation for the manufacturers.

Although it is in general much better to leave these matters to private enterprise, yet in the present youthful state of our Agriculture and manufactures, a private individual could not be expected to incur the risks which such a speculation would involve, and it is certainly worthy the consideration of the leading men of an association, whether they ought not to encourage the growth of flax, either by large premiums, or by more direct aid in the way of importing machinery, or by both of these methods. We require every encouragement from public bodies quite as much here as in the Old World, to induce its proper cultivation, as there are comparatively so few who understand its nature and properties; and few are willing to grow it unless they had the means of preparing it for market.

In case any of your readers should wish to try it, I may remark that it generally rejoices in a clay soil, not too heavy, and is always best the second crop after clover lay.

As you say you like short practical observations, I take leave at present, wishing you much success in your useful labours and many congratulations upon your well merited advancement to the Chair of Agriculture in our Provincial University.

I remain, yours truly,

WILLIAM HUTTON.

Belleville, Feb. 12, 1852.

Whilst thanking our respected correspondent for his friendly congratulation, we have much pleasure in informing him that his expressed wishes in reference to Flax are soon likely to be realised. Mr. Commissioner Widder, of the *Canada Company*, has signified to us his intention of importing from England, next season, one of Claussen's Flax Dressing Machines; that gentleman has already announced, on behalf of the Company, liberal prizes for flax and hemp, to be awarded at the next Provincial Exhibition, and we have no doubt but the Board of Agriculture will lend this movement all the aid in their power.—EDITOR.

#### THE PARSNIP.

THOROLD, Jan. 27, 1852.

SIR,—In your next number would you, or some of your subscribers, answer me the following queries:—

1. Will the garden parsnip, if left to run to seed any length of time without cultivation, become poisonous?
2. If so, at what stage, or in how many generations will it become so? or is it the root that has borne seed that is poisonous?
3. Will the same parsnip produce seed more than once?

4. If it become poisonous by non-cultivation, will the seed gathered from the poisonous ones, if planted and cultivated, become again fit for food?

5. Are there two kinds of parsnips—the garden parsnip, which is wholesome; and the wild kind, which is poisonous?

An answer to these would much oblige and help to decide a good many pros and cons between certain individuals, and

Yours very obediently,

INQUIRER.

We have been favoured by a scientific friend with the following answers to the above queries, and trust they will prove satisfactory to our correspondent:—

Answer 1. Certainly not. The wild parsnip is a native of England, where it is not considered poisonous: the roots of the wild plant are less succulent, more fibrous, and of a stronger taste than those of the cultivated variety. The garden parsnip is the native wild parsnip improved by cultivation.

2. It is not poisonous at any stage of its growth. As the wild plant is not poisonous, the cultivated variety could not become so when allowed to return to a state of nature.

3. The parsnip is a biennial plant; it produces a root and bears the first year, and flowers and seeds the second season; it dies as soon as it has ripened its seeds.

4. Already answered.

5. No.

In England there are several poisonous plants, the roots of which are occasionally eaten by poor people and children who mistake them for parsnips. Such is also the case in the United States and Canada; hence has arisen the idea that the parsnip, when permitted to return to the wild state, becomes poisonous. The plant, which I believe to have been the cause of the most mischief in this province is the *Cicuta maculata*, water hemlock, whose root is a most deadly poison.

The parsnip is not a native of N. America; it was introduced from Europe, and escaping from cultivation has become naturalized.

The only author, to my knowledge, who has ascribed any deleterious properties to the wild parsnip, is Dr. Bigelow. In his work on the plants of Boston, he writes:—"The parsnip in its wild state is abundantly naturalized in waste grounds. The root is materially changed by difference of soil. It becomes strong, acrid, and virose." It will be seen that Dr. Bigelow attributes this supposed alteration in the qualities of the root not to the want of cultivation, but to difference of soil. It is certain that difference of soil produces no greater changes in the cultivated parsnip than it does in the potato, turnip, or carrot; why, then, should it cause so great an alteration in the properties of the wild plant? Moreover, the wild plant is generally found growing

about the fences of fields in the same, or similar soil, as the cultivated variety.

M. D.

STRANGLES IN HORSES.

To the Editor of the Canadian Agriculturist.

SIR:—Among the valuable receipts supplied by "*Knowlson's Complete Farrier*," I notice one in your December number as applicable in the disease known as horse distemper or strangles, and which is equally valuable in all cases of wounds, where the promotion of suppuration is necessary, and an effectual cleansing, without a too hasty healing of the sore, is desirable. My purpose in writing is to call the attention of persons compounding the ointment to the *modus operandi*. The ingredients, excepting the verdigris, should be melted in an earthen vessel and when sufficiently liquified and incorporated by stirring, should be removed from the fire and carried out of the house, and then have the verdigris added thereto; return it then to the fire for a simmering of a minute or two, stirring all the time; after which strain it through a coarse canvass while yet hot, and put away for use. The reason for not using the verdigris while on the fire is, that so sudden and violent an ebullition takes place at the moment of admixture that the other inflammable materials instantly boil over the vessel, with a chance of the loss of the whole and of a conflagration not easily subdued. The necessity for straining arises from the verdigris being frequently full of impurities, often containing particles of copper which have not been acted on by the acid in the process of manufacture; these, it must be evident, will irritate and aggravate the wound, and greatly retard the healing operation. In cold weather it will require warming at the time of application.

A NORTHUMBERLAND FARMER.

To increase the utility of our correspondent's directions, we append the receipt to which his observations refer.

Take yellow rosin and Burgundy pitch, of each one pound; honey and common turpentine, of each half a pound; bees' wax, four ounces; hogs lard, one pound and a half; and of verdigris, finely powdered, one ounce. Melt the ingredients together, but do not put the verdigris in till nearly cold, and keep straining all the time till cold, or the verdigris will fall to the bottom.

SKILL IN FARMING.—Skill adds more to the profits of farming than hard work. In the article of butter, for instance, the same outlay is required, or nearly the same to make a hundred pounds of poor butter as would be required to make a hundred pounds of that which is good. But, when the two articles are marketed, there may be five or six dollars of clear extra profit in the pocket of the skillful dairyman. The importance of scientific knowledge is realized by those who have found such benefits as is noted above in nearly every department of their labor.



## REAPING MACHINES.

To the Editor of the Canadian Agriculturist.

DEAR SIR:—I noticed in the December number of the *Agriculturist* a communication, reflecting rather strongly on the decision of the Judges, upon the relative merits of the reaping machines, exhibited in the foreign department, at our late Provincial exhibition, held at Brockville last fall; and if it was not a matter which may seriously affect many of the agricultural community, who have not had the chance of seeing the practical operation of those machines, I should not have trespassed on your pages, at this late date to reply; more particularly after the triumphant result of the trial before a jury of thirteen gentlemen, under the auspices of the Cleveland Agricultural Society in Yorkshire, England, the particulars of which have been published in nearly all the papers, both in Great Britain and on this continent.

I hardly suppose that your correspondent had any interested motive in writing the communication in question, but simply from the report then current, of the great success of McCormick's machine, at the trial on Mechi's Farm in Essex, England—and also as he states having twice received the first premium at the New-York Fair, (though he does not state how often Hussey's received it,) he might naturally enough have concluded that the Judges on this occasion at Brockville, might not have heard of this, and might be deceived by paint, varnish, and so on, and so give the premium to the "highly finished machine;" but I can assure him that such was not the fact; for the exhibitor of the McCormick's machine was on hand, and lost nothing, by not making all this known to the judges, if they had not themselves heard the report from the newspapers.

You are well aware sir, of the difficulty that judges on such occasions have to encounter, with regard to implements, and machines submitted to their decision, without having any means of testing them, and how easily, if they have ever seen them tried, they may be deceived; and more,—even after seeing them tried, as these machines were on the first occasion in England, how through inexperienced hands having the management, the decision may be given in favor of the inferior article, as it has been proved to be at the last trial of the meeting in question. But on this occasion one of the judges happened to be a practical man, who had worked reaping machines for not less than seven years, and is now in possession of one of each kind of those rival machines, and had fairly tried both, and having no interest in favor of one over the other, any farther than their relative merits were concerned, gave his judgment of course in favor of the one which had pleased him best; and as your correspondent on this occasion was the man, he will briefly state his experience.

I purchased, in the first place, one of Hussey's reapers, and used it for three or four years before McCormick's was introduced into this Province. It was, however, far inferior to the improved Hussey's machine now in use, and not pleasing

me exactly, I sold it and bought one of the McCormick's, thinking that it was of easier draught, and raking off the side might be an advantage; I used it two years, or rather tried to use it, for unless the grain was standing, and every thing favorable, it would not operate, and from the flimsy manner it was got up, a day scarcely got over without something giving way, and I had almost given it up as useless; so much so, that in the harvest of 1850, I commenced cutting by hand, the grain being very stout and all laid down. I knew very well my McCormick machine would be of no use, and had not taken it out of the building where it was stowed away, when, fortunately, one of the agents for the sale of Hussey's reaper called on me; I took him to look at my crops, and asked him if he thought his machine would cut them, (the wheat was forty-five bushels per acre, with straw in proportion, and all lodged as flat as it could be beat down.) He said it was certainly a hard case, but he thought it would; and from my former experience with the old machine, I concluded to try it. I did try it and succeeded. I of course could cut only one way, and return empty, but then I could keep eight binders at work, as "tight as they could jump." I completed my harvest last year with it, and last harvest time I cut for myself and neighbors, nearly 200 acres without any accident of consequence, and the machine, after two years' service, is now almost as good as new,—and I am not afraid that it will for the next five years, cut all the grain I grow, and some for my neighbors. I might also state, that within three miles of my residence, three or four of the McC. machines have been tried for two or three years and abandoned, and the owners are now using the Hussey's machine to their complete satisfaction.

My only object in addressing you now, is to prevent my brother farmers from being imposed on by the ephemeral success of the McCormick machine at the first trial in England, as it has been satisfactorily proved to have been a very unfair one; the McC.'s being managed by experienced hands, while the Hussey's was entrusted, so says the *Illustrated London News*, to "one of the porters at the Exhibition," just as capable to manage it as a *tailor to hold a plough*. I have considered it not less than a duty to lift up my voice in expressing my practical experience in this matter, for I consider that as soon as the land is sufficiently cleared of impediments, to admit of the use of them, that a good reaper is one of the most useful labor saving machines now extant; and when an inferior article is foisted on the public, they lose their money, and condemn the article in disgust, and lose the advantage they would gain by fortunately getting a good one. And to conclude the matter, I state that I have cut, when the grain stood up, so as to cut round the field two acres per hour, on the average at a common walk for the horses, and on a push have cut three. I was at Rochester at the time the New-York State Fair was held, and saw not only the reapers in question, but also three or four other patented reapers,—two or three of them self-rakers; I thought the raking off, and driving could hardly be performed by the same person, and particularly as it complicates the machinery, and I have

found that the stoppages resulting from too much machinery, always was more loss than gain, and if one good machine with two hands can cut from 15 to 20 acres of grain per day, it is best to let "well enough" alone.

Now, a word with regard to raking off. The Hussey machine leaves the grain behind, and it must be bound up before you can go round again, whereas the McCormick throws it outside of the track, and you can cut down a whole field without binding a sheaf; this is a seeming advantage, but not a real one, as the grain has of course to be bound; and I would much rather bind it at once than let it lie on the ground, for, if it should rain, the grain lying in bunches would have to be spread out to dry, making additional work; and, more than that, the binders work with more spirit when stimulated by expecting the machine round again as soon as their portion is bound, and will bind one-third more than if they were not thus urged. I would be much pleased if you would publish, in conjunction with this communication, the result of the trial before the Cleveland A. S., Yorkshire, you will find an abstract of it in the *Albany Cultivator* for January, page 46, where they were tested, before a jury of thirteen gentlemen, under nine different points of comparison—the jury only decided on seven points—the weather being unfavourable, they declined expressing their opinion on the last two, viz., which requires the most amount of horse labour, and also the amount of manual labour; but I say most decidedly that the Hussey machine is much superior in both these points, and particularly in manual labour, as I have myself raked with them both.

And I will now conclude this altogether too long an article by recommending all farmers who have their land sufficiently clear of stumps and stones to work a reaping machine, to get the Hussey kind, and will warrant it to afford (if they give it a reasonable chance) every satisfaction, and, if it is necessary to back my testimony, I can get, in one hour's walk, half a dozen of my neighbours who have tried both machines, to endorse my assertions.

Yours most truly,

One of the Judges on the Foreign Department,  
*Wm. Wood of* At Brockville.  
*(and Hussey)*

Our correspondent has enclosed to us some results obtained by the trial of Hussey's and McCormick's Reapers, which took place last harvest, under the direction of the Cleveland Agricultural Society, in England. We subjoin the principal facts as given in the papers. We cannot say our hand on the January number of the *Albany Cultivator*, or we should be glad to comply with our correspondent's request:—

"The performances of the rival inventions were again tested by a jury of thirteen gentlemen, on a crop of wheat, 25 bushels to the acre, very much "laid," and a field of barley, also 25 bushels to the acre, very short in the straw, and if possible, more laid than the

wheat. The result was that the jury gave their award in favor of Mr. Hussey's machine upon seven out of the nine leading points on which it had been pre-arranged that their decision should turn. These seven points of superiority were:—

"1. That Hussey's reaper cut the corn in the best manner, especially across ridge and furrow, and when the machine was working in the direction the corn laid. 2. That it caused least waste. 3. That it did most work (taking the breadth of the machines into consideration). 4. That it left the cut corn in the best condition for gathering and binding. 5. That it was best adapted for ridge and furrow. 6. That it was least liable to get out of order. And, 7. That its first cost was the least. Of the two remaining points (viz., which required the least amount of horse labour, and which the least manual labour), the jury declined to express any decided opinion, in consequence of the very unpropitious state of the weather."

Hussey's Machine was afterwards tried before Prince Albert in Windsor Park,—the material being Fern, and the action of the implement was highly satisfactory to the Prince, and a large number of beholders. At the close of the trial his Royal Highness ordered two of the machines for himself, one for Windsor and the other for Osborne.

The American Reaping Machines having created considerable interest in England, it might be supposed that nothing had been attempted in the old country towards the construction of such an implement. The truth, however, is, that the Machine is a British invention, and that the principal merit, rightfully belonging to our ingenious and enterprising neighbors, consists in effecting such improvements in its practical working, as to adapt it to the wants and circumstances of a new country. There is an elaborate article on the subject in the *Scottish Journal of Agriculture* for August, 1828; and in *Loudon's Encyclopaedia of Agriculture*, the origin and progress of these Machines are succinctly traced, from the one made by Boyce, in the commencement of the present century, down to the improvements effected by Bell, of Scotland—accompanied by two engravings of the latter. Various reasons could be assigned why Reaping Machines have hitherto made but little progress in Great Britain; and, such being the improvements effected of late years in the mode of cutting grain by the Sycthe and Hook, we are not so sanguine as to expect the rapid introduction even of the much improved American Reapers, except, perhaps, in particular localities. Upon moderately size farms—where the mixed hus-

bandry is pursued, and particularly when the enclosures are small and the surface furrowed and uneven, which is the condition of a considerable portion of the old country, we are decidedly of opinion, that with their facilities of obtaining labor, the ordinary modes of gathering the harvest are both the cheapest and the best. In an open and tolerably level country, such as the more abundant grain growing districts of the Eastern parts of England, and the South of Scotland, where, too, hands are comparatively scarce, the improved Reaping Machines will supply a desideratum which has been long, and sometimes painfully, felt.

#### CHEMISTRY APPLIED TO AGRICULTURE.

Among the various occupations which require a knowledge of this science to be efficiently carried on, that most noble, useful, and universal of all human pursuits, agriculture stands pre-eminent. The farm is a great laboratory, and all those changes in matter which it is the farmer's chief business to produce are of a chemical nature. He breaks up and pulverizes his soil with the plough, harrow, and hoe, for the same reason that the practical chemist powders his minerals with pestle and mortar, namely, to expose the materials more perfectly to the action of chemical agents. The field can only be looked upon as a chemical manufactory; the air, soil, and manures are the farmer's raw materials, and the various forms of vegetation are the products of manufacture. The farmer who raises a bushel of wheat, or an hundred weight of flax, does not fabricate them out of nothing; he performs no miraculous work of creation, but it is by taking a certain definite portion of his raw material and converting it into new substances through the action of natural agents, just as those substances are again manufactured in the one case into bread, and in the other into cloth. When a crop is removed from the field, certain substances are taken away from the ground which differ with different kinds of plants; and if the farmer would know exactly what and how much his field loses by each harvest, and how in the cheapest manner that loss may be restored, chemistry alone is capable of giving him the desired information. To determine the nature and properties of his soil, its adaptation to various plants and the best method of improving it; to economize his natural sources of fertility, to test the purity and value of commercial manures, and of beds of marl and muck; to mingle composts and adapt them to special crops; to improve the quality of grains and fruits; to rear and feed stock and conduct the dairy in the best manner, farmers require a knowledge of this science. Nor can they as a class much longer afford to be without it, for it has always been found that the application of scientific principles to any branch of industry puts power into

the hands of the intelligent to drive ignorance from the field of competition; so that as discoveries multiply and information is diffused, those farmers who decline to enquire into the principles which govern their vocation, or who prefer the study of politics to that of agriculture, will have occasion to groan more deeply than ever over the unprofitableness of their business.—*Youman's Chemistry.*

#### WHAT IS PRACTICAL FARMING?

Farming has been so respectable an occupation of late, and the title of farmer so honourable, that grave questions are likely to arise, which may require the intervention of Heraldry, to determine who has the right to bear that title, and what order of precedence shall be established among the various claimants of the exclusive privilege of bearing the ensigns armorial of Husbandry. The *Practical Farmer* undoubtedly stands head and shoulders above every body else, but the question returns, *Who is the Practical Farmer?* We have amongst us all kinds of farmers. First, we have the *amateur* farmer merely, who does not know the *near* from the *off* side of a team, who has read of subsoil ploughs but never saw one, and who knows all about chemistry and geology that can be learned without soiling his boots by stepping out of doors. Ask him if he could conduct the affairs of a farm, and he would give the same answer as the youth who was asked if he could play the flute—"I suppose I could, but I never tried." Manifestly, *this* is not the practical farmer. Then we have the man who prides himself upon being a farmer and nothing else; he lives on the same farm where his great grandfather was born, and inherited his knowledge of husbandry with the old wooden ploughs, which he still uses. He takes no agricultural paper, and reads no books on the subject, because he knows all about it already. He is not to be humbugged by any science, or new-fangled notions about composts, mineral manures, or deep ploughing. Manure, with him, is what he finds left in the spring, out doors, under his hovel-windows—about a load for each ton of hay consumed—and he ploughs about four inches deep, and puts manure in the hill where corn can find it. His boys have discovered that farming *wont* pay and have gone to California, while he finds the buildings and the tools have grown old, and the interest on the old mortgage is gradually gaining on him. However, he is sure he is one of the class, which are termed the *bone* and *sinew* of the country, and the only true *practical* farmer. That he is a practical, as well as a most *impracticable* farmer, there is no doubt.

Then we have a third class of men who may have worked all their lives upon the land,—of men who, having acquired a taste for farming in youth, after successful toil in another business for years, have returned to their first love, and devoted their later years to agricultural pursuits—of professional men and merchants, who having room in their brains for more than one idea, are conducting their farming operations at the same time with their other affairs—in short, a class

composed of all those who believe in *progress* in husbandry, as in everything else, and have the personal direction of their farms. The farmers of this class do not believe that the earth gave up all her secrets at once to the tiller of the soil. They do not think, like the Chinese, that they are precisely in the centre of the world, and all others are *outside barbarians*. They see that the soil of the country has been exhausted by injudicious cropping, and feel the necessity of improvement.

They listen attentively to the chemist, or man of science, who tells them what are the components of the soil, and of the crop, and in what way they can best restore to the barren field the elements of fertility. They are willing to hear about subsoiling and draining, and to think upon the reasons given why those operations should be beneficial. They can conceive, and believe, upon paper evidence, that there may be manures besides what are found in the barn-yard. In short, they are willing to "try all things" that they may "hold fast that which is good," or in other words to expend time and money in making experiments for the benefit of their neighbours. These men are emphatically *Practical Farmers*—practical as opposed to the mere *theorist*—practical in the highest sense as men whose labours are of practical use to themselves and their fellow men.

There is still another class, who, as cultivators of the soil, are *practical men*. We refer to the gardener and horticulturist,—from whose experiments have been derived many of the most important improvements in the arts of cultivation. Witness the labours of those, both in Europe and in this country, in the production by hybridization, of new and valuable farm products, for the apple, the pear and the peach. The beet, the turnip, the cauliflower, and even the strawberry and raspberry are as much agricultural products when grown within, as without the pale of the garden fence. These are the men who have uniformly urged the necessity not of shallow plowing, but deep and thorough tillage; not guess work in the adaptation of soils, crops and manures, by a scientific knowledge of each; and should the farmer use the same precision in the adaptation of the constituents he uses for his various crops, as the gardener does for his various tribes of plants, it would need no seer to predict the beneficial effects resulting from it.

A practical cultivator is not necessarily a man who daily holds the plough, or drives a team, or shovels manure, or digs ditches. He may or may not put his own hands to such labours; and if he finds it more convenient to devote his time to the general direction of his affairs, while a foreign labourer, who can do nothing else, is hired for such work, he does not forfeit his title of *Practical Farmer*, nor the labourer merit that appellation.

If to be a practical farmer is merely to labour with the hands, then the farmer who has extended his practical operations on his farm so far that his whole time is required to direct them merely, is no practical farmer, although practical results may have multiplied indefinitely around him—an absurdity which can never be tolerated.—*New England Farmer*.

## LORD SPENCER'S RULES FOR THE SELECTION OF MALE ANIMALS FOR BREEDING.

The first things to be considered in the selection of a male animal are the indications by which it may be possible to form a judgment as to his constitution. In all animals a wide chest indicates strength of constitution, and there can be no doubt that this is the point of shape to which it is most material for any breeder to look to in the selection either of a bull or a ram. In order to ascertain that the chest of these animals is wide, it is not sufficient to observe that they have wide bosoms; but the width which is perceived by looking at them in the front should be continued along the brisket, which ought to show great fullness in the part which is just under the elbows; it is also necessary that they should be called thick through the heart. Another indication of what a good constitution is, that a male animal should have a masculine appearance; with this view a certain degree of coarseness is by no means objectionable, but this coarseness should not be such as would be likely to show itself in a castrated animal, because it thus might happen that the oxen or wethers produced from such a sire would be coarse also, which in them would be a fault. Another point to be attended to, not merely as an indication of a good constitution, but as a merit in itself, is, that an animal in itself should exhibit great muscular power, or rather that his muscles should be large. This is an usual accompaniment of strength of constitution; but it also shows that there will be a good proportionate mixture of lean and fat in the meat produced from the animal, the muscles being that part which in meat is lean. A thick neck is, in both bulls and rams, a proof of the muscles being large, and there hardly can be a greater fault in the shape of a male animal of either sort, than his having a thin neck. I am inclined to say, that in the new Leicester breed of sheep, which is the breed to which I am accustomed, a ram's neck cannot be too thick. Other indications of muscle are more difficult to observe in sheep than in cattle. In a bull there ought to be a full muscle on each side of the back bone, just behind the top of the shoulder blades; he ought also to have the muscles on the outside of the thigh full, and extending down nearly to the hough. It will seldom happen that a bull having these indications will be found deficient in muscle. As I am writing for the use of farmers, it is quite unnecessary for me to attempt a description of what is considered a well shaped bull or ram; it is also obviously impossible to express in words what is meant by good handling. It is sufficient to say, therefore, that no male animal is fit to be used at all as a sire, whose handling is not good, and the more perfect his shape, the better.

FRENCH SHEEP-DOGS.—An English traveller speaks of the dogs which are used in Normandy, in the management of sheep, as being uncommonly valuable. He thus describes one:—"The animal was some cross of the breed commonly known in England as lurchers; and the quick sparkle of the eye, and the ready and eager intelligence of his face as he watched his master, and flew round and round the flock at the slightest gesture, or merely mumbled word of

direction, were really beautifully to see. The shepherd told me he was a most valuable dog—he would not sell him for 200 francs."

### HINTS FOR MARCH.

#### CARE OF LIVE STOCK—MAPLE SUGAR MAKING, &c.

Mr. Editor,—I propose again, with your permission, to submit a few common-place observations and suggestions suitable to the time and season, which shall be perfectly at your service if deemed by you worthy a place in your columns. If I do not attempt to advance anything altogether new or original, I hope, at least, that the repetition of anything that may be perfectly obvious, will not be offensive to the experienced Agriculturist, if it shall seem to afford to any of those less practically familiar with the pursuits of farming, any slight chance of receiving an occasional hint in season, which may be of some value, if attended to.

The operations of March, generally consist very much in a continuation of the various kinds of work of the preceding winter months, with the difference that the increasing power of the sun and the approaching genial warmth of spring, warn the farmer to arouse his energies, recruited by the bracing atmosphere of winter, and shape his work with a view to being ready to battle vigorously with all the important labours to be encountered in spring, the moment that season makes its advent.

During this month, the live stock on the farm require increased care and attention; working horses that have not been kept upon full feed during winter, should now, especially if they *have been kept at full work*, be well fed upon good hay and grain, with a little bran occasionally, in order that they may be in proper condition to walk through their work expeditiously, without the danger of becoming *walking skeletons*, or nearly so (as many farm horses may be seen in spring,) when the busy season arrives. At this season, horned cattle, reduced and enfeebled in constitution by the cold winter and the want of sufficient nourishing food (and in this state, I regret to have to say, the majority of the cattle in the country will be found), will fall off more than during the winter months, unless well fed; they should now have a little hay, at least once a day, if they have not had it hitherto. A few turnips, or other succulent roots, will also be relished by them, and will serve to prepare them for the pasture fields. A little salt, also, once in a week or ten days, will keep them in health and good appetite. Cattle should not be allowed to wander over the meadows while the frost is disappearing, as they injure them very much by tramping on them, while in a wet state; and the little they can pick up, is of but slight if any service to them. Sheep will now be benefited by having a few turnips, carrots, parsnips, or other nourishing roots, with their hay, and a little salt, occasionally. Ewes likely to lamb early, must also be carefully watched and attended to.

All winter work remaining on hand, should be

at once despatched, the grain all threshed, cleaned up, and stored in the granary, if not disposed of in the market. The late rise in the price of breadstuffs, occasioned a good deal of activity in the delivery of wheat by farmers at the mills, and store-houses, which has again been suspended upon the partial decline in prices. As far as I am able to form any opinion upon the subject, I should say that there is but little fear of a much further decline, but rather the contrary. But opinions of this kind often turn out to be mere guess work. At any rate, it is a very good plan for farmers to go on delivering their wheat while the roads are favourable, and, if they do not like the current price, make their bargain with the miller to take the current price, at whatever time they choose to demand payment. This is a very common way of selling wheat in the country, and also occasionally barley, and answers both parties very well. The farmer should only be careful not to be too greedy, but to be contented with the price when it is really good, lest he miss his opportunity and be compelled to take a much lower price for wheat in the miller's hands than he might previously have obtained. Many instances of this kind have fallen under my observation. Of other work on the farm—hay, that will be required for working cattle and horses, should be got into the barns and stables that no time may be lost in going after it, when required for immediate use; cut also timber required for fencing, split the rails as soon as the frost is out of it sufficiently, and, as soon as the snow leaves the ground, repair the old fences and make new ones where required. Much valuable time will be saved by having all such work executed before the fields are ready to be ploughed and sown.

The close approach of spring now renders it necessary to look to all the farming implements and tools, and to see that they are in the best possible working order. The plough irons should be relaid and sharpened, the harrow teeth pointed, and the harness repaired, if necessary, oiled, and put in good working order. Every farmer should provide himself with a full assortment of working implements—ploughs, harrows, cultivators, drill-barrow, or sowing machine, roller, &c. When new implements are required, get them of the best quality and the best pattern, and as light as possible for the team, consistent with strength and effectiveness. Every description of seed required for spring sowing, should now be procured, and of this the very best quality of each kind. Let it be also perfectly cleaned and free from every impurity of all kinds, whether the seeds of weeds, or destructive insects. The importance of this precaution can scarcely be overrated.

In regard to the preparation of the land itself, for spring crops, we, in Canada, must of course wait till such time as the disappearance of the frost leaves it, in a fit state to admit of the commencement of operations. From observations recorded for a good many years, I find that in this part of Canada, spring ploughing, as a general rule, may be commenced at some period between say the last of March and the middle of April, the higher situations, and the light and dry soils, admitting of the earliest commencement. The earliest spring ploughing that I recollect seeing,

was upon the 2nd day of March, 1838, and the latest commencement of the same, upon the 1st day of May, 1843 (an unusually late season). All that farmers can do in the mean time, that is, till the frost disappears, is to attend to every other branch of labour in connexion with the season, that nothing may be in the way to prevent field-work being begun the very moment the ground is ready. The advantage of having had a good breadth of ploughing performed in autumn, will now be appreciated. In no business or profession is it more necessary to take time by the forelock than in farming. Time and opportunities once lost or wasted are not easily recovered, and if the farmer once gets behindhand with his work, it keeps him labouring at a disadvantage the whole season. The season for sowing in this country is short, and if a part of it be lost in attending to matters which should have been attended to before, it will be a cause not only of loss and an increase of toil, but of vexation and annoyance in many respects.

From about the first to the fifteenth of this month, the season for the manufacture of maple sugar usually commences, although varying considerably in different years. This is a branch of rural economy, of course not much attended to in the older settlements, where the maple tree is becoming scarce, but which, in new settlements, where the maple abounds, is well worthy of attention, and will perhaps produce as considerable a return, in proportion to the time and labour expended upon it, as any other branch of new-land farming. And as the business is conducted at the particular season of the year, when, in new settlements, there is often not a great amount of other work on hand, as it is just upon the breaking up of winter before spring sowing can be commenced, many farmers and settlers upon new land, who have plenty of maple and hands enough to assist, make quite a profitable business of it, and manufacture not only enough for their own use, but also frequently a considerable surplus to exchange at the country stores for other necessaries. The quantity made in a favourable season, may be an average of two pounds to each tree tapped, besides molasses, and an active man, with a yoke of oxen and sleigh to gather the sap, and two or three hands to assist him occasionally (boys and girls do very well for a good deal of the work) may undertake the management of from 200 to 400 trees. The common process of the manufacture is tolerably well known to most old settlers, and those newly imported, soon acquire a knowledge of it. I need not therefore describe the particulars; I will, however, merely say that if those farmers or settlers who undertake the manufacture of maple sugar, would endeavour to effect some improvement upon the old-fashioned plan of managing it, they might succeed, not only in making an article much pleasanter for domestic use, than that generally made, but might produce an article that would sell readily at a good cash price. I have several times seen maple sugar that could scarcely be distinguished, either in taste and appearance, from imported crushed loaf sugar. The principal points to be attended to in making a good article, are, the observance of perfect cleanliness in every part of

the manufacture;—boiling the sap before it has stood too long; taking care not to let the syrup burn, and adopting a proper process of clarifying. In the first place, see that all the troughs or other vessels for receiving the sap, are perfectly clean and free from old leaves, &c., and also the trough or cask for storing at the boiler. Gather the sap once at least every day, strain before boiling, to remove any leaves or other colouring matter that may have got into it, and boil down immediately. A little lime water added, will assist in the process. Care must be taken as it approaches the consistency of syrup, or thin molasses, to moderate the fire, or it will boil over and burn, which quite spoils it for sugar. When boiled down to syrup, it is taken off the fire, strained through a close flannel cloth, allowed to cool, that all the sediment may settle to the bottom of the vessel, and then returned to another kettle smaller in size than the first boiler, in order to undergo what is commonly called the “*sugaring off*” process. At this point of the operation, it is necessary to adopt some means to cleanse the syrup from all impurities, which the straining could not remove, and which consist of minute particles of dust or other matter. One method of doing this, and sufficient for ordinary purposes, is to mix the whites of two or three fresh eggs, well beaten, a pint of milk, and half a spoonful of saleratus, with a sufficient quantity of syrup to form say forty pounds of sugar, stirring in the mixture when the syrup is about at a blood heat. As the heat gradually increases, all the impure particles will unite with the eggs, &c., and rise to the surface, and must be carefully skimmed off, care being taken not to allow the syrup to break into a boil before the skimming is completed. It is now generally boiled down, with a gentle fire, taking care not to let it burn, to such a consistency as to form a solid cake when cold; allow it to cool gradually, with a little stirring, and dipped off into pans or other vessels. If boiled down tolerably low, and stirred all the time of cooling, it will form a dry powdered sugar; but if a superior quality is desired, it should be left sufficiently moist to drain a little. It should then be put into casks or boxes, somewhat smaller at the bottom than at the top, sixty or seventy pounds in each, and, after granulating, holes are to be bored in the bottom of the casks, through which the molasses may drain off. The sugar may then be covered with several folds of a clean thick woollen cloth, as a blanket or flannel, kept moistened with pure water, and over that a board neatly fitted to the shape of the box or cask.

After it has drained some time in this way, it may be further purified by being melted again and undergoing the same process of clarifying and draining as before. By this or some other similar process, a superior quality of sugar might be made which would compete favourably for many purposes with the best imported kinds, whereas it is well known that in the careless and imperfect manner in which the business is commonly conducted, the greater part made is scarcely fit for the commonest domestic use.

The quantity of sugar that may be made, varies greatly with the seasons; but to show that the business has been and may be of much greater

importance in an economical point of view than many may suppose, I may give the following figures from the Parliamentary statistical returns.

Quantity of maple sugar made in  
 U. Canada in 1842, - - - 3,699,859 lbs.  
 " " 1848, - - - 3,764,243 "

To these figures might safely be added 10 or 12 per cent. for omissions in returns, making say 5 or 6 lbs. for every inhabitant of the country, at the rates given, and amounting in value, at 4½d. per lb.—that being about the rate at which it is taken in exchange for goods at the country stores—to no less a sum than say about £75,000 each year; and this is, besides, the molasses, of which a considerable quantity is always made and which is well known to be a very pleasant article for family use.

There is at the present moment, growing in Upper Canada, a sufficient quantity of sugar maple upon uncleared land and in the, as yet, unsettled regions, to afford for many years, if the business were entered into with that object and with sufficient skill in the manufacture, a supply of sugar equal to the entire amount required by the Province. I have known a single settler, with the assistance only of four or five sons and daughters, none of them grown up, make as much as 1000 lbs. of good maple sugar in one season. It is not, of course, as generally made, an article that will easily sell for money, but it is used in the family, and exchanged at the country stores for goods, which is in effect the same thing to the settler as money. Suppose a settler has 500 lbs. to use and dispose of in one season; this, at 4½d. per lb., will amount to £9 7s. 6d., a sum which, though not very large, yet as it only requires the work of a week or two, and that at a season when often not much else can be done, is well worthy the attention of a poor settler, "scant o' cash"—this latter article being seldom over plenty in new settlements and to be economised as much as possible.

But, Mr. Editor, though I intended to have alluded to one or two other things incidental to farming in spring, I have already exceeded my proposed limits, and must leave the other matters to the abler management of yourself and other contributors.

R. L. D.

Township of York, }  
 February 27th, 1852. }

**FARMER'S APPLE PUDDING.**—Stew some tender apples; if the apples are juicy, they will require very little water to cook them; add to one pound of the mashed apple, whilst it is hot, a quarter of a pound of butter, and sugar to the taste. Beat four eggs and stir in when the apple is cold. Butter the bottom and sides of a deep pudding dish, strew it very thickly with bread crumbs, put in the mixture, and strew bread crumbs plentifully over the top. Set it in a tolerably hot oven, and when baked, sift sugar over.

This is good with a glass of rich milk.

It is a good substitute for pie, and can be eaten by those who cannot partake of pastry.—*National Cook Book.*

## Agricultural Association of Upper Canada.

The first meeting of the Local Committee for making preparations for the Annual Exhibition, which is to take place in this city in September next, was held yesterday in the Mayor's office, and was fully attended, (there being only two members absent,) His Worship, the Mayor, in the chair.

The following gentlemen compose the Local Committee:—The Mayor of Toronto; the Sheriff of the United counties of York, Ontario and Peel; John Gamble, Esq., M.P.P., Warden; Mr. Commissioner Widder; Professor Croft; Franklin Jackes; T. D. Harris; Alex Shaw; Wm. McDougall; Geo. Denison; F. W. Cumberland; H. Y. Hind; Dr. Melville; E. F. Whittemore; and Samuel Thompson, Esquires.

It was Resolved, 1st. That the Mayor of Toronto be Chairman of the Local Committee.

2. That the sum of £25 be awarded for the services of the Local Secretary; and that Mr. W. B. Crew be requested to fill that office.

3. That R. L. Denison, Esq., be appointed Local Treasurer.

4. That the following gentlemen be Committees for raising subscriptions in the city of Toronto, towards the funds of the Association, with power to add to their number:

St. George's Ward.—F. Widder and S. Thompson, Esquires.

St. James'.—Professor Croft and E. F. Whittemore, Esq.

St. Lawrence.—W. McDougall and H. Y. Hind, Esquires.

St. Patrick's.—George Denison and A. Shaw, Esquires.

St. Andrew's.—Sheriff Jarvis and Dr. Melville.

St. David's.—T. D. Harris and F. W. Cumberland Esquires.

5. Resolved—That the Secretary be directed to supply the Sub-Committees appointed for canvassing the Wards with subscription books, and to request the Committees to report upon the sums collected or subscribed at the next meeting of this Committee.

6. Resolved—That the following gentlemen be requested to form Sub-Committees, with power to add to their number, and if necessary to form Sub-Divisions.

1. Buildings and Grounds—F. W. Cumberland, F. Jackes, and E. F. Whittemore, Esqrs.

2. Fine Arts and Ladies' Work—F. Widder, Esq., and Dr. Melville.

3. Horticulture—Professor Croft, and S. Thompson, Esq.

4. Implements and Mechanics—Wm. McDougall and T. D. Harris, Esqrs.

5. Agricultural and Dairy Products—H. Y. Hind and A. Shaw, Esqrs.

6. Live Stock—Mr. Sheriff Jarvis and Geo. Denison, Esq.

7. Manufactures—J. G. Bowes, Mayor, and John Gamble, M.P.P., Warden.

7. Resolved—That a Select Committee of seven be appointed to ascertain where a suitable piece of ground can be obtained for holding the exhibition, and to report to this Committee at its next meeting; and that E. W. Thomson, Geo. Bugland, F. W. Cumberland, R. L. Denison, A. Shaw, W. McDougall, Esqrs., and Dr. Melville, constitute such Committee.

8. Resolved—That an application be made to the County Council and Corporation of Toronto, for a grant to the funds of the Provincial Association.

9. Resolved—That this Committee adjourn to the second Monday in April.

The Meeting was also attended by E. W. Thomson, Esq., Ex-President, the Treasurer, and the Secretary of the Association, and was characterised by a zeal and unanimity, which, if adequately responded to by the public, will render the next exhibition superior to any of its predecessors.

GEO. BUGLAND, Sec., *pro tem.*

ON FEEDING ANIMALS.

The following is an extract of the Address of William Little, which we take from the Fifth Report of the State Board of Agriculture.

"And now having, I hope, engaged your attention to the necessity of providing suitable food for dumb animals, let me ask you the question, how do you feed your animals? It matters not how perfect the form, and how pure the blood of your colt or your calf may be, if they are not properly fed and sheltered during the winter months. By this I do not mean that they should be stuffed to the ruin of their constitutions for the sake of having the fattest and largest yearlings in the neighborhood, but I mean that all animals of this age on your farm, ought to have shelter, where they may stay during the severe storms of our northern winters; and all animals ought to have a sufficient quantity of food to keep them in a healthy, growing condition, all through the winter season. It will not do to say, you cannot afford it. As I said before, you cannot do otherwise, for just so certain as you do, you will lose money. How many of you have experienced the fact, that you have been offered more money for an animal in the fall, than the same animal would bring in the spring.

I will tell you my own course. My calves are provided with a large airy shed, in which they have plenty of room to exercise. This shed is well bedded down with straw, and kept clean. The best of hay is given them, as much as they will eat, and in addition about a quart of meal or chopped feed is given to each one every day. The result is, that I can realise in the spring, from \$15 to \$20 per head for my yearling heifers and steers. Each of the calves will eat, in the course of the winter, perhaps \$3 worth of hay, and, in addition to the chopped feed, will cost about 1c. per day, or about \$1.50 for the winter—in all \$4.50—in the spring they are worth \$20 each. In the other place, the calf is fed on straw or refuse hay, and at three years old will, if a steer, bring perhaps \$20; if a heifer, \$12. It requires no great skill in the arithmetic to tell which is the most profitable.

Canada—Mechanics' Institute.

We find a brief report in the last *Globe* of an interesting Lecture on "The Growth and Prospects of Canada." It was delivered by the Rev. Professor Lillie in the Mechanics' Institute in this City. The audience was large and respectable,

and highly delighted with the interesting details. The lecturer said:—

"The population of Canada, at the time of its surrender to Britain in 1760, was between 66,000 and 69,275, exclusive of Indians. With the exception of a few trading posts, this population was confined to the lower part of the Province. After 1770, U. E. Loyalists coming in from New Jersey and Pennsylvania increased it somewhat. In 1791, the white population of Upper Canada was under 50,000; in 1811, it was 77,000, according to the statement of the Board of Statistics. Hence it is only forty years since it can be said to have begun to grow, if so much. By 1824 the population reached 151,097, nearly double in thirteen years; in 1834 it was 320,693—double, with 18,492 over; in 1850, when it was 791,000, it was more than ten times its number in 1825. Its growth during the last half century was shown by statistical returns to have been in a ratio about thrice that of the Free States.

By statistical returns, it was shown that Canada West, taken as a whole, has been growing for the last forty years at a rate about equal to that of Ohio, Michigan, and Illinois conjoined, for the last twenty at a rate somewhat over theirs. It was remarked, that while the growth shown to have taken place in Canada West was on the country as a whole, that of the Western States was at the expense of the other States of the Union, between which and them the disproportion was very great; to the extent of the American portion of it the immigration to the Western States is but a removal from one part of the Union to another, not an increase to its inhabitants.

By way of illustration of the effect of selecting portions of the States, as is done in the case of the West, and drawing general inferences from them, the Home and Gore Districts were selected out of Upper Canada, and their rate of growth shown to exceed that of the Western States. Indiana contains now a population of 177½ times what it was in 1800; while the Home District contains over 500 times its number of inhabitants in 1799—which were in that year 224; in 1850, 112,996. Though in different parts of the country there have been differences in the rate of growth, there has been on the whole a gratifying uniformity; examples have been adduced illustrative of this fact. Coinciding with this rapid growth in population, a corresponding advance has been taking place in the quantities of land under cultivation, agricultural products, stock, &c., and in the value of land, which was illustrated by statistical returns.

A comparison of assessed values in the State of New York and Upper Canada, respectively for 1848 brought out the fact that, supposing the principle of the valuation of the same, our neighbors of the Empire-State have, with a population over four times ours, property under five times ours—New York city included.

The growth of the country was next illustrated by the contrasts it presents now to the published descriptions of travellers comparatively recent. What they describe as a wilderness, is filled with



towns and villages—many of them handsome, and not a few of them large and wealthy. The growth of a number of these—among them Toronto, Hamilton, Dundas, Brantford, London, Guelph, Belleville, Brockville, Kingston—was viewed—their present population and that of earlier periods being given. Examples of the rise of property in some of these towns were likewise given. In its trade, the growth of Upper Canada is, as proved by the comparison of the exports and imports of different periods, quite equal to its advance in other respects. Great progress has also been made in regard to the conveniences of life, as was manifested by a comparison of means of conveyance—steamboats and roads at different periods; with the increase of postal arrangements and the facilities afforded by electric telegraph.

By a comparison of statistical returns, it was shown that in proportion to population our increase from immigration is one third greater than that of the United States, which with a population fifteen times ours, receives only an immigration only ten times ours. In proportion to our population, our increase from immigration between 1820 and 1850 has been five times that of the United States.

Lecture second was devoted to the growth of Upper Canada in its higher interests, those of an intellectual and spiritual character. In 1812, Canada had five newspapers, all in the lower Province. Now it cannot have much under two hundred. One hundred and eighty, or a little above, would give us, in proportion to population a supply equal to that of the United States, which has about 2500. Generally speaking our newspapers will compare favourably with those of our neighbors as to character. The number of our book-shops with the extent of their stocks and the books stowed in libraries and found on tables, indicate a growing taste for reading.

On all hands a growing interest is manifested in the subject of education. Our schools, and school-masters and pupils are increasing rapidly. Sums largely increased are being paid for education; the people in many parts voluntarily taxing themselves for its support. The character of the education given is also improved. In numbers of places, too, larger schools are being introduced with a number of qualified teachers, which admit of proper classification of pupils and division of labour on the part of masters. Schools of this sort have been seen by the lecturer in successful operation in Brantford and London. The Normal School is rendering the country great service; as is also the Chief Superintendent of Common Schools, by the diligence, singleness of purpose and industry with which he is devoting himself to his noble employment. The number of grammar schools is also increasing, and the number of Mechanics' Institutes. Now, too, the Provincial University with its staff of well qualified Professors, to which addition is being made, offers its advantages to the youth of the country at a price little more than nominal. Trinity College, likewise, though a denominational institution, adds to the means of education in the higher departments. It is a fact specially cheering that the

means of religious instruction and worship are increasing at a rate fully equal to the growth of the population. This was shown by comparison of the statistical returns of different periods. In civil arrangements and the application of correct principles to the government of the country, it is believed improvement will generally be admitted to be taking place. Our municipal institutions are working, on the whole, satisfactorily—improving the country and educating the people.—The past growth of the country, with its extent, its soil and climate, and the facilities for inter-communication afforded by its rivers and lakes, were next adverted to. Those, he said, in connection with the character of its inhabitants, who were vindicated from the imputation of want of enterprise, afforded pledges of the future greatness of the country. The lecture closed with an exhortation to Canadians to do their duty towards the development of the resources of the country.

## HORTICULTURE.

### THE SCIENCE AND PRINCIPLES OF GARDENING.

No. 3.

#### THE AGENTS WHICH AFFECT PLANTS.

##### I.—HEAT.

Before ever sap can be extracted from the soil, or set in motion afterwards, it must be acted upon by heat, which is the prime agent in promoting the growth of plants. It is present both in the soil and in the air, and is everywhere diffused. In proportion to its prevalence, (other conditions being available,) the growth of plants will be either rapid or extensive, or the contrary. This accounts for the comparative dormancy of plants in winter or cold weather. The suspension of the flow of sap at the beginning of winter is erroneously ascribed to the descent of the sap at that season, when, in fact, it is solely occasioned by the absence of a sufficient degree of light and heat. If these and moisture were duly present, perpetual growth would be the result, as it is, except during the dry season, in tropical climates.

Heat is distributed pretty equally among all things on the earth's surface, by a process somewhat similar to that of water, always finding its level, and which is termed radiation. Thus, it will invariably pass from a warm substance to one near it which is colder and all the more rapidly, if the two things are porous and in contact. The warm ground, for instance, will give off its heat into the air, till the heat of the ground, and that of the air become equalized; but the air will not communicate its heat so readily to the ground, as it is a property of heat to be continually ascending, and passing off into space.

As plants derive their food mainly from the soil, its heat should be in some measure correspondent to that of the atmosphere, or they will increase in length but not in strength. This is one reason why cold wet soils are generally unsuitable. The roots do not grow in proportion to the branches and leaves.

Cold is merely a state in which, by the process of radiation, heat is absent. Plants always possess a certain proportion of heat, which is necessary to their vitality; and soils are in winter usually warmer than the air. It is in preventing this heat from flying off into the air, and not in imparting fresh heat, that the true philosophy of shelter consists.

## 2.—LIGHT.

Without light, heat would merely expand the parts of plants; light must elaborate the sap into pulp. Plants that are excluded from light become drawn and weak, as under the shade of trees or walls, and in dwelling-rooms. Even grass, which is endowed with such a wonderful power of life, dies under the thick shade of trees. Plants naturally turn to the light and grow towards it, their tissues becoming more elaborated and contracted on the side from which light is supplied; hence their feebleness and one-sidedness. If plants be placed in a warm cellar, where light is only supplied from a single aperture, they will always grow in that direction if the rays can reach them.

There can be no fruit or flowers without light, because none of the parts of plants can be fully and properly matured; and the flower or fruit-bearing process is the result of light, the last stage of maturity. Greenness and all high colours are the result of light; leaves have only a sickly yellow hue without it. But it must be remembered that flowers, once developed, will fade sooner when subjected to strong light, which will rather throw them into fruit. When flowers, therefore, and not fruits are desired, a little shading, after the first blossoms have expanded, will prolong their beauty.

The exclusion of light produces *blanching*, as in the familiar case of lettuce, endive, and celery; but it gives additional succulence and crispness, and tenderness, as with the sea-kale. All vegetables, therefore, that are used for their juiciness, or eaten raw as salads or in which much fibre would be a defect, should be grown quickly, with plenty of warmth and comparatively less light.

Want of light is often the real cause of evils which are popularly ascribed to want of air, though both combined may occasionally be acting. Light may, however, be prejudicial to plants in certain stages, as after fresh planting or potting, when it stimulates them more than their crippled roots will bear. Dull weather is, therefore, best for both potting and planting, and a little shade after either process may often be beneficial.

## 3.—AIR AND GASSES.

Air is as necessary to plants as to human beings, since they both exhaust it from its health-producing influences, and probably both vitiate it to some extent, as far as themselves at least are concerned.—There can be no general healthiness or robustness without fresh air. The roots of plants require to be within reach of it; consequently, where they are tolerably near the surface, and in porous soil, the plants are much more fertile. Very deep soils, which attract the roots away from the influence of air, tend only to the production of leaves and branches. Air fills the soil as well as the atmosphere, and exists in plants in little cells, which appear provided expressly for it.

It is said to be valuable as a mechanical agent in agitating the different parts of plants, and keeping them healthy and hardy, in helping off their watery evaporations, and in removing impurities. But it is most useful in conveying gasses to them, as a very considerable quantity of gaseous food of plants resides in the atmosphere, and is communicated to them directly through the pores, or through the soil to the roots: besides being precipitated upon them, or forced into the ground for them by rain, snow, &c. Oxygen and nitrogen, the food of plants, are the chief constituents of the atmosphere. Carbon, also, which is essential to plants, is derived both from the air and the soil. It exists most abundantly where population is densest, and the various processes of life most

thickly carried on. Plants and tress in large towns must, therefore, tend materially to improve the air, by relieving it of its carbon.

A close frame or hand glass, where little or no fresh air is admitted to dry up the juices, and that which it contains is kept slightly moist, is the best condition for newly potted plants or cuttings. Quiet moist weather is likewise always best for planting, as winds seriously dry the roots of plants during the operation, and assist in abstracting too much of their juices after they have been removed.

Plants convert the oxygen and carbon which they receive from the soil and air into carbonic acid, which they exhale at night. This being a deadly and dangerous gas to human beings, plants or flowers are not considered healthy in a sitting or bed-room during the night. In the day they give off oxygen, especially in the morning, which is reputed to render the morning air so fresh and exhilarating. They are very useful in absorbing from the air the carbon which is so injurious to animal life, and they purify stagnant water in the same way.

## PROTECTING FRUIT TREES FROM MICE.

MR. EDITOR:—I should be glad to get some information from yourself, or some of your horticultural correspondents, on the best method of protecting fruit trees from the depredations of mice which constantly gnaw off a large ring of bark, and thus destroy the vitality of a tree which we have perhaps been carefully rearing for a number of years. Mr. Downing, in the first edition of his work on Fruit Trees, recommends the use of tar, but in the late editions I find this statement is altered, and other more mechanical contrivances are advocated, such as treading down the snow, forming hillocks of earth round the base of the tree, or even using lime. In a late number of the *Horticulturalist*, too, the use of tar is deprecated, unless employed with care.

As the injurious effects of the tar can only arise from its coming into immediate contact with the outer bark, by which a portion may possibly be absorbed into the plant, and having a number of young trees in my garden, some of which suffered rather severely last winter from the nuisance above mentioned, I have tried the following expedient, on the efficacy of which I should like to have your opinion.

I prepared a number of slips of coarse canvas, 18 inches by 10 or 12, and wrapping them round my young trees close to the ground, fastened them with a few twists of twine. I then be-smear-ed each with a good coating of coal tar. The bark is thus preserved from actual contact with the tar itself, and the clothes, which are put on with very little trouble, such as no one would grudge to a few pet trees, can easily and readily be removed in the spring.

The plan may seem a little troublesome, but each tree will not take five minutes in covering and smearing, not longer than would be required for the other processes recommended; and, if we can prevent the injurious action of the tar on the trees, I have no doubt that it will be found the most effective preservative.

When the proper time comes, I will send you an account of the result of my experiment.

Yours truly,

H. C.

Toronto, Feb. 21st, 1852.

## SCIENTIFIC.

## CARBONIC ACID'S REPLY TO MR. RUTTAN.

MR. EDITOR:—I take the liberty of replying, as quickly as possible, to the letter of your somewhat unnecessarily irate correspondent, as contained in the February number of the *Agriculturist*. In so doing, I may be permitted to preface my letter with a few remarks on the style of his communication, and on the line of argument adopted; in both of which it is to be hoped, for the sake of the rising generation, he may not find many imitators.

Mr. Ruttan's letter teems with quotations from printed works on chemistry, ventilation, &c.; a circumstance which seems to indicate that Mr. R. is not always so perfectly consistent as such an accomplished logician might be expected to be—for he expresses himself as strongly opposed to book learning, and expatiates on the superiority of brains, and originality of thought. The latter qualities do not seem to have assisted him very materially in his communication, further than in inducing him to shirk the question at issue, wilfully to pervert my statements and misquote his own, and last, but not least, in rendering him utterly incapable of comprehending the meaning of the very authorities whom he quotes.

In paragraph No. 2, Mr. Ruttan blames me for writing under a "fictitious name, and for attacking him in the dark"—forgetting that my letter was merely a correction of statements and not a personal attack, as his article most assuredly is; and overlooking the semi-jocular, and I think I may say good-natured, style of the communication, a tone which it would have been wiser for him to have imitated, rather than have indulged in the acrimonious invective and offensive personalities which pervade his reply. From the extreme virulence which he exhibits, one would almost be inclined to believe that the learned gentleman must be exceedingly raw to wince at such a trifle.

I shall not allow Mr. Ruttan's satire to drive me from my incognito; I do not believe it is so profound but what his acuteness has already penetrated the mystery; and in any case, you, Mr. Editor, are at perfect liberty to furnish him with the name of your correspondent if he should desire it. I would merely add that if my incognito is to be considered as an excuse for his very savage but perfectly innocuous *pokes*—I must not be blamed for retaliating in the same spirit.

Mr. Ruttan's style of defence consists partly in misquoting those portions of his own statements which I criticised, and then attacking me as if I had found fault with the corrected one. Thus in paragraph 9, he states that I deny that carbonic acid is heavier than air, which is not true, and that I also deny the possibility of its being poured out of a tumbler—which is equally wanting in veracity. In his original letter he says, "so nearly does it sometimes approach to the density of water" whereupon I proved this assertion to be an exaggeration, water being several hundred times heavier. The numbers adduced by him

have a bearing on the corrected, but none whatever on the original passage.

Another plan adopted by Mr. Ruttan is to take little or no notice of my correction of his errors respecting carbonic acid, but to accuse me of denying the benefits of ventilation. A more unjustifiable proceeding can scarcely be imagined as the sole reference in my paper to ventilation is contained in a compliment to Mr. Ruttan. I most fully agree with him and the authorities he quotes in the great importance of ventilation, but that has nothing to do with the subject at issue, viz., carbonic acid. Mr. Ruttan has jumbled up miasm, carbonic acid and offensive gases; until it appears that he himself does not know one from the other. In fact, in paragraph 5, he says "if it be not carbonic acid, it certainly is something."

Comment on this is unnecessary—it is slipping out of a discussion with a vengeance. I might here fairly conclude my letter; for, to fight against such arguments as that, is but combating a shadow; but there are some few points in Mr. Ruttan's communication which I should desire to answer, even at the risk of occupying more space in your valuable journal than the subject deserves.

In paragraph 6, my learned friend parades his own logic and depreciates mine, leaving out of consideration several circumstances which materially diminish the validity of his immaculate reasoning. There is rather more carbonic acid in the upper regions of the atmosphere and about mountains than at the surface, as has been shown by Gay Lussac, Saussure, and others, the reason being that which I have already stated. The diffusion of gases is not instantaneous, but takes some time to be thoroughly effected, and hence it is natural that air at a height of 10 or 20,000 feet should contain rather more carbonic acid, and will always do so unless the supply of carbonic acid, which is being carried up by the ascending current, be stopped. I repeat, that, if places filled with carbonic acid were left freely exposed to the air and not receiving fresh additions of the gas, they would soon become perfectly healthy. The Grotto del Cane (*Grattos del Canes*, in the plural, according to Mr. R.) is not freely exposed to the air, and in it as well as in the Valley of Death, the gas is mixing with the air as fast as it can; but, owing to its pouring rapidly out of the earth, and its high specific gravity compared with air (not water) and its consequent comparative slowness of diffusion, a stratum always remains over the surface of the ground. I assert that Mr. Ruttan's statement that gases, when once mixed, will separate, is utterly and wholly incorrect, as every beginner in physics knows full well.

Paragraph 18 requires no answer, as it contains little more than some strong wholesome abuse; but, in 20, Mr. R. empties upon me the vials of his wrath for being so excessively accurate, even to the 1-10,000th part of a grain. In no part of my communication have I even mentioned such a quantity, but that is of no consequence to Mr. Ruttan, who does not stand upon a little misrepresentation when he wishes to make a *poke*. He supposes that I am "a practical chemist, what we call a learned man" (an entirely new and original definition) and advises me to trust less to

my books and more to my judgment and every day experience. If I be what he supposes, my every day experience will teach me that the numbers I mentioned are the correct ones, and no others are in accordance with fact—my judgment will have little to do with the matter.

The latter part (a quotation) of this paragraph is unhappily chosen, as it militates directly against Mr. R. and proves what I have stated. The most accurate chemists have been unable to detect any difference between the composition of air taken from hospitals and crowded theatres and that from freely exposed places. Mr. Ruttan refers all the ill effects of such air to carbonic acid (I beg his pardon—or something) and yet a mere trace would not escape the notice of the veriest bungler that ever executed a chemical analysis. Let it be remarked that I have never made any reference to the presence or absence of miasm or malaria, that mysterious agent which, it cannot be doubted, is the cause of innumerable diseases, although its properties are such that the most expert analysts have failed to detect its presence or ascertain its nature, even when their attention was particularly directed to it; but miasm is not carbonic acid, and if Mr. Ruttan criticises my remarks on the one as if applying to the other, he is only continuing that system of misrepresentation (I can call it nothing else) by which he vainly hopes to render me ridiculous in the eyes of your readers.

In paragraph 14 he quotes Chambers' Chemistry to prove that carbonic acid accumulates in wells, caverns, &c. Had Mr. Ruttan been able to understand plain English, he would have seen that the very allocation of the words shows that the writer of that excellent treatise ascribes the accumulation of the gas to the very same causes that I mentioned, and not to a *separation* as according to Mr. R.'s theory.

If the quantity of gas in the Grotto and in the Valley of Death be owing to its separating from the air, why, in the name of all that is wonderful, are not such phenomena to be observed on every part of the earth's surface?

But, Mr. Editor, I have already occupied too much space, and you must be as heartily tired of the subject as I am. There is not one single paragraph in Mr. Ruttan's communication which could not be thoroughly picked to pieces, excepting perhaps some of those on ventilation, which, as I said before, has nothing to do with the subject under discussion, and on which I have never ventured any remarks.

In conclusion, I would observe that I cannot agree with your correspondent in courting a further discussion of the subject, at least in the manner in which it has been as yet conducted. Let him bring to the discussion some slight adherence to facts and principles, some moderate acquaintance with the subject under consideration, and I will be perfectly willing to continue the argument; I shall be as ready to receive correction and information as I am desirous to impart it, but under the present circumstances I shall beg to decline any further correspondence on the subject of,

Mr. Editor,  
Your still surviving correspondent,  
CARBONIC ACID.

As the discussion, so far, of the character of Carbonic Acid, has by some means or other induced an amount of caloric, which, if allowed to accumulate, might eventually occasion a very undesirable and inconvenient expansion of this gaseous subject;—we hope that Mr. Ruttan (who is entitled, by the common usage of literary warfare, to a rejoinder) will not allow the matter to terminate without enlightening us and our readers on what after all is by far the most useful and important part of the whole question, viz., the *modus operandi* of his system of ventilation. The somewhat jocose remarks of his aerial antagonist were not, we feel certain, intended to apply to Mr. Ruttan's *method* of ventilating, but simply to correct, by a little pleasantry, a few inadvertent mistakes. That Carbonic Acid, with his extensive and accurate knowledge of physical science, can essentially aid Mr. Ruttan in carrying out his important and most praiseworthy objects, we are quite confident, and our pages shall always be open to their communications.

#### A Lecture on Geology.

Dr. Antiseil delivered the second lecture of his course on geology, a few evenings ago, in Clinton Hall, New York, before a numerous and intelligent audience. The subject was "The Carboniferous Period of the Globe—the Nature and Origin of Coal."

The Doctor commenced by observing that it was impossible within the space of four lectures, to present any thing like a correct and ample view of the present position of geological science. These lectures had for their object rather to stimulate than to gratify curiosity; and the periods comprised within the four lectures, to which the course was limited, were selected, not because they had any interconnection: but rather that by the contrast which they afforded, panoramic sketches of a former world were presented, and the mind of the hearer dwelt with more satisfaction upon a few epochs, the characteristic life of which was clearly placed before him, rather than in a condensed summary of progressive changes and repeated developments of new species. In the first lecture the primitive condition of the globe was portrayed—its passage from a chaotic mixture of land and water, with a hazy and probably a more elevated atmosphere, to a condition in which the land had arisen to a considerable elevation above the water level, producing thus greater depths of ocean, and the more powerful influences exerted by water in motion. At the close of that period, life dawned on the creation; and it was almost impossible to say whether the first traces of life belonged to the animal or vegetable kingdom. The total life, however, was marine, neither the earth nor the atmosphere appearing to possess the conditions necessary to support life. The chief inhabitants of the deep were molluscs and crustaceans, and towards the close of the silurian period, or that in which the New York system of rocks were deposited, Fishes commenced to appear, differing in organization from those who now inhabit our seas. At the present time, quite a new creation was presented, totally distinct from the pre-

ceding, and separated from it by a long and well marked interval of time, in which were deposited by what is termed shore action, those thick and extensive beds of reddish grit, commonly known as the oldest sandstone; and whose remarkable organic development was in the abundance of fishes. This rock, of which many of our city churches were built, constituted the great mass of the Catskill Mountains, and was abundant on the Pennsylvania and New York borders. Overlying these, were found masses of limestone rock of great thickness, very fossiliferous, and impregnated with vegetable matter. The depth of this bed did not average more than 800 yards, including beds of sandstone and shale accompanying the limestone. Above these laid other beds of sandstone and shale, with immense deposits of coal, and layers of ironstone, irregularly stratified, to which might be added deposits of fresh water limestone. The depth of those approached 1000 yards, the latter series had received the name of coal measures, and the former that of mountain limestone; and both formations had received the title of carboniferous from their containing so much vegetable matter, the remains of the flora of that epoch. In fact, during the period under consideration, two new features were presented, as predominant, one being the production of terrestrial vegetation; the other, the formation of extensive beds of limestone under the sea. By the agency of the coral animal, Dr. Antisell here described the formation of beds of rock by the coral insect, and illustrated this position of the subject by elaborate drawings, and alluded to the different conditions of the globe as to temperature which existed at the former and present periods, are evidenced by the presence of coralline limestone, even in frigid latitudes, while the present growth of coral was confined to the tropics. Coal was generally found in beds having a slight curve, and those were, on that account, generally termed coal basins. Many beds or basins now distinct, might have been deposited contemporaneously over a large area, and since their deposition had been isolated and altered, by upheaval and volcanic action. The extent of the Ohio, Illinois, Michigan, Virginia, and Pennsylvania coal basins, were pointed out in the diagrams, with the different characteristics which peculiarize the coal fields of this country, and those of Europe. The position which the seams of coal occupied, and the muddy and sandy beds which immediately surrounded the coal, and which contained leaves of ferns and other like plants, with the crusted trunks of forest trees, were then described. The great depth of some coal beds was pointed out—that near Bettingen being 22,000 feet below the sea level. The traces of vegetation found were those of plants belonging to the fern tribe; also, grasses, yuccalike, liliaceous plants and palms, with pines and zamias, in all, over four hundred species. The varied appearance of those plants was illustrated by drawings and specimens, to which the lecturer referred. The similarity of this flora to that of Australia, and of the plateau of Mexico was clearly demonstrated, and the climate of that epoch to have an insular and intertropical one. Vegetation was excessively profuse over the whole globe then, resembling in the excessive luxuriance of its forests, tropical South America, as described by Humboldt. Dr. Antisell then passed on to different views, with regard to the manner in which the extensive deposition of coal plants was produced. In very many cases they were the result of accumulated drift wood, similar to what occurred in our southern rivers, where the timber floating down became impacted and water logged. It would only require to be covered over with mud and sand, and subjected to pressure for a long period of time, to be converted into coal. In other instances, it was probable that the trees grew on a spot where the coal bed now existed, and that the

land becoming submerged, drift wood was imparted among the standing trees, and both combined to form the future seam. The great height to which many of these coal plants attained was remarkable, there being seams of the lepidodendrum—a plant allied in form to the modern club moss—found, which were fifty, sixty, and even seventy feet high. None of these mosses, even in the warmest region, ever attained more than the size of a shrub. So it was with the equisetum, or mare's tail, at present an humble plant but in the fossil species a gigantic tree. All the plants which were represented by similar species existing now, attained at that period a more ample development, bespeaking a warmer and more equable climate. The asterophyllite plants were rather abundant in the Nova Scotian and Appalachian coal, belonged to a family of which there were now no living representatives. The varieties of coal were next alluded to. It was shown how it was possible for anthracite and bituminous coal to exist in the one bed, the difference being in the loss of bituminous matter sustained by the former, this loss being produced by the close proximity of heated mineral matter. Thus, an upheaval of green stone, or any volcanic rock, or the close proximity to the scene of volcanic action, would result in the coal beds being altered from their original position, bent, and even fractured in many places, producing faults or dislocations. The advantages of these to the miner was exemplified. By the proximity of volcanic action, the coal beds themselves became heated to that point that their bitumen was driven out, leaving behind a hard, carbonaceous residue, or coke, which was termed anthracite. In Pennsylvania, those portions of the coal fields lying close to the Alleghenies, had their bitumen driven out by this cause, and were anthracite, while, as the bed travelled westward, the amount of bitumen gradually increased, until, in the neighborhood of Pittsburg, it retained its full quantity of bitumen, and resembled the unaltered basin of any European coal field. Dr. Antisell here went into some particulars of the extent and supply of American coal fields, and the enormous time it would take to consume their contents. It might be asked what was the use of this abundant vegetation, seeing that neither the land nor the air, during the larger period of its growth, seemed to be in a suitable condition for sustaining animal life. The chief office of vegetation at the present day was to purify the air, and render it suitable for the support of animal life. This was its office. Then, also, and from its greater diffusion, it was evident that the necessity for purification was greater then; there was more carbonic acid gas in the air at that time—a gas eminently fatal to existence when breathed—and to purify the air and render the earth a suitable habitation, was the allotted duty of this remarkable flora. This duty was accomplished by the fixation of the carbon of the gas into the wood of the tree. Every forest which grew drew more of this noxious gas out of the atmosphere, until, in process of time, it was reduced to its present amount—a quantity which in no way interfered with animal life. The properties of this gas were then shown by a few experiments—its incapacity to sustain a light burning, or to support life, was proved—and its greater abundance in the atmosphere of a more ancient period accounted for the fact of the non-existence of any tenants of either the forest or the air. The animal life of this period was then alluded to—the abundance of molluses, conchifers and brachiopoda, and the peculiarity of the fishes which tenanted the seas. The contemporaneous working of the coral insect, aiding the terrestrial vegetation to withdraw carbonic acid from the air, showed a wonderful unity of design in preparing the globe for land inhabitants, and laying up, by that means, a magazine of fuel and limestone to subserve the future wants of

man. Dr. Antisell then called attention to the Mosaic account of the creation, and the harmony with which the succession of events, as described there, tallied with the teachings of science. Both of them pointed to a chaotic mass of land and water—then to the production of clouds in the atmosphere, and a line of separation between these and the water on the surface of the globe—then to the appearance of masses of dry land, and the formation of deep seas, or the "gathering together of waters," as it was termed by Moses—then came the growth of grass, herbs, and trees. In these points, science and the Mosaic account harmonized, in the order of appearance of the animal life—first, inhabitants of the seas; then those of the air; and, lastly, those of the land. The disagreement laid in the time allotted for their development. This question of time, Dr. Antisell said he would revert to on a future occasion. He was listened to, throughout his discourse, with breathless attention, and his plain and unaffected demonstrations of the science of geology elicited much applause. The lectures of Dr. Antisell must be regarded as masterly and popular expositions of this interesting branch of science, and may well contrast with the flimsy productions with which the public have been recently supplied.

#### Keeping Time with the Telegraph.

We witnessed a curious experiment yesterday at Morse's Telegraph office, which we had before heard of but had never seen. It was nothing less than the ticking of the clock in New York city heard and seen at this end of the line. The experiment was most perfectly performed, the regular vibrations of the pendulum in New York being registered on the paper at precise intervals, and heard by striking the pen-lever at the same instant.

This is done by an operation similar to telegraphing itself. It is well known that the bringing in contact of the positive and negative poles of the batteries, forms what is termed a circuit and produces characters at the pleasure of the person so bringing them together. One of these wires is connected by a very fine wire to the pendulum of the clock, partaking of its motion; the other is fastened to the side of the clock, so that the pendulum shall strike it in swinging back and forth. When the pendulum strikes, the two wires being brought together, a circuit is formed and a stroke of the pendulum makes a dot upon the paper, and this is repeated as often as the pendulum strikes the wire in the side of the clock; so that the ticking of the clock in New York is heard even more distinctly in Buffalo than in the office where it is placed.

Last evening a similar experiment was successfully tried between Bangor, Me., and Milwaukee, Wis., by connecting the wires of Morse's and Speed's lines at this point and then proceeding as mentioned above.

A clock ticking at one place, and being heard between 2 and 3000 miles away, is certainly something curious in this age of marvels.—*Buffalo Express*.

**HOME-MADE GAS.**—Mr. Bower, of St. Neots, Hants, (England), has constructed and patented an apparatus for making gas from coal, so small as to be adapted for private houses and inns, where ten or more lights are required. It is enclosed in an iron frame occupying but little space, and may be managed by the errand boy. Beautiful gas is said to be made by this plan at the paper manufactories of Messrs. Towgood, Cambridge, at a cost of one shilling and sixpence per 1,000 cubic feet. The patent consists of getting hydrogen gas from steam (generated by the

same fire that heats the retort,) and converting that vapor into gas which otherwise would be converted into tar.

#### GERMAN SAUSAGES.

Eminent Physicians have stated it as a well known fact, that the bodies of animals which are diseased are capable of communicating fatal diseases to the human species; and Dr. Paris observes, that experience has shown that such animal poison is particularly energetic in those parts that are commonly called offals, in which term are included the intestines. To account for the deleterious changes of which those parts appear by this to be occasionally susceptible, it is not in the least necessary to suppose that the animal died in a state of virulent disease. We are informed by Dr. Kerner, of Wurtemberg, that the smoked sausages which constitute so favourite a repast in his country, often cause fatal poisonings. In one instance thirty-seven persons died out of seventy six who had eaten them; and though the most able chemists analysed the meat, no trace of any known poison could be discovered. The following details respecting this remarkable fact are from Professor Graham's work on Chemistry. In Wurtemberg the sausages are prepared from very various materials. Blood, bacon, brains, milk, bread and meal are mixed together with salt and spices; the mixture is then put into bladders or intestines, and after being boiled is smoked. When these sausages are well prepared they may be preserved for months and furnish a nourishing savoury food, but when the spices and salt are deficient, and particularly when they are smoked too late or not sufficiently, they undergo a peculiar kind of putrefaction, which begins at the center of the sausage. Without any escape of gas taking place, they become paler in colour, and greasy in those parts which have undergone putrefaction, and they are found to contain prelacetic acid or lactate of ammonia, products which are usually found during the putrefaction of animal and vegetable matters. The death which is the consequence of poisoning by putrefied sausages succeeds very lingering and remarkable symptoms. There is a gradual wasting of muscular fibre and of all the constituents of the body similarly composed. Sausages, in the state here described, exercise an action upon the organism, in consequence of the stomach and other parts with which the come in contact, not having the power to arrest their decomposition; and entering the blood in some way or other; while still possessing their whole power, they impart their peculiar action to the constituents of that fluid. Similar effects have occurred in Paris, and it has been conjectured that animal matter in peculiar states of disease or decomposition may constitute an actual poison. hitherto not understood, and only evinced by casual effects. Sir Benjamin Brodie remarked that on several occasions he has met with evidence of the acrid and poisonous nature of dog's meat, as sold in the streets of London, which manifested itself by producing ulcerations of a peculiar and distinct character on the hands, accompanied by swellings in the axilla (armpits).

**NAYSMITH'S PILE-DRIVING MACHINE.**—We witnessed on Saturday the first introduction of this machine in London, and we are indebted to Messrs. Hutchings and Co. of St. Mildred's-court, for being present at one of the most interesting and enterprising inventions that has been brought into action for superseding the old method of driving piles. The works under the superintendence of Mr. Kendel, the engineer, are at the West India Docks, and a pile of 25 feet in length was driven into the ground in the short space of eight minutes, which by the old process

would have taken three hours. The engine is capable of making from 60 to 70 strokes a minute. It is scarcely necessary to point out to our readers the great improvement that has taken place in this department of machinery. It will be at work for some months, and we should advise all persons that are interested in machinery to pay a visit to the docks, to form their own opinion of its merits.—*Globe*.

**THE PATENT WIRE TYPE COMPANY.**—It is a somewhat extraordinary circumstance, that while such gradual but vast improvements have been made in the press, the type itself should have been left almost without modification for four centuries. It is gratifying, however, to find that this evil is likely to be remedied. A company is being formed for carrying on the manufacture of wire type, which, from its durability, and the clear and distinct nature of the letter, must in no long time entirely supersede the soft cast type at present in use. The proposed process of manufacture is this:—Wire (copper, brass, or zinc,) prepared of the proposed size or form, is rapidly converted into type; the machine straightens the wire, and cuts it off the required length; at the same moment a steel die strikes one end of the wire, and raises the face of the letter upon it, which, from the character of the metal employed, and the powerful compression to which it is subjected, is produced of a durability sixty times that of ordinary cast type. The type is produced at the rate of 100 per minute, with little or no waste in the manufacture. Complete machinery was exhibited in the Crystal Palace, where type was made and finished in the most perfect form, and the prize medal was accorded to the invention. In the list of directors of the above company, we perceive the name of Mr. Hensman, C.E. whose valuable services at the Great Exhibition, in the control of the machinery department, were so generally admitted, and whose name is a guarantee as to the value and genuine character of the proposed undertaking. From using type, we can appreciate the benefits offered by the new invention, which must prove highly profitable to the shareholders.

**THE FORMATION OF MOUNTAINS, AND THE PRESERVATION OF FLESH.**—Prof. Gorini, who is professor of natural history at the University of Lodi, made recently before a circle of private friends, a remarkable experiment illustrative of his theory as to the formation of mountains. He melts some substances, known only to himself, in a vessel, and allows the liquid to cool. At first it presents an even surface; but a part continues to ooze up from beneath, and gradually elevations are formed until at length ranges and chains of hills appear, exactly corresponding in shape with those which are found on the earth. Even to the stratification the resemblance is complete, and M. Gorini can produce on a small scale, the phenomena of volcanoes and earthquakes. He contends, therefore that the inequalities on the face of the globe are the result of certain materials, first reduced by the application of heat to a liquid state, and then allowed gradually to consolidate.—In another and more practically useful field of research the learned Professor has developed some very important facts. He has succeeded to a most surprising extent in preserving animal matter from decay, without restoring to any known process for that purpose. Specimens are shown by him of portions of the human body which, without any alter-

ation in their natural appearance, have been exposed to the action of the atmosphere for six or seven years; and he states that at a trifling cost he can keep meat for any length of time in such a way that it can be eaten quite fresh. The importance of such a discovery, if on practical investigation it is found to answer, will be more readily understood when it is remembered that the flocks of sheep in Australia are boiled down into tallow, their flesh being otherwise almost valueless, and that in South America vast herds of cattle are annually slaughtered for the sake of their hides alone.—*Times*.

**KEROSENE GAS IN NOVA SCOTIA.**—In the Nova Scotia Legislature the Hon. Provincial Secretary presented the report of Dr. Gesner on the subject of lighting the Nova Scotia Light Houses with Kerosene Gas. The Light House at Meagher's Beach had been placed by government under his charge. He has illuminated it at a charge of £19 per annum, making a saving of £50 a-year. Dr. Gesner has proposed to furnish the other houses in the same manner, so that a saving of £15,000 a-year would be effected by his means. The Dr. states that he can erect lights along the shores, without expensive houses, by raising poles and placing the lights on the top of them.

Hon. Mr. Johnston proposed that it should be referred to a special committee, with the Hon. and learned member opposite for its chairman. If he wished to have a simple and clear illustration of the benefits of the Kerosene Gas, he had only to go across in the Dartmouth steamer, and inspect the works of the Steamboat Company for procuring their gas. The thing was quite simple, and not only had they their buildings and lamps on the wharf lighted with it, but by a portable India Rubber bag it was brought into the boats, and they were lighted with it every night. The works were managed with such ease, that they were now under charge of a common labouring man.

The Report was referred to Messrs. Fraser, Marshall, Killam, James Coffin, Cowie, John Munro, and Jost.

We perceive that, in connexion with this light, the Doctor proposes to introduce one or more illuminated letters to each beacon, visible beyond the reach of danger, and thus capable of letting the mariner know his whereabouts in a manner not to be mistaken. This is an excellent idea.

People have been asking Dr. Gesner if his kerosene gas is not dangerous, and he has replied that it is no more dangerous than other gases. Gas has been used for light-house purposes on the coast of France, and answers the end admirably.

**KNITTING MACHINE.**—There is a knitting machine in operation in Philadelphia, which knits three hundred and eighty stitches at each turn of a small crank which crank may be easily turned by hand from one hundred, to one hundred and fifty revolutions per minute, or at the rate of about three million stitches per hour.



## Poetry.

## Keep the Heart as Light as You Can.

We have always enough to bear—  
 We have always a something to do—  
 We have never to seek for care  
 When we have the world to get through!  
 But what, though Adversity test  
 The courage and vigour of man,  
 They get through misfortune the best  
 Who keep the heart light as they can.

If we shake not the load from the mind,  
 Our energy's sure to be gone;  
 We must wrestle with Care—or we'll find  
 Two loads are less easy than one!  
 To sit in disconsolate mood  
 Is a poor and a profitless plan;  
 The true heart is never subdued,  
 If we keep it as light as we can.

There's nothing that Sorrow can yield,  
 Excepting a harvest of pain;  
 Far better to seek Fortune's field,  
 And till it and plow it again!  
 The weight that *Exertion* can move—  
 The gloom that *Decision* can span,  
 The manhood within us but prove!  
 Then keep the heart light as you can.

CHARLES SWAIN, in the *British Journal*.

A DANGEROUS POSITION.—I have said the *Mur de la Cote* is some hundred feet high, and is an all but perpendicular iceberg. At one point you can reach it from the snow, but immediately after you begin to ascend it, obliquely, there is nothing below but a chasm in the ice more frightful than anything yet passed. Should the foot slip, or the baton give way, there is no chance for life—you would glide like lightning from one frozen crag to another, and finally be dashed to pieces, hundreds and hundreds of feet below, in the horrible depths of the glacier. Were it in the valley, simply rising up from a glacier *moraine*, its ascent would require great nerve and caution; but here, placed fourteen thousand feet above the level of the sea, terminating in a icy abyss so deep that the bottom is lost in obscurity; exposed, in a highly rarified atmosphere, to a wind cold and violent beyond all conception; assailed, with muscular powers already taxed far beyond their strength, and nerves shaken by constantly increasing excitement and want of rest—with blood-shot eyes, and raging thirst, and a pulse leaping rather than beating—with all this, it may be imagined that the frightful *Mur de la Cote* calls for no ordinary determination to mount it. Of course, every footstep had to be cut with the adzes: and my blood ran colder still, as I saw the first guides creeping like flies upon its smooth glistening surface.—*Albert Smith's "Mont Blanc," in Blackwood's Magazine.*

A PRAIRIE.—One of the most novel as well as enchanting scenes in nature is the prairie, or delta, extending to a distance of many miles between the two great rivers. It is for a considerable portion of the year one sea of flowers, one wide region of fragrance: and its features differ from those of any lands in any other country. Not a tree is to be seen except upon its outer edge, and the blue horizon meets it everywhere, forming a long straight line, without the least appearance of irregularity or undulation. As you cast your eye over it, it is all one series of decep-

tions. Sometimes, owing to a particular state of the atmosphere, or the position of the sun, distances and objects are increased or diminished, like the vagaries of the phantasmagoria; things that are near will appear as if at a great distance, and those at a distance at other times seem as if you could almost touch them. Now a bird will seem as if touching the sky with its head, and anon the herds appear like an assemblage of insects.—*America Described.*

AN EXAMPLE FOR YOUTH.—Those young men whose evenings are spent in dissipation and idleness, may learn a wholesome lesson from reading the following:—"I leaned grammar," said William Cobbett, who became an eminent printer and writer, "when I was a private soldier on six-pence a day. The edge of my guard-bed was my seat to study on; my knapsack was my book-case, and a board lying on my lap was my desk. I had no money to buy candles or oil; in winter it was rarely that I could get any light but that of the fire, and only my turn even at that. To buy a pen or a sheet of paper, I was compelled to forego a portion of food though in a state of starvation. I had no moment at that time that I could call my own, and I had to read and write amid the talking, singing, whistling and bawling of at least half a score of the most thoughtless of men, and that, too, in hours of freedom from control, and I say, if I, under circumstances like these, could encounter and overcome the task, can there be in the whole world a youth who can find excuse for non performance?"

NOVEL EMPLOYMENT OF INDIA-RUBBER.—An ingenious discovery, by which india-rubber and gutta-percha are rendered applicable to the formation of artificial features and to the covering of artificial limbs, has been made by Mr. F. Gray, of Cork-street, London. By this discovery, the necessity of what is called the Taliacotian operation, in supplying the place of a lost nose to a face, is removed, for that feature can be formed, and, as if it were grafted on the integuments in such a manner as closely to resemble nature. The human ear can also be closely imitated by the substance, which perfectly resembles the natural skin and is almost equally flexible. So complete is the deception, that, without the closest inspection, it is nearly impossible to discover that art has superceded nature. This invention is among those which prove the variety of uses to which the materials employed in it can be applied.

## ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

From the report submitted by the Council at the recent annual meeting, the condition and prospects of this great national society would appear prosperous and cheering. The total number of members was 5,084, and the surplus yielded by the Exhibition in Windsor Park last summer was larger than on any previous occasion. The Railways carried stock to and from the Show free of charge. At the request of the Council, Her Majesty's Government were using their influence in augmenting the supply and cheapening the price of Guano, which has become an indispensable fertilizer to the British farmer. All Captains of ships in the Royal Navy will be instructed to search for deposits of this valuable manure in the rainless regions within the tropics, and the surgeons of such ships are to ascertain on the spot the quality



of the article. Phosphate of lime is also included in their instructions. The Society has offered a prize of £50 for a statement of the geographical distribution and the discovery of new sources of Guano. The growth of flax as an agricultural crop had received the earnest attention of the Council, "who, although well aware that there are, under ordinary circumstances, no difficulties attending the cultivation of this crop, yet feel at the same time that at present adequate means are not generally available for taking the crop off the grower's hands." The next show of the Society will be held at Lewes, in Sussex, commencing July 12th, 1852.

THE NEW YORK STATE FAIR is appointed to be held this year at Utica, on the 7th, 8th, 9th, and 10th of September.

NOTICE TO BREEDERS OF STOCK, IMPLEMENT MAKERS, &c.—Parties having choice Animals or manufacturing improved Implements, which they wish to bring under the notice of the public, may have them illustrated and fully described in this journal, by sending us correct sketches of the same, and paying a very moderate charge for engraving.

#### PRIZE FOR STALLION.

TO THE OWNERS OF ENTIRE HORSES.—We are requested state, that the President of the Provincial Agricultural Society, anxious to improve the breed of good horses in this section of the Province, will give at the meeting of the Provincial Fair, to be held in September next, the sum of £30 to the horse, which shall by Judges, to be appointed by the Society for the purpose, be pronounced the best, and which shall answer the following description: Fully 16 hands high, well topped, round in the barrel and deep in the chest, he must have weight in proportion to his size, and be a good traveller—such a horse as would be likely to produce a breed of good carriage horses, in which the country seems deficient. To enable any horse to compete for this prize, he must have stood publicly for mares, in some part of Upper Canada, during the season of 1852. Competition for this prize not to exclude the exhibitor from competing for any of the ordinary prizes of the Society. We hope that our cotemporaries will give the above publicity.

CANADA: PAST, PRESENT, AND FUTURE. Toronto: THOMAS MACLEAR, 45 Yonge Street.—The 7th and 8th parts of this popular and useful work have been received; and their contents fully sustain the very favourable opinion which we have several times expressed of the earlier numbers. In the parts now before us there are two excellently engraved maps; one comprising the Counties of Waterloo, Huron, Perth, and Bruce; and the other those of Hastings, Frontenac, Lennox and Addington. The information contained in this publication is of a kind which no intelligent Canadian can afford to be without, and it is admirably calculated to afford a correct conception

of the present condition and future prospects of this rapidly improving country to people at "Home," who are looking towards new fields for the employment of their capital and labor. Thousands of old countrymen would receive with delight and gratitude the straightforward and unadorned statements contained in this valuable publication. We hope the publisher has made arrangements for bringing it before the British public, and that it will receive the liberal support in the Province, to which it is indisputably entitled.

#### AGRICULTURAL SEEDS.

We call the attention of our readers to the following seeds, just imported from Britain, by Mr. JAMES FLEMING, of this city, *Seedsman, by appointment, to the Agricultural Association of Upper Canada.* His stock of field and garden seeds is extensive, and it has been selected with care and judgment, and the vitality of all seeds is fully tested before being offered for sale. The Swede turnip seed, together with that of the Aberdeen and Golden Yellow, has been imported direct from Aberdeen, where it was grown last season from carefully selected and transplanted roots. Mr. Fleming has also on hand an extensive assortment of flower seeds, green-house plants, garden tools, &c.

Improved purple and Top Swede Turnip.  
 Skirving's do do do  
 Laing's do do do  
 Aberdeen yellow, or Bullock. do  
 White Globe do  
 Golden Yellow (a fine new sort) do  
 Long red and yellow Globe Mangel Wurtzel.  
 White French Sugar Beet.  
 White Belgian Carrot.  
 Long Orange and Surrey do.  
 Spring Rape and Tares.  
 Black Sea and Fyfe Spring Wheat.  
 Red Clover, Timothy and other grasses.  
 Field Peas, several varieties.  
 Also, a fine lot of the true six week Pea, which will produce 60 bushels to the acre, and may be harvested in time to prepare the ground for fall wheat.

RECEIVED.—Communications from Mr. Sotham, N. Y., and Mr. Watt, Woodstock, which shall be attended to in our next. Also the Annual Report of Restigouche Agricultural Society for 1851.

A CONSTANT READER.—Catham.—Your request shall receive early attention.

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