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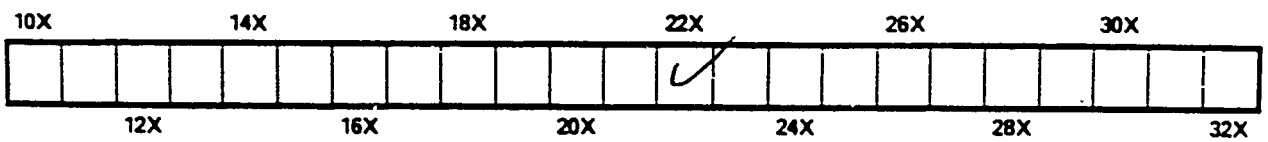

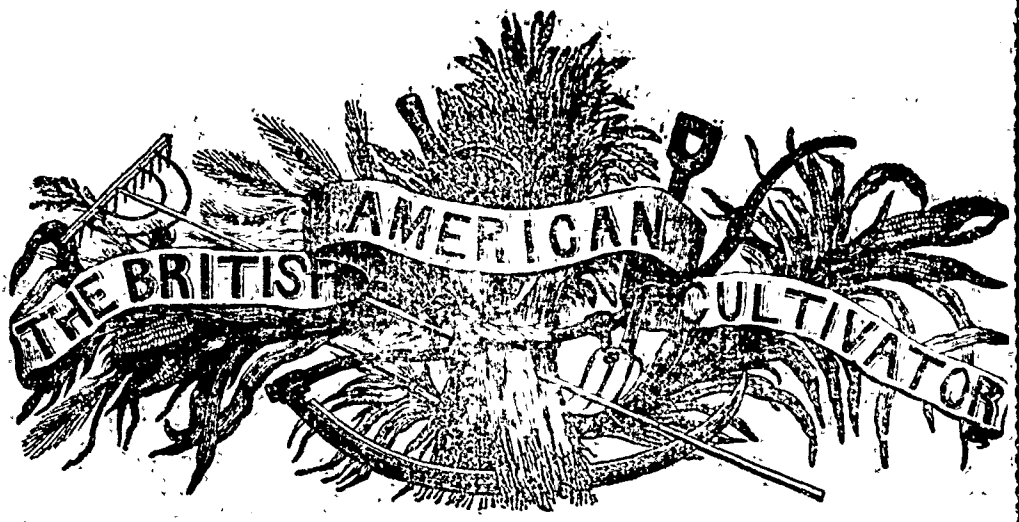

"Agriculture not only gives Riches to a Nation, but the only Riches she can call her own."

New Series. TORONTO, FEBRUARY, 1847. Vol. III. No. 2.

Canadian Agricultural Societies.

As this is the season for frost and snow, probably the readers of the *Cultivator* would prefer, that the editorial articles should not be confined to practical Agricultural topics, but rather to the discussion of such matters as would be calculated to promote a better system of organization among agriculturists; and also, be productive of an union of effort among all classes of our mixed population, in developing the agricultural and manufacturing resources of this fine and naturally highly favoured Province. In following up the subject of Agricultural Societies a little farther than what was done in the leading article in the December number of this Magazine, we shall briefly recapitulate that portion of what was published, that refers to the system of organization, for the benefit of such of our readers as have not read the article alluded to, and shall then show how the inhabitants of the entire country would be benefited, were such a system of organization carried into practice. The three grades of Agricultural Societies, viz: Township, District and Provincial, are to be constituted upon such a basis, that they will be but so many links in one chain; and the proceedings of each should be collected and published in a suitable form, and sold at the lowest possible rate, for the benefit of the entire Canadian population, who are desirous of becoming acquainted with the science and practice of Agriculture. As has been already clearly stated, the Government appropriation to each District, should be equally divided between the District Agricultural Society, and the Township Societies in the District. The Township Societies are to be governed by Directors, chosen by the members of such Societies, and each Township Society should have a share of one-half the Government bounty granted to the District, in proportion to the actual amount of subscriptions raised by them severally. The District Societies should be placed under the government of Directors, chosen by the Township Societies, which body should be called a District Board of Agriculture, and the members of which should be indemnified for the loss of time and travelling expenses incurred, while attending the Agricultural interests of the District. The Provincial Society should be placed under the control of Directors, chosen by the District Boards, which body should be designated the Provincial Board of Agriculture, and should receive a liberal patronage from the Provincial Government. The

members of the Provincial Board should be paid for the services they may render their country. We have not the least hesitation in stating, that the country would be benefited some hundreds of thousands of pounds annually, from the course that would be pursued by the District and Provincial Boards of Agriculture. So strongly are we convinced of this fact, that we shall repeatedly bring the importance of a better system of organization before the attention of the Agricultural classes of Canada, in the hope that persons of influence in various sections of the Province, will very soon see the propriety of uniting their efforts to secure this object.—The most important feature of the system of organization here submitted is, the publication of the transactions of the Township, District and Provincial Societies, which should be executed with much care by the Provincial Board of Agriculture. With a view of illustrating this subject, in a clear and practical manner, we shall give a few cases that came under our notice within the past few months, which would serve as suitable subjects to be included in the reports of Agricultural Societies, which as has already been explained, should be published in the transactions of the Provincial Board, in a cheap and suitable shape for circulation and preservation.

A farmer in the Township of Albion, lately exhibited a sow two years old in this city, which weighed, in pork and lard, six hundred and fifty odd pounds. The same person butchered, in the year 1842, six pigs fourteen months' old, being one litter, which averaged each upwards of 500 lbs. of pork. The pigs were of the improved Yorkshire breed.

A very respectable farmer, of the Society of Friends, residing in the Township of King, in conversing with us on the cultivation of land for wheat stated, that the last ten crops of wheat he has grown on his farm, has in no instance yielded him an average of less than thirty-six bushels per acre, and in one season the average per acre was forty-eight bushels, in another forty-four, and in three others forty bushels, and a fraction over per acre. In the whole of our experience, we have never heard or even read of a statement of this kind. In questioning our friend respecting his system of farming, we learned that it differed only from that practiced by his neighbours, in the unusual depth he ploughed his summer fallows, and in the practice of sowing his wheat, by ploughing the seed furrow wide and open, so that the seed was invariably covered a good depth, and the young plants came up in rows, by which means the air circulated much more freely between the plants than would have been the case had the plants been scattered equally over the whole surface of the ground.

A farmer in the Township of York assured us the other day, that after paying all the expenses of the farm, he realised a profit last year of £650. Another Farmer, near Cobourg, also states, that he cleared a profit of £750. from his farm, during the year 1845.

These are undoubtedly rather extreme cases, but hundreds of them exist in the Province, and we maintain that it would do every man who is prospering in the world, in the business of cultivating old mother earth, no harm to publish to his brother farmers the mode and result of his agricultural operations; and if all who are capable of doing this act of generosity and patriotism, would make it a point to do it, certainly it would have a very salutary influence on the productive interests of the country. Thousands who are now dragging out a bare existence, and who are scarcely able to educate their families, clothe and bring them up in a respectable manner, would take courage from the good example set them by their more successful neighbours, and would by degrees be i[n]duced to make experiments in the system of cultivation which had proved successful in the hands of other farmers. It is pretty certain that farmers will not write themselves, and therefore Agricultural Societies will have to do the work, or else it will not be done at all. We fancy that a very considerable amount of information might be collected by

the Agricultural Societies, and we feel quite certain, that a much greater amount of good would accrue from this source than from the premiums awarded at the exhibitions. Every person who is at all acquainted with these matters, will readily comprehend the utility of the reports we have reference to, but it is rather a difficult matter to point out, how these valuable reports can be collected, in the absence of the improved system of organization, we have recommended for the consideration of the people of this Province. As mere suggestions will neither cost the writer nor the public anything, we shall show how a very successful beginning might be made, in collecting experiments in farming, and other facts that would be of use to the mass of mankind, if published in a suitable shape for general circulation. Every Agricultural Society in the Province, might with much propriety, appoint a special committee for the purpose of publishing either a quarterly, semi-annual, or annual report, in which all the best experiments made in agriculture, in the location, where the society is established, and every other circumstance connected with the productive interests of that part of the country, should be embodied in a report and published. If all the Agricultural Societies of Canada would adopt this course, such institutions would become very popular, and Canada would soon rise in importance, both in the estimation of her own sons and in that of their fellow-subjects in the British Isles.

It is difficult to judge what influence these suggestions may have; we trust, however, that they will at least be the means of causing some of the societies to publish agricultural reports. There can scarcely be any question, but that our best farmers—those that the masses should feel a pride in copying after their experience—would most willingly, if properly solicited, communicate any information they may possess, to the committee appointed for the purpose of collecting and reporting upon the state of agricultural improvement. As this is unquestionably an efficient method of getting up a spirit of emulation, in the cause of agricultural improvement, we trust that it will be acted upon by the various Agricultural Societies in the Province.

The Provincial Advertiser for February, will go to press as soon as the arrival of the next British Steamer, which will contain the latest news, and also, a full account of the price of produce in the British market. This course shall invariably be adopted, so that the Agriculturists throughout the entire Province, shall be in possession of the prospects of the markets, at the earliest possible date. The publishers have determined, that the *Cultivator* shall be mailed in future, on the 10th of each subsequent month.

The Canada Farmer.—This is the title of an Agricultural paper that has lately made its appearance in this city. It is published by Mr. R. Brewer, Book and Stationary Warehouse, King-street. We do not look upon the *Canada Farmer* in the light of an opponent, but rather hail its birth as an ally, and as such we shall ever consider it, so long at least as the editorials are written in the good taste, that is displayed in the number before us. The *Canada Farmer* is issued semi-monthly, on a sheet the size of the *Provincial Advertiser*, and is afforded for seven shillings and six pence per annum, in advance.

Township of York Agricultural Society.

The annual meeting of this Society took place on the 4th instant, and we were delighted to see such a good attendance of members, at which meeting the following gentlemen were elected to office: Franklin Jackes, Esq., President, J. Dow, Secretary, and Jacob Snider, Treasurer. These gentlemen were in office the past year, and the only changes in the Society worthy of note, were the appointment of a committee, to report upon the state of the Agriculture of the Township, either quarterly or semi-annually, as the committee may deem proper; and the renewing of the system formerly practised, of holding meetings once per month, to discuss questions of general interest to Agriculturists. The subject for discussion on the evening of the 26th inst., at Plough Inn Hotel, Hoggs Mills, is "what system of Farm Management, is best adapted to the Township of York." We hope to attend the meeting in question, and shall be delighted to witness a large attendance of the yeomanry of this Township.

Hemp and Flax Culture.

This subject is again resumed in this paper, with a view of urging the farmers of this Province, whose soil is adapted to the growth of these plants, to grow them extensively, and to introduce the most labor saving machinery for preparing the fibre for market, that is used in other countries. Our readers will doubtless recollect, that we published a very elaborate report from David Myerle, Esq., of Missouri, about four years since, in which every branch of the hemp growing business was illustrated in such a clear manner, that the greatest novice in such matters could obtain a pretty correct knowledge of the business, by carefully reading the report, or essay in question. Mr. M. was employed by the United States Government, as agent to instruct the farmers of Missouri, the nature and operations of hemp growing; and at the period he commenced his operations, the article of hemp produced in the Western States was of a very inferior description, so bad indeed that it was only used for the most inferior purposes, and the entire quantity grown in the Mississippi Valley, in the year 1841, amounted to only 4000 tons. In the space of six years, through the instrumentality of Government Agents, the hemp crop of the Western States, has been increased from 4000 *tons to 30,000 tons. About three millions of* Dollars annually, have thus been retained in the country, which would otherwise have gone to Russia. There is now every reason to believe, that the Western States will supply, not only the markets of the United States, with the article of a superior quality of hemp, but that Great Britain will also draw a very large share of her supplies from this quarter. When we look at the trifling amount of business in hemp growing that has been done in Canada, in comparison to what has been done in the Western States, we are disposed to make a bitter complaint at the indifference, that our men of influence evince, in relation to all matters of a public interest, and especially to such as would have a tendency to increase the product and wealth of the country. Canada should supply the British market with some hundreds of thousands of pounds worth annually of hemp and flax, and as we have repeatedly stated, the only reason why this cannot be done, is the fact that it is next to impossible, to get the deep rooted prejudice of our farmers removed.—The best method that we are able to suggest, for stimulating our farmers to engage in the growth of hemp and flax is, for Government to adopt a similar course, to the one pursued by the United States Government. Farmers not only require information, but efficient machinery to prepare the raw material of these plants for market.—Labour here is high, and to counteract the prejudicial influence of high labour, efficient machinery should be employed to lessen the costs of preparing the article for market. A few hundreds of pounds expended by Government, in the purchase of machinery and in premiums, would secure a successful beginning in the hemp and flax growing business. With the trifling sum of one thousand pounds, models of machinery could be imported into the Province,—*and the business under notice could be placed* upon such a footing, that some hundreds of tons would be brought into market the following season. If Government could be induced to encourage this interest, we feel confident that the exports of hemp and flax in a very few years would nearly equal that of wheat, besides a very considerable amount of money could be kept in the country, for the supply which is now required of flax and hempen goods purchased in the British markets. We shall once more do our utmost to persuade the Canadian farmers, to turn their attention to the growth of other crops besides wheat, and among the many that might be grown with much profit, are hemp and flax.—The following extracts are taken from the monthly *Visitor*, which clearly illustrate the improvements that are made in hemp and flax machinery, in the United States:—

Hemp and Flax Rotting and Dressing Machines.—As connected with the growth of hemp and flax in this country, to become probably an *extensive substitute for cotton, and an article for* export, Z. C. Robbins, Esq., Mechanic Engineer and Agent, for procuring patents at the city of *Washington*, has called our attention to the hemp and flax dressing machines, for which through him letters patent have been lately issued. These machines are the invention of Messrs. G. W. Billings and John Harrison of Missouri. They were exhibited at the fair of the New York American Institute in 1835, and received the flattering award of a gold medal.

Their first patent is for a method or process of water-rotting hemp or flax, which they perfectly accomplish in from three to four days, without

njury to the health of the workmen employed in andling it, or to the neighborhood where it is arried on. The complaint of the common mode f water-rotting in Kentucky, has been that the me taken up from fall to spring, in which the emp was immersed, created at the water-courses poisonous quality deleterious to health. The nvention of Messrs. B. and H. rots the hemp n the greatly lessened time: this is principally one by the application of steam to the raw rticle.

Their second patent is for a machine for breaking and scutching hemp and flax, which operates follows:—The hemp or flax is placed upon a solving endless apron, which conducts it between a pair of pressure rollers, (the pressure ing very great): from these it passes between series of fluted rollers, and then it emerges on a series of rotating blades and knives, the ends which are secured in a radical position in circlar heads. Over the rotating knives, and parel with the same, are arranged three vibrating ives, so arranged and combined, that they ke in succession, one after the other, between ch of the rotating knives, thereby giving the mp or flax a thorough scutching while passing m the fluted rollers, by the double action of e rotary and reciprocating movement of scutchg blades.

Their third patent is for a revolving hackle.—is constructed and operates as follows:—The ckle teeth are arranged upon a cylinder in tinuous rows, commencing at the centre and erging spirally to the right and left round the e to the ends of the cylinder. In front of the olging hackle, a nelastic rest is placed at a able distance; the hemp or flax to be operat- upon by the hackle is placed between the re of the rest and the toothed cylinder; the liar arrangement of the hackle teeth causes to open and spread the substance acted gradually to the entire length of the rest; eby insuring a thorough and equal action every part.

the aid of these inventions, hemp or flax be water-rotted, broken, dressed, and baled, erchantable order, ready for market, in the e of a week from the time of its being taken the field.

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tten stone and turpentine, or gin, rubbed ith a clean cloth, gives a fine polish to

Unburnt Brick Houses.

The articles we published in the second and third volumes of the *Cultivator*, on this subject, was published in the report of the Commissioner of Patents, and have subsequently gone the rounds of the American newspapers. We observe by a late number of the *Prairie Farmer*, that this style of houses are highly approved of in Illinois, and are being extensively introduced in the North Western States. The Editor of this paper highly approves of low cottages made of unburnt brick, provided that they are built upon a good stone or burnt brick foundation, and well protected from the rains by projected roof, or verandahs; and he also speaks in very favourable terms of another description of buildings, that is coming into exclusive use in the State of Wisconsin. The materials used in constructing this new style of buildings, are lime and clean gravel. The Editor does not clearly lay down the proportions nor the operation of building, but having lately met with a farmer in Wisconsin who is practically acquainted with the whole operation, we are enabled to furnish our readers with all the facts, necessary to secure success to this mode of constructing walls. The ingredients to be used, are small gravel and lime. The lime and gravel must be mixed in such proportion, that the former will set the latter; to secure this point, about one-seventh of the whole must be lime. A good foundation is first required, and after the material is thoroughly saturated with water and mixed to the consistency of thick morter, it is laid up on the wall in layers of about one foot in thickness each; which is allowed to dry before another layer is laid on the wall, as each layer is laid the edges of the wall is neatly trimmed with a sharp spade, so as the work proceeds the wall is finished. We have not sufficient experience in this description of wall, to warrant us in recommending it to the Canadian public, but from what we have heard spoken in its favour, we can consider it worthy of a further investigation.

An Excellent and Cheap Pudding.—One pint of rice; twelve apples of good size, and sour; pare, core and slice them; mix the rice and sliced apples, and put all into a bag and boil for half an hour. The bag must be large enough to allow the rice to swell, and yet no larger than the rice, when swelled, will fill. Eat with any sauce that suits the taste; butter and sugar are excellent.

Harvesting Machines.

There are at the present time, no less than seven different machines patented in the United States, for cutting wheat and other grain by horse-power, all of which are highly spoken of by the American press. The only two that comes within the reach of the Canadian farmer's purse, or indeed that would be adapted to the circumstances of this country, are Hussey's and McCormick's Reapers.—These cost about £25 each, and will reap in a most perfect manner from ten to fifteen acres per day. They are both in the country, and were employed in the Newcastle and Home Districts the past harvest. We shall have them on sale at the Provincial Agricultural Warehouse, and shall invariably warrant any machine of this kind we may dispose of, to reap not less than ten acres of heavy grain in a day of ten hours, with the aid of a man and boy and span of horses, and also to be not more liable than other machinery to get out of repair. The following notices of those machines are taken from the *Prairie Farmer* :—

Hussey's Reaper.—This machine has been long in use, and pretty well known. It will cut, of wheat, yielding 20 bushels per acre, if snugly driven, with the same pair of horses, from 12 to 15 acres per day. It requires—to do good business—to be driven with as high a rate of speed as can well be reached without a trot; and being pretty highly geared is somewhat liable to get out of order. It will however cut wet or green wheat, and will do a tolerable business in the way of mowing. The raking off is a hard piece of work; though a stout man will follow it all day. A great disadvantage attending this implement is the fact that the wheat is raked off into its own path, and must be bound as fast as the instrument proceeds, requiring from five to seven men in attendance, who must all stop work or be stopped with it.

McCormick's Reaper.—A large number of these have been in use among us this past season, and we believe they have given a good degree of satisfaction. The cutting apparatus is a straight sickle edge; which possesses some advantages over that adopted by the one just named, while at the same time it is liable to some other disadvantage. It goes easier while at work, and of course requires less power; but it will not cut grass, nor very damp or green grain, and must as a consequence be used on straw well dried and ripened. The raking is an enormously hard process, and will test the energies of a stout man; and when done, the grain is left in an uneven condition for binding. It is, however, out of the way of the machine, and may be taken care of at leisure. The implement is simple and not easily put out of order, and will cut, with one pair of horses, from 10 to 18 acres per day. We believe it comes fully up to the warrant of the patentee; which does not, however, include perfection in all the details—a fact which leaves room for some harmless suspicion on the part of those purchasers who think they have secured an implement without defect.

Hemp Imported into Great Britain.

It appears by a late report of the Liverpool Board of Trade, that the quantity of hemp imported into Great Britain, in the year 1845, 931,850 cwt. The average value of the article is £30 sterling per ton, which would make a grand total £1,397,775 sterling. An acre of deep rich soil will average 800 lbs. of clean hemp, and it would be quite safe to calculate upon a ton from three acres of land adapted to this crop. Land for hemp requires to be very rich, and if it be harvested before any of the seeds are formed, there is no danger of the ground being covered with the hemp plants, among the crops that are grown after hemp. Instead of summer fallowing land that is naturally too rich in vegetable mould, it would be found a profitable system of farming, to manure such land liberally, and after cultivating it well to sow it with hemp, at the rate of two bushels per acre. As soon as the hemp is removed off the ground, one deep ploughing will be quite sufficient for a crop of wheat. Forty bushels of wheat to an acre has frequently been grown after hemp, by this style of farming. About the first of February hemp should be spread out on the snow, and by the first of April, it will be in good order for getting out. An ordinary hand will get out and prepare for market, one hundred pounds of hemp in a day, and by employing

the most improved machinery, nearly double that quantity of work may be done by each man employed on the machine per day.—This subject is one that deserves the greatest possible degree of attention at the hands of every proprietor of farms in the Province, and it is one also, that should be encouraged by every Agricultural Society in the Province.

The benefits of encouraging Agricultural Improvement.

Not many years ago the State of Maine was entirely dependant on other countries for a supply of breadstuffs. The loss from this source became so alarming to the commonwealth, that its legislature imposed a tax on every description of rateable property, for the purpose of raising funds to encourage the growth of breadstuffs. A premium, or bounty of six cents per bushel was offered by the State Government for every bushel that could be grown in the State. This liberal bounty encouraged the farmers to grow wheat, and in less than eight years, upwards of 800,000 bushels of wheat were grown in that northern region in a single season; and we understand that the law has been finally repealed, because the country can now supply itself with the staff of life, without the aid of legislative enactments. By the subjoined extract, it will be seen that very liberal encouragement is held out to the cultivators of the soil in the Island of Cuba.

If premiums be given at all, they should be liberal, especially when they are intended to encourage the importation of Improved Stock, &c. &c. Upon the strength of the Provincial Agricultural Society's premium of £10 for the best Stallion, Mr. Nathaniel Davis, of the neighborhood of this city, lately purchased the celebrated horse *Alfred*, who on three occasions was exhibited at the exhibitions of the New York State Society, and in every instance, he and his stock took the first premiums. This horse has been imported by Mr. Davis, with a view of getting the first prize at the next Provincial Exhibition, which he will stand a very good chance of doing, unless some one imports a better animal.—If £25 be awarded instead of £10, the result would be that a great number of choice importations would be made, and from which the country would receive much benefit. The argument applies with equal force to every description of articles, and in our opinion money is wisely laid out in this way, if it only influence men of property to import choice articles from other countries:—

"One thousand dollars to the person who, during the month of December, 1845, shall soonest prepare and put into the most perfect state of tillage, one cabelleria of land, with the improved American plow, worked by mules and managed by whites. One thousand dollars to the person who shall, on the first December, 1846, show two cabellerias of land well stocked with red clover of six months' growth Twenty thousand dollars, in annual instalments of £2,000, to the first person who, during the year 1845, 46, and 47, shall set up or establish a sugar estate or plantation, in which the cultivation of the cane shall be performed by thirty white families, consisting of a married couple each at least. One thousand dollars for the introduction of the bean used in the sugar estates of New Orleans, as an article of food. Four thousand dollars to the person who shall show, on the first of December, 1848, an artificial plantation of trees of three years' growth. Six thousand dollars to the person who shall introduce from the East Indies, 200 thriving and luxuriant stocks of sugar cane, &c. Twelve thousand dollars in annual instalments of $2000 to the person or persons who shall set up, during the years 1815 and 1816, a permanent establishment for the improvement of the breed of horses—four stallions, viz. one of each of the following breeds to be kept for public service, at prices to be fixed by the owner; one Andalusian; one Arab; one Norman; and one English; and to be of the genuine breed, of good form, size, &c. Six thousand dollars, in annual instalments of $1000 to the person who shall import from England one bull and six cows of the finest and most reputed breed of that country. Two thousand dollars to the person who, on the first of December, 1846, shall show a herd of the largest sized swine, introduced from the United States of America or any other country. One thousand *hard* dollars to the person who shall, on the first December, 1846, present or produce a breed of the largest domestic or barn-door fowls (gallinas) hatched or born on the Island, of a breed introduced from the United States of America, or any other country."

Profits of Farming in the Western States.

Many are led to suppose, that agricultural pursuits are much more profitably carried on in the Western States, than in Canada; but from the best data we have at our command, we are inclined to the opinion that the farmers in this Province, have no good reason to envy the position of the agriculturists of the Western States, or indeed of any other part of the Union. One thing appears to us certain, that in point of natural advantages, Western Canada especially, will favourably compare, with any other section of America of equal extent of territory; and if evidence be required to prove that capital can be more profitably employed here than in the West, the best and most conclusive that can be given, is the testimony of the hundreds, who have migrated from this country to Illinois and Wisconsin, during the past few years. The great majority who left this country for the West, during the past eight or ten years, are not worth as much property at this period, as they were when they first settled in the West, while those who remained upon their farms, and quietly attended to their business, have more than doubled the value of their property in Canada, within that period. We are quite aware that the profits from farming in Canada is not very great, where a farmer is obliged to employ much hired assistance, but we know of no part of America where in proportion to the amount of capital, labour, and skill expended in the cultivation of the soil, a larger proportion of the products will be profits, or a larger net dividend may be realised from investments in land, than in this Province. It is difficult indeed to conjecture what the profits on farming may be under the operations of free trade, but it is pretty clear, that the Canadian farmers cannot possibly be in a worse condition than are the farmers of the United States. We shall at an early period, go more fully into the details of this matter, with a view of proving the position assumed in the foregoing remarks, but in the mean time shall lay before our readers, an extract from a letter written by Mr. Hiram, Kennecott, dated December 1846, for the *Prairie Farmer*, in which he has pointed out in a very concise manner the profits, that can be realised from farming in Illinois, as well as what the soil of that country is capable of producing:—

"And here I would be understood as placing the whole of northern Illinois and southern Wisconsin in the same category, as regards soil, climate and the facility of producing wheat generally. I am aware that it is the general impression, that the country west of Fox River, is better adapted to raising wheat than my own neighbourhood; and such, to some extent, is my own opinion. But taking into consideration their distance from market, and the fact that although their crop is not so liable to be injured by the rust, it is still more liable than with me, to be injured by winter killing, I therefore hold that we are are all on the same footing. I further hold, that an average yield of wheat throughout all this region, in favorable seasons, is about 25 bushels to the acre. I have grown as high as 45 bushels per acre, on a small piece of three or four acres, and under favorable circumstances; but have more frequently not got over 18 or 20. In fixing this average, I take into consideration the different modes of preparing the ground for the crop, from sod wheat to wheat after summer-fallowing. Further, that as a general rule not more than 100 acres out of 160, is susceptible of producing good wheat; that the balance throughout all this region, is for the present to a great extent waste land, and pays but little if anything. That its average minimum value is, what it is fixed at by law in regulating our taxes, $3 per acre, The interest, then, for the use of 100 acres must be computed upon the assessed value of 100 acres, at $3 per acre; and including wear and tear of fences, at a rate of not less than 12 per centum per annum.

"We have next to add to the cost, or deduct from the profits 33⅓ per cent, to cover losses from blight, winter-killing, insects, &c. For it is a fact well known to all in this region, that we cannot count upon more than two crops out of the three put into the ground. For although there may be and are exceptions to this rule, still as a general thing the loss from an entire or partial failure, will come up to our estimate.

"Now I shall probably differ from many further as much in my estimate of the value of the crop upon the farm, as in my estimate of the risk attending the business: Which I place—taking one year with another and our chances of obtaining the best price the market affords—at 50 cents per bushel. I certainly have never seen the time that my crop would not command this price at some one season of the year, and that too at my own door.

"Next, the cost of preparing ground for seeding, where the farmer does his own breaking and ploughing—allowing him a reasonable compensation for the use of his team and for his own labour—will vary from 75 cent to $1 50c. (You will see by referring to my article upon prairie breaking in your May No, that I estimate the cost of breaking at a less figure than is usual—say at less than $1.12½c.) Further, that the cost of harvesting will vary from $1 to $1.25c. In $1. West of Fox River the price is usually $1 25c. It is true that by the use of machines large fields can be harvested at a less figure; but such cases will long remain exceptions. Now all these things premised, which appeared to me

explanation or comment, we find the cost of growing a bushel of wheat about as follows:—

Interest at 12 per cent. on value of 160 acres, - - - - - - - - -	48
Ploughing, per acre, - - - - - - - -	1,12½
1½ bushels seed, at 50 cents per bushel, -	75
Sowing and harrowing in wheat, per acre,	50
Harvesting, per acre, - - - - - - -	1,12½
Threshing, if done in the field, (I make no estimate for stacking, as you will save this expense in the price of labor by deferring your threshing until after harvest,) at 8 cents per bushel, - -	2,00
Risk, or 33 per cent. upon $12,50c, value of 25 bushels, - - - - - - - -	4,16
Whole cost per acre,	$10,14
Cost per bushel, 40c ; profit per acre,	$2,50

"Now, if any are inclined to question my estimates, let them remember that I give the rule, not the exceptions ; and that, too, after an experience and observation of the facilities of growing wheat in this region, of 14 years. I am aware that there are frequent instances where individuals have realized larger profits. But as a proof of my correctness. I will here state, that I cleared in 1845, $800, from a field of 80 acres. But I wish I had stopped there ; for last season I lost more than one-third of that sum, in losing (not counting grain), near 70 acres which was not worth harvesting. Some may say you are mistaken in your estimate; *for it costs nothing* to prepare the ground where wheat is sown after or with corn All nonsense. No one raises corn, or rather no one should raise corn, on a large scale, in this region, for the profit of the crop alone. My principal object in growing it, is for the express purpose of preparing the ground for wheat, and to afford my land the best rotation I am acquainted with.

"Again, should any one say to himself, He don't mean me, for I have raised on my farm good crops for three, four, and five years in succession. Yes, friend, I *do* mean you ; for if such be the case, your land by this time must need renovating; and you will remember that I have made no special estimate of this expense, as well as some others that the farmers is liable to incur —having in my own mind included it all in the 33½ per cent. loss, or risk.

"In conclusion, you will perceive, Messrs. Editors, that freeing the business from all adventitious or speculative notions, there still remains a reasonable and living *profit to reward us for our* care and labor in this species of husbandry.

"In hazarding these remarks in relation to wheat culture in this section generally, the old and experienced wheat grower must neithet accuse me of temerity or common-place, if I offer him nothing that is new, or of interest. I write for the benefit of the hundreds—aye, thousands, *new beginners*, that are every year pouring into the country."

The Turbine.—We learn from a recent number of an English paper, that a French machine has recently been introduced into use, which operates as a powerful water engine, and denominated the *Turbine.* It consists of a horizontal wheel, furnished with curved float boards, on which the water presses from a cylinder, whicd is suspended over the wheel, and the base of which is divided by curved partitions, that the water may be directed in issuing, so as to produce on the corresponding float boards of the wheel its greatest effect. The construction of the machine is simple ; its parts not liable to get out of order ; and, as the action of the water is by pressure, the force is under the most favorable circumstances for being utilized. The effective power appears to equal that of the overshot wheel, but accompanied by some conditions which renders it peculiarly valuable. In a water wheel you cannot have great economy of power without a very slow motion ; but in the turbine, the greatest economy is accompanied by a rapid motion. If a turbine be working with a power of ten horses, and its supply of water be suddenly doubled, it becomes twenty horse power ; if the supply be reduced to one half, it still works five horse power ; whilst such sudden and extreme changes would altogether disarrange water wheels, which can be constructed for the minimum, and allow the overplus to go to waste. By the employment of a close pipe, water is now brought from a distance to several French factories, and there delivered with full force due to the altitude of its source on the turbine. *N. Y. Far. & Mech.*

Lost Appetite.—Horses lose their appetite from various causes, viz: Excessive fatigue, want of a change in food, dirty fodder, mouldy corn, or a dirty manger, &c. but most frequently by the approach of some disease. So soon as you discover a horse has lost his appetite, observe the following treatment:

Take from the neck vein half a gallon of blood. Take of asafœtida, a quarter of an ounce ; salt, one table spoonful; sassafras tea, one quart ; mix and give them as a drench.

On the second day, take of glauber salts, one pound warm water, one quart ; after dissolving the salts, give it as a drench and in two or three days the appetite will be restored, unless the animal is labouring under some disease, which may be ascertained by the symptoms.—*Mason's Farri.*

Cultivation of Canadian Sumac.

The indigenous sumac of Canada, might be made a very profitable article of culture, for the purpose of dying and tanning. The description of leather that is tanned with the bark, boughs, and berries, of this highly ornamental shrub, is very much used of late years, and the entire stock is imported from the United States and England. Probably one establishment might manufacture all the white leather that would be required, to supply the whole Canadian market, but it does not follow from this circumstance, that the business should be altogether neglected. Sumac might be grown as an article for exportation, and would doubtless make a profitable return for the capital invested in its cultivation. The best course that could be adopted to obtain a full crop of this shrub, would be to thoroughly cultivate a piece of old sward land, and sow the seed early in the spring; either broad cast or in drills. The plants should come up so closely together, that they could not grow a greater height than ten feet, and not exceed one inch in diameter at the base. The leaf is the most valuable portion of the plant, and is that which is so highly prised as an article of commerce.—The crop is cut and cured something after the style employed in a grain crop, and the leaves are thrashed off with flails, and separated from the stalks with a rake. Although the cultivation of the Sumac may not be an object of primary importance, still it is a subject worthy of consideration, and should be put to the test by some of our Canadian gentlemen farmers — who are desirous of advancing the prosperity of this naturally fine Province.

Pitt's Grain Grinders.

This machine, of which the accompanied drawing is a correct representation, is driven by the power of two horses, to a speed of five hundred revolutions in a minute. It will grind, in a most perfect manner, from fifteen to twenty bushels of oats, pease, barley, or other course grains in an hour. The blades, or cutting principle of the machine, may be taken out and ground with a very trifling trouble, and can be set to grind course or fine, to suit the taste of the owner.—Persons having saw mills, or who employ water power for any of the other purposes, for which power is used in the Province, would find that a profitable business could be done, in grinding course grains for their neighbours with this mill. On sale at the Provincial Agricultural Warehouse, Toronto. Price £10 each, payment on delivery.

Stump Extracting Machines.

There are a great variety of machines scattered through the country for pulling stumps, most of which are very expensive, and are more or less liable to get out of repair. The most expensive kind that we have any knowledge of costs £150. We have machines on sale at our Warehouse, that only cost £17 10s., that will pull as many stumps in a given time, and of the largest size, as any other machine that has yet been invented. The profit we make on these machines, precludes any abatement upon the above terms, and the cash must invariably be paid on delivery. As a proof of their value we would state, that one of those machines pulled last autumn, with the aid of two men and a horse, the pine stumps standing on forty acres of ground, in the short period of five weeks. The land in question was considered very stumpy, and many of the stumps were of the very largest size.

Murrain in Cattle.

A subscriber called at our office a few days since, who stated, that he had lately lost ten head of cattle, worth at least £60, through this disease, and it almost invariably proved fatal to stock that was attacked with it in his neighbourhood. He also stated, that he would give any man £5, who would furnish him with a certain remedy. This paper has been established for the sole purpose of supplying Agriculturists with information of every description that would be of use to them in their honourable pursuit, and we shall at all times be most happy, in answering any inquiry that may be put to us, on any subject that we may be familiar with.

Bleeding and physic, have in thousands of instances been found to be an effectual antidote for this complaint. The animal should be bled copiously in the neck, and either a pound of salts, or common salt mixed with a half an ounce of nitre, given to a full grown cow or ox, will effect a cure in nine cases out of ten. Animals attacked with Murrain, should be housed in comfortable quarters, and they should not only be treated as above described, but should have some warm gruel given them every few hours.

We select the following from the Ohio *Cultivator*, which doubtless is worthy of a trial by those whose stock of horned cattle are attacked with this very frequently fatal disease :—

Cure of Murrain in Cattle—*Mr. Bateham.*—The bloody murrain is a disease that so frequently prevails, with fatal results, among cattle in this part of Ohio, that I have thought proper to detail a course of successful treatment, practised recently on a favourite ox. I will premise that the characteristics of murrain in this case, were as clearly developed as any I ever saw in my experience of thirty-eight years in this region of country, where this destructive malady has always been a severe scourge to dealers in cattle.

On the morning of the 5th of December ult., one of my oxen was lying down, and when my son went to feed the cattle, he reported to me that he thought the ox was not well. I immediately went to him and found him disinclined to get up or walk, and he would not eat, and driving him about I soon heard him grunt; his nose was dry, with twitching in his neck and flanks. We immediately procured one pound of glauber salts, dissolved and mixed with about a half gill of spirits turpentine, and drenched him with it; we then put him into a field adjoining, and in sight of where we were at work, and occasionally I went myself to examine and drive him about the field, but he evidently grew worse through the day. About sun down we drove the ox into the yard, and (as his physic had not operated) gave him another pound of salts with turpentine in the morning. The blood by this time flowed freely in his urine, and he was so feeble that we all thought he would die before morning, so we drove him off near half a mile to save the trouble of hauling off his carcass. On the next morning, to our astonishment, the ox appeared better; his physic was operating and he appeared free from pain, and would eat a little. We drove him to the yard again, and at ten o'clock drenched with half a pound of alum to stop the blood. His appetite increased, but the blood continued to flow, until twelve o'clock the following day, (the 7th) when we drenched with a strong decoction of soot, in which was dissolved a half pint of table salt; we then gave no more medicine, but kept the ox in the yard where we could see him at any time. On the 8th the ox appeared to have a good appetite; his bowels were regular, the blood had stopped flowing, he chewed his cud and looked bright about the eyes. On the 9th, the ox appeared perfectly free from disease, and was turned out with the other cattle.

D. Gregory.

Berkshire, Del., Co. O., Dec 15th, 1846.

A Pickle for One Hundred Pounds of Beef.—(*From the book of the distinguished Richard Stockton, New Jersey*).—First, put your beef for 10 hours in water, to drain out the blood; then hang it up 34 hours to dry. Dissolve in 6 gallons of warm water, coarse salt, so as to make the brine bear an egg; add three-fourth of a pound of saltpetre, 2 quarts of molasses, 3 ounces of cayenne peper, 1 ounce of pearlash, dissolved in warm water; boil and skim off all the impurities, then put in the beef in this pickle, and in four or five days it will be fit for use, and continue so until April—after which boil over the liquor; skim it after you have added some more salt, sugar, &c.

Farmers' Clubs and Libraries.

It is with a great degree of satisfaction, we are enabled to present to our readers the following spirited communication, on the above subject. As was stated on a former occasion, the rapid advance in Agricultural improvement in England, must be very much attributed to the Agricultural Clubs, in successful operation in that country. There is no good reason why the farmer's sons of Canada—should not combine their energies through the medium pointed out, in order that they may materially assist each other in obtaining a knowledge of the principles which regulate their important profession. We would gladly see Farmer's Clubs and Libraries established in every township in Canada, and every influence that we can bring to bear, to effect this object, shall be most industriously employed:—

LINDEN COTTAGE, CAMBORO',
January 1st, 1847.

DEAR SIR,—You have at various times in the previous volumes of the *Cultivator*, urged the necessity of contributions from the pens of practical men on agricultural matters, and although I cannot boast of much practical experience in farming affairs, I will venture a few hints on a subject, which will, I hope, prove as interesting to others as it is to me.

It is but a year or so, since I left the counter for the plough, and during that time I have been much surprised at the apathy displayed by the young men of Canada, towards that which ought to be the grand object of all true Canadians—agricultural improvement. It may appear somewhat presumptuous in me—a mere novice in rural occupation—to attempt a correction of this error, but knowing that it exists amongst the greater portion of our young men, and that none are willing, through a mistaken bashfulness, to step forward and "break the ice." I will offer some suggestions, which, though brief, will if acted upon, materially assist to raise "Young Canada" from its present disgraceful position. There is scarcely a township in the Province, which cannot boast of a Debating Society, where our young men meet each other, with grave faces and logical looks, and with much deliberative wisdom determine the knotty question, as to whether the ox or the horse is the more useful animal? or which possesses most utility, fire or water? Now, Mr. Editor, I have not the least desire to ridicule these Debating societies, but I cannot refrain from noticing the paucity of the subjects introduced at these meetings, and the little improvement likely to be derived from a discussion of such trivial matters. An important reformation in this one particular, would do much towards creating a desire for a better knowledge of systematic and improved cultivation. Let these Debating Societies be converted into Young Farmer's Clubs—at the usual period of meeting, let some one of the members read aloud an article, or articles selected from an Agricultural work or Periodical. (The *Cultivator* has, I presume, subscribers in every township)—let such members as may be willing, deliver their opinions on the article read—and the great change that will be perceived where this alteration may be effected will amply repay those who may exert themselves to bring it about. With each "Young Farmers' Club," I would connect a Young Farmers' Library—supported by some small annual subscription (say 5s.) and composed of the most practical agricultural and mechanical works of the day—the first selection to consist of these treating most plainly on the leading features of every-day farming. This library must be governed by the usual officers, kept in the building chosen for the discussions of the club, and the books circulated at the periodical meetings of the members; and as a further stimulus for exertion and improvement, I would propose that an annual premium be awarded for the best essay, written by any member, on some subject bearing on agricultural improvement, to be decided at a meeting for the purpose, the premium to be a good, standard, agricultural work.

That this plan may be brought into operation in every township, I have not the least doubt, could a few energetic young men be found to co-operate, and I am convinced that when once such a movement is made, Canada will assume a new aspect, and that those who may assist in directing the step of "Young Canada" on the right path, will be looked upon by the next generation, as the true patriots and great benefactors of their country.

Hoping that ere the present winter closes, every township Debating Society will be converted into a Young Farmers' Club, and have in connection a Young Farmers' Library.

I remain, yours &c.,
C. CLARKE.

Important Invention for Preparing Hemp and Flax.—Mr. Fleischman, connected formerly with the patent office at Washington, who has re

cently travelled in Europe, has exhibited and placed in the hands of the editor of the *Visitor*, specimens of the product of flax prepared by a chemical process. The inventor is a Frenchman: for the right of using it in his dominions, the King of Hanover paid the inventor 30,000 guineas, nearly equal to $100,000. The article as exhibited to us, both in its complexion and texture, was very superior to the same article prepared in the usual method of water-rotting.—Mr. F. represents the chemical method as very simple, easy and cheap; and the saying in wastage is full thirty per cent. May not this process be of the same nature as that which enables the manufacturers of Dundee in Scotland, to bring into use in the linen manufacture the American hemp?

Alderney Cows.

In reading the various articles in the Agriculturist, on the different breeds of cattle, I have thought that the little that has been said about Alderney cows was not so complimentary to that breed as they deserve. I send you, therefore, a few short notes taken when I was in the Island of Jersey, on the coast of Normandy, where the dairy is principally attended to, as well as in Alderney and Guernsey.

Some gentlemen have not thought the Alderney cow handsome; but in truth, she is the *handsomest of cows for the dairy*, although she may not fill the eye like a thorough-bred Durham, in *good condition, so much esteemed by every experienced dairy-man*; yet there are thousands of families who want one or two cows, rich in milk and butter, mild, gentle, and intelligent, on excellent terms with the milk-maid, and the Alderney, of all others is *the cow*. She is well adapted for the lady of a snug rural mansion, and all dairymen would find it to their interest to keep two pure Alderneys to every twelve cows, the advantages of which are well understood in some parts of Scotland, and perhaps a dairy of twenty well-chosen animals of this breed would compete with any twenty cows in the United States, when butter of superior quality fetches a good price. In short, the finest specimen of an Alderney is a true emblem of a milch cow, and any person keeping this breed merely for the dairy, who once gets one, feeds and treats her properly, will never be without one.

A good Alderney cow in Jersey, is expected to yield 7 lbs. of butter a week, and many have been known to produce double that quantity for a short period. Some give from 16 to 18 quarts of milk per day, during the months of May and June; and I was told of numerous instances of cows which yielded from 10 to 14 lbs. of butter each, in a week. Major Barns, the Governor informed me that he had a cow which gave 25 quarts of milk a day; but ordinary cows did not average more than 10 quarts a day, yielding 7 lbs. of butter, each, in a week. It was stated, that, in summer, 9 or 10 quarts of milk would produce a pound of butter, and, in winter, when the cows are parsnip-fed, the same quantity of butter may be obtained from 7 quarts. The general average yield of each cow, old and young, is rather more than 365 lbs. of butter in a year, or about 8 quarts of milk per day. (*a*)

The cows there, are universally tethered, and are moved, watered, and milked, three times a day. They are fed principally on lucern, or clover, but the quality of their butter is never considered *so good*, when thus *fed*, as when they range on a natural pasture.

The milk, when strained, stands at about 10 inches deep in the vessel, till the cream has all risen, which usually occupies three days in summer; and in winter, in order to hasten its rising, the vessels are covered, and placed on the hearth at bed-time. Consequently, skimming is never performed but once, and then not before the milk has become coagulated or turned sour. In the operation of skimming, the cream is first detached from the edge of the vessel all round, and then is raised up together, as much as possible, and by inclining the whole mass over the vessel intended to receive the cream, the latter will sometimes slip off at once from the coagulated milk. At the bottom of the vessel there is a small hole stopped with a peg, which is occasionally withdrawn, in order to drain off the serous or watery portion of the milk, and thereby separate it from the cream.

Missouri, Oct. 19th, 1846.—Am. Ag.

To make the Best Sticking Plaster.—To one pound of resin, melted, and while on the fire, add one wine-glassful of bole Armoniac, rubbed fine, one ditto Venice turpentine, and a lump of sheep's suet, the size of a walnut (without the hull); stir well, when thoroughly heated and mixed, pour into an open-mouthed jar, and stir till cold.

The Preservation of Roofs.

A writer in the *Boston Cultivator*, referring to wooden roofs and their rapid decay, gives the following cheap and singular method of preserving them for many years. He observes—"A friend of mine, who unites much close observation with large experience in building, states that the best preservation of shingles that has come within his knowledge, is to soak them in an alkaline solution of quick lime before they are put on.—The plan adopted by him for the purpose, is to prepare a box in which to dissolve the lime, similar to that used by plasterers, and have it elevated, so as to permit the lime water to be drawn from it, into another box in which the shingles are to be placed that are intended to be impregnated with the alkaline solution. A sufficient quantity of quick lime is put in the upper box, which is slacked and reduced to a thin wash, and well stirred up, when it is permitted to settle.

"The shingles are set on end, with their butts down, in the lower box, which is sufficiently deep to permit the parts which will be exposed to the weather when they are put on in courses, to become soaked, by drawing down the alkaline lime water from the upper box into the one below in which they are placed. They should remain in this solution for some hours, when they are removed and suffered to dry, and others substituted in the box, to undergo the same operation before they are nailed on the lath.

"No part of white wash or lime should be permitted to pass into the lower box; it being the caustic alkaline solution of the lime only, which is beneficial; it is a powerful antiseptic, interposing powerful obstacles to the decay of wood or vegetable matter of any kind. The presence of the insoluble particles of the lime would tend to prevent the entrance of the transparent solution.

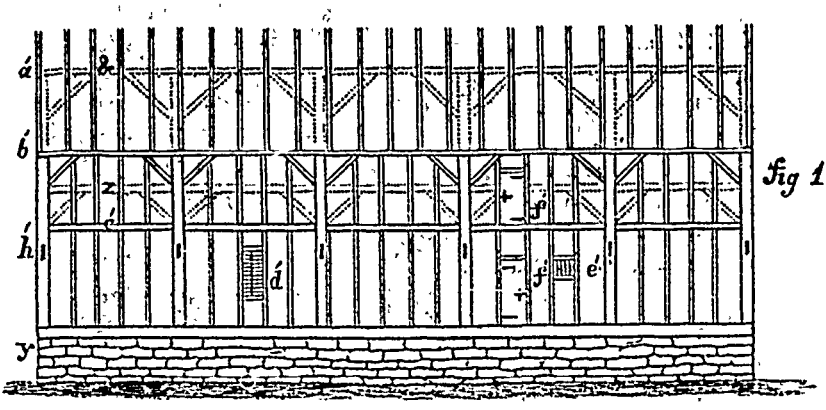
"The tendency of white wash to preserve wood from rotting, is universally acknowledged, but it should be borne in mind, that it is the alkaline solution of the lime only which has this tendency, and that the gross, insoluble principles of the lime which remain for a time in the form of a scale on the surface to which it has been applied, has nothing to do with its antiseptic powers, and that where the design of its application is to preserve the wood only, it would better accomplish the object by being much more diluted than it generally is, so that the alkaline quality would be more thoroughly absorbed than is usually the case. It is a very curious and interesting fact, that water at the freezing point dissolves twice as much of the alkaline ingredient of lime as boiling water does, so that the use of hot water to dissolve lime is worse than useless."

To take Spots from Leather Gloves.—Suspend them in a jar over the strongest liquid ammonia (hartshorn). The fumes alone will remove the spots; be very careful not to let the liquid touch the gloves, or it will leave a mark even more unsightly than the spot it has removed.

F. G. Willson's Improved Barn.

We take great pleasure in presenting to the subscribers of the *Cultivator* the accompanied plan of a Barn, and communication, from the pen of Mr. Francis G. Willson, Saltfleet, Gore District. The specifications, costs, and utility of the Barn are so clearly laid down, that it is unecessary for us to add a single word in its favor; we would, however, be guilty of an act of uncourtesy if we were to neglect to thank Mr. Willson for this gratuitous specimen of patriotism. Mr. W., like the conductor of this paper, is a descendant of one of the oldest Canadian families in Western Canada, and he doubtless feels a warm desire to see his native country advance in substantial improvements, in as great, if not a greater degree than does the neighbouring Republic. The Editor of the *Cultivator* would rejoice to see the young men of Canada employ their pens, in pushing forward the car of improvement, as has been done by the writer of this communication. There are hundreds of young men in Canada who are abundantly able to communicate their thoughts and experience on paper, which, if communicated to the world through such magazines as the *Cultivator*, would have a beneficial influence on the productive interests of the Province. It is quite too bad, that such a large proportion of the matter in the *Cultivator*, should be taken from similar works published in other countries, when there is such a large amount of valuable knowledge on every subject discussed in its columns, in the possession of Canadian farmers, who are so indifferent to their country's welfare, that instead of allowing their light to shine, they put it under a bushel.

F. G. WILLSON'S IMPROVED BARN.



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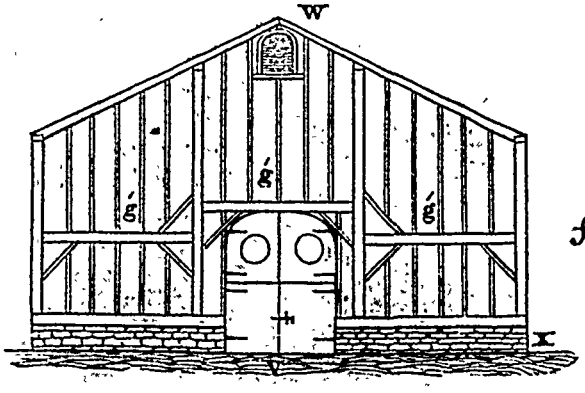

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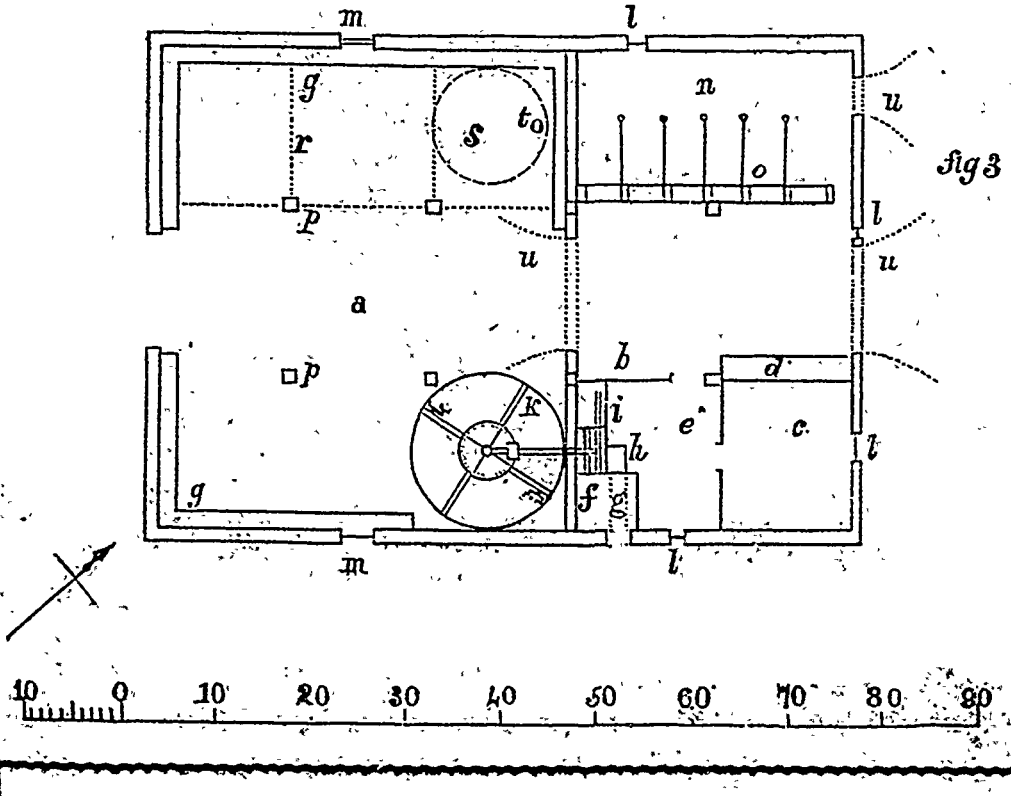

fig 3

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To the Editor of the B. A. Cultivator.

Sir,—I send you a plan and elevations of a barn, which I built in June, 1845, of a new and excellent construction, and well adapted to the circumstances and climate of Canada. As I have carefully studied "*Loudon's Encyclopædia of Cottage, Farm, and Villa Architecture,*" and other works on the subject, I know of no plan more simple, economical and effective, and differs materially from anything of the kind treated of in that work.

The construction of the frame is shown in the elevation, figures 1 and 2; figure 3 represents the ground plan, in which are seen a large close shed for cattle, *a*, driving floor, *b*, granary, *c*, oats bin with a lockup lid, *d*, cleaning-room, *e*, chaff-room, *f*, with a chaff-slide, *g*, fanning mill, *h*, sparwheel, pinion and driver, *i*, horse-course, levers and wheel, *k*, small glass windows, *l, l, l, l*, windows filled in with rolling blinds or lufferboards, with slots three inches wide for light and ventilation, and may be closed tight, *m, m*, stable for seven horses, *n*, five single and one double stall, with manger and oats-boxes, *o*, two rows of inside posts that support the purlins and mow beams, *p, p*, cattle mangers, *q, q*, dotted lines represent bars that run from post to post, to divide off cattle, *r*, cistern to contain 200 barrels, *s*, with pump, *t*, earth bridges to the floor, *u, u, u, ;* in figure 2, are four doors opening into the shed end of the barn, twelve feet wide and eleven feet high from top of the sill, the two upper ones are pierced with two bulls' eyes, to let in light and air to the cattle, *v*, rolling blinds for ventilating mows, *w*, stone wall laid in lime and sand, *x* and *y*, in figure 1, inside girts and braces framed into purlin posts, shown by dotted lines, at *z*, dotted lines at, &c, show the purlin plates and braces, twenty-six pairs of rafters are shown at *a'*, outside plate, upon which the foot of the rafters rests, *b'*, outside girts, *c'*, window to the cattle shed, with lufferboards, *d'*, glass windows to the cleaning-room, *e'*, doors to the chaff room and feeding board of the machine, *f' f'* it will be seen that the mows are contained over the three beams, *g' g' g'* in figure 2, the tenons of the lower beams come through the posts at *h*, figure 1.

Construction.—The foundation is of stone, eighteen inches thick, and two feet high above ground, and laid in lime and sand, and the sills are bedded in mortar. Size of the timber; the sills, posts, and beams are 12 × 12 inches; plates, 8 × 10 inches; girts, 8 × 6 inches; sleepers, 10 × 10 inches; studs and braces 4 × 5 inches, rafters 7 × 4, and 4 × 4 inches, (the outside posts are eighteen feet between shoulders)—there are four rows of twenty-four posts in all, supporting three rows of eighteen mow beams, and four strings of plates to support the roof. All the small timber was found cheapest and best whipsawed out of large timber; the rafters are well spiked to the purlins and plates, which acts as a tie and prevents the building spreading the purlins; also removes the latteral thrust; care was taken to break joints in the lathing of the roof, so as to form one even, strong, connected sheet the wind cannot move; the sides of the building are covered with weather boarding, and the roof with shingles; the floors of the granary, chaff-room, cleaning room, threshing-floor, immediately above these, and driving floor, are two inch plank, well matched together; the floor of the stable is laid down loose between the narrow sills of the stall partitions; a small door opens in front of every stall above the manger to put in feed to the horses; all the inside partitions, and all of the doors are inch stuff matched; the doors are hung on patent boiler plate hinges, bolted and screwed on; the whole division for the cattle is not floored; the cattle mangers are three inch plank, suspended and fastened against the side of the sill; one plank eighteen inches wide, forms the bottom, another eighteen inches the side, making with the breadth of the sill, two feet eight inches wide for the bottom. The cistern, *s*, figure 3, is dug twelve feet deep, and sufficiently large to contain 200 barrels, and in clay will do well if plastered an inch thick with three coats on the clay, leaving a rebate in the earth at the top, to receive a stone wall two feet deep, and two feet thick (inserting a waste pipe) to support a brick dome over the top with manhole in the centre, and two holes for pumps and gutter pipe; the covering to be made strong and secure and covered with earth, so that cattle may walk over it, or the cistern may be made outside the building, with crooked suction pipe to the pump. The threshing machinery, with rakers, is placed on a floor on one of the side mows, over the chaff-room, cleaning-room, and granary, and throws the straw off on the driving floor at *b*, figure 3, by the help of a short inclined plane, which can be removed when the straw may be stowed away on the mows, without its falling below; the fanning mill is set up eighteen inches from the lowe

floor, with the tail of the mill fitted through the partition of the chaff-room, where a smooth inclined plane takes the chaff through a door into the yard; the fanning mill is driven by a belt passed round the shaft of the drum, which gives the proper motion; a belt is sometimes taken through the partition at *b*, figure 3, to drive a straw-cutter, or root-slicer, &c.

Remarks.—This barn is 75 × 52 feet, and contains three mows the whole length of the building, without a single stick of timber to obstruct the stowage; the braces seen at *g'*, *g*, figure 2, above the beams are only at the ends of the building; the mows are covered with poles, with the exception of over the stable, and granary, and cleaning-room, because hay and grain will preserve better where the air has free access underneath; the mows are very convenient for pitching off, (in driving through the building from end to end) on each side, and thence upon the middle; the inside girts form a ledge on each side of the middle mow; the part for the cattle is 52 × 45 feet, and can be divided off at pleasure with temporary bars, for each kind of cattle, and has all of the advantages of stabling without the disadvantages; namely, the cattle can always have large quantities of straw to lie on, and saves the disagreeable labor of cleaning stables. When the manure accumulates to the depth of eighteen inches, and partially rotten, it may be removed in the spring into a heap outside, to undergo the last process of fermentation. The levers are made to take out of the machine, not to interfere with cattle; one door is commonly left open for the cattle to pass out or in; spouts and troughs lead from the pump to the horses and cattle. The small door in front of each stall is an advantage in feeding each horse without the others being disturbed. There is a ventilating blind at the apex of each gable, and the whole building is well ventilated. The threshing machine is all under shelter, and conveniently placed for discharging the straw; as it falls down on the lower floor, it can be pushed either into the cattle shed, or out into the yard at the opposite door, or the inclined plane removed, and a man to stand at the tail of the raker, and mow it away when a mow becomes vacant. As the grain comes from the fanning mill, it can be conveniently shovelled into the granary and locked up, as it is perfectly cleaned for market; the chaff goes into the yard in the opposite direction, and only requires occasional hauling back. This machine is generally worked with five horses, sometimes four, but may be worked with eight horses. It will thresh and clean ready for market, in good wheat, 200 bushels per day of ten hours, with five horses and five men; but if a constant sheaf pitcher is required, it would take six men and boys—two boys would do as well as men to tend the fanning mill and drive. This fanning mill is entirely of a new construction; the invention of which I claim. When turned by hand it will clean as fast as two men will shovel in, and performs two operations at once through, and cleans in a most extraordinary manner. It is made to go steady and simultaneous with the rest of the machine. At some future time, I may send you a working draft of this mill, and description also.

There is one observation which *Loudon* often repeats; that is, that all buildings in the country where at all practicable should be placed with the angles north and south, so that the sun may shine on all sides throughout the year; such a building will be dryer and last longer. To make this barn still more commodious, there might be at some additional expense, a large cellarage under the floored part, either for roots &c., or it might be used for live stock. In that case it would be better to have this end of the building upon a gently sloping knoll, so it would be easily drained and be half above ground.* This building will cost £200, and does away with a number of unsightly sheds, generally seen patched up against the sides of a barn, and is besides much cheaper, and might be rendered architectural according to the taste and means of the proprietor.

Yours respectfully,

FRANCIS G. WILSON.

Saltfleet, January 9th, 1847.

* This barn contains three immense mows the whole length of the building, and is sufficiently large for the hay and grain of 100 acres, of well cultivated land, which has been fully proved.

To Prevent the Ravages of the Clothes Moth.—You have nothing to do but to place shallow boxes in your drawers, with a little spirit of turpentine in them; and as the turpentine evaporates and penetrates the cloth, the larvæ will protrude, and be found dead on the surface.—*Am. Ag.*

Isinglass and gin, dissolved together by slow heat, makes a good cement for glass.—*Am. Ag.*

Cements for Yards and Floors.

A correspondent of the *Agricultural Gazette*, speaks of the value of "tar compost," so called, for forming ground floors of carriage houses, barns, stables, also for walks, barnyards, &c., for which purposes it is represented to be excellent, "being thoroughly dry, wholesome, cleanly, smooth, easily repaired, noiseless under motion, and inimical to vermin, besides being so very cheap, only costing from 3d. to 4½d. [6 to 10 cts] per square foot."

The writer describes his mode of making such floors thus "Lay down a good solid concrete of broken bricks and tiles or chalk, or both materials mixed together, only they should be broken very small, having made this quite level, pour on it coal tar, until the rubble is just covered. Then sift through a fine sieve a mixture of coal ash and sand, or coal dust and powdered lime, or *all* mixed together, or any one separately, it makes very little difference. I prefer quicklime, ashes and sand, in equal parts, but I have used lime-dust alone, and found it answer, though it is longer drying, and is not quite so firm. My plan is to sift on plenty, and have the work well rolled or trodden, supplying more siftings as it becomes necessary. The proper quantity of siftings will work in without any trouble at all, if time be allowed and the floor is used. Sometimes two or three coats are wanted, and are always best: often one will do. After the first coating upon the rubber, no more is necessary to be done either for an extra coat or a repairing coat, than to pour down some tar and spread it about with an old brush, covering it with siftings. Any labourer can mend or even make a floor of this sort. * * * * The reason I prefer brick rubble to stones is this: I have found that by long wear, a small stone, or an edge of a piece of a larger size, will work up; whereas broken bricks or chalk will saturate partly with tar, and will wear down with the rest of the surface. I think the value of such a bottom for a stable would be greatly enhanced by its impermeability to the drainage from animals."

Another correspondent of the paper above mentioned, gives his mode of making a similar cement, as follows:—

"Two parts sifted coal ashes and one part of quick-lime, to be thoroughly mixed together in a conical heap; then proceed as in mixing up fine mortar, making a hollow in the top of the cope, and pouring in gas tar, not gas water, or half and half, as it sometimes comes out of the reservoir but the thick tar, and gradually mix as you would mix water with the mortar or plaster, until the heap is about the consistence of pretty stiff mortar. In forming my yards and sheds for cows and those attached to loose boxes for horses, two years ago, in order that all the fluids should drain towards a tank, I employed this compound spread about three-fourths of an inch thick, on a surface formed with stone broken very small and a small quantity of fine gravel scattered over them and then rolled down, to prevent unnecessary waste of the cement. This was laid over and then patted down with an iron shovel. In the course of two or three days, just before it gets hard, pass an iron roller over it. In the course of a week, if properly done, it will be as firm as stone, and not affected either by drouth or wet in any degree. My yards have been in use, covered with muck during two winters, and exposed dry and clean to the sun during the two summer, and I perceive no change. * * * * I have also used this covering for the top of stone walls, for which it answers admirably."—*Alb. Cul.*

Sources of Plants.

Apple—All varieties of the apple are derived from the crab apple, which is found in all parts of the world.

Asparagus—This was brought from Asia to America.

Almonds are the fruit of a tree which grows chiefly in the Indies.

Coffee is a native of Arabia Felix.

Cork is a bark of a species of oak, which grows in Spain and Portugal.

Camphor is the concrete juice of a tree, a species of the laurel, which grows in Borneo, Sumatra, and other parts of the East Indies.

Chocolate is made of cocoa, this nut grows in both Indies, on trees from 30 to 60 feet high.—They grow in bunches of 72.

Cloves are the flowers of a plant which grows in the Moluca Isles and East Indies.

Cabbage was brought from Holland.

Currants came to us from Greece.

Horse radish was brought from China.

Lettuce was brought from Holland.

Nutmeg—This grows in the East Indies.

Onions and Garlics are natives of Asia and Africa.

Oats—The oats is considered a native of Mexico.

Peaches—The peach tree is a native of Persia. In its wild state it is small, bitter and poisonous.

Potato—This is a native of South America.—In its native state it is small and bitter.

Pine Apple—This grows in the West Indies.

Rye originated in Tartary and Siberia.

Raisins are dried grapes; they ripen on the vines, and are dried in an oven or in the sun.—They come to us from the Mediteranean.

Sugar cane is a native of China, from whence is derived the art of making sugar.

Tobacco is a native of South America. One species has been discovered in New Holland—Tobacco was first carried to England by Sir Walter Raleigh.

Tea is a native of no country except China and Japan, from these places the world is supplied.—Tea is procured from an evergreen shrub 5 or 6 feet high. The leaves are first steamed over boiling water, and then dried on copper plates over a fire.—*Prairie Farmer.*

Remedy for Smut in Wheat.

Mr. Tucker—To ascertain the most effective remedy for smut in wheat, we tried the following experiments in 1841:—

Ten square rods of sandy loam land we divided into six equal beds. Upon each we sowed three-fourths of a quart of wheat.

No. 1. Sown with smutty grain. Yield, 2½ quarts. One smut ball to 19 grains.

No. 2. Sown with smutty grain, or rather, a very few balls of smut, the grain being quite clean. Yield, 5½ quarts clean grain, and a pint of screenings. One smut ball to 168 grains.

No. 3. Smutty grain washed in lime water and brine. Yield, 4½ quarts; one pint screenings. One smut ball to 176 grains.

No. 4. Smutty grain washed in lime-water and fine, and plastered. Yield, 4 quarts clean grain. One smut ball to 74 grains.

No. 5. Smutty grain washed in lime-water and fine, and limed. Yield 7 quarts clean—one gill screenings. One smut ball to 1120 grains.

No. 6. Smutty grain washed in lime-water, fine, and ley, and ashed. Yield, 7 quarts clean, one pint screenings. One smut ball to 840 grains, and the largest growth of straw.

Soaking wheat in brine and liming it before sowing, we have found to be as good a preventive against smut as any which we have used.

D. H. W.

—*Alb. Cult.*

New Grist Mill.—We have been shown the model of a mill, invented by Asa Barber, of Stephentown, Rensselear Co. N, Y. and now the subject of a pending patent. It acts upon features truly novel. The grinding is effected by first cracking the grain, when it is passed to another chamber, where it is reduced still more. It may then, if not sufficiently fine, be returned to the crushing apparatus as often as it shall be required so as to do, to produce good flour. The machinery consists of a peculiar fluted cylinder which operates upon a concave bed of furrows or grooves. Mr. B., who is a member of the "National Association of Inventors," promises that we shall fully describe his mill, with engravings, at a subsequent time.—*Eureka.*

Computing Machine.—We have seen a machine for computing figures by any of the rules of addition, subtraction, multiplication or division. It operates in the most simple manner, and is equally simple in its construction. This is the invention of a Pole, by the name of Slonimski, who received very large presents from the Emperor of Russia, for his invention. We can say of our own knowledge that this is an excellent machine, and can do any sum in those rules with great speed and entire accuracy. Mr. S. has assigned his claim to a Patent Right in the United States, to Mr. S. J. Neustadt, of this city who is applying for, and will probably obtain the same. These machines may be made and sold for from $3 to $10 each. —*Eureka.*

Rotary Steam Engine—Mr. A. Buffum, a member of the "National Association of Inventors" of this city, has made a discovery in rotary engines which he thinks will take the lead of all others. Mr. B.'s plan has the merit of simplicity, and looks as plausible as any plan for a rotary can. He expects to be able to furnish a ten horse power engine for $50, and one that will not occupy more than two square feet of room —*Eureka.*

A Fine Blue-wash for Walls.—To two gallons of white-wash, add one pound of blue vitriol dissolved in hot water, and one pound of flour, well mixed.

Science and Agriculture.

The past fifty years have been remarkably distinguished by numerous and extraordinary improvements in the useful arts. A great portion of these have resulted from the direct application of scientific principles. The wonderful advancement in nearly all branches of manufacture, which so eminently distinguishes the present century from the past,* is largly indebted to science. It was a thorough knowledge of chemistry and mechanical philosophy, that enabled James Watt to place the steam engine at once before the public as a powerful and efficient machine—a machine which has within the memory of middle-aged men, almost changed the face of civilized countries, and has spread towns, villages, and cultivated fields, in regions where, but for this invention, nothing would be seen but unbroken forests.

Very great advantages have resulted from the precision with which the principles of mathematics and mechanical philosophy, may be applied in arriving at practical results. The accurate knowledge of *pressure and force, in constructing* machinery, and in civil engineering, which calculation enables us to obtain, before trial, is of the greatest importance. The mathematician, who *knows the force of gravity*, may sit in his closet and tell us, without error, the velocity of a falling body, and the precise increase in its rate of descent; or he may determine, by calculation, *from* a knowledge of this velocity, the exact length of a pendulum to beat seconds. The engineer may ascertain, before he erects his work, the best form of an arch, to afford the *greatest strength* against the pressure of a superincumbent weight, or he may calculate accurately, the angle at which the lock gates of a canal should meet, to give the greatest security against the pressure of the head of water upon them, before a single trial has ever been made.

Interesting and important practical results are also obtained in the manufacture of various articles of commerce, by the application of the principles of chemistry. Geology has rendered great aid in the art of mining, in all its departments. Not only in explorations for the more valuable metals, but for the coarser, but not less important articles, salt, and coals, tens of thousands might often have been saved, by a knowledge of the relations and character of the rocky strata at the surface of the earth.†

The precision with which the principles of natural philosophy have been variously applied in machinery and engineering,—and chemistry and geology in manufactures and mining —has led to the apparently plausible conclusion, that not less important results might be at once obtained by the application of science to agriculture From the rapid advancement of science within the present age, the opinion seems to be gaining ground that some great and extraordinary results are about to take place? that the slow progress in agriculture which practice and experience have effected, will soon commence taking rapid and powerful strides, that we are about to remove the veil of obscurity and uncertainty, which hangs over so many operations in culture, understand every process, and so completely control the growth of plants, as almost to set man free from the labour of tilling the earth by the sweat of his brow; or in other words, that the agricultural millenium is near at hand. But a more thorough examination, will clearly show that we have no reasons for drawing such a conclusion; that the other sciences, have as yet, accomplished directly but little for agriculture; and that years of slow and patient experiments must yet determine many points, which are already by many persons taken for granted. The same precision with which conclusions have been arrived at in other arts, is entirely out of the question here. A great deal of uncertainty must, for a long time yet to come attend the application of other sciences to the art of cultivation. The investigation of questions strictly chemical, is far easier than to determine the intricate and combined relations existing between chemistry and vegetable physiology. In the first place, the analysis of soils is one of the most difficult of all kinds of earthly analysis. In the next, vegetable chemistry is involved in a great deal more uncertainty than other departments of the science Thirdly, the changes which are constantly taken place in the growth of plants variously influenced as they are by the atmosphere by drought or moisture, by the nature of the soil and the many different materials of which it consists, some fitted for assimilation, and others not —are from these causes, and the time required to effect them, and the minute quantities of matter controlling them, often entirely beyond the closest observations, and can be determined but very imperfectly by an examination of the final results

Now, the object of these remaks, is not to denounce nor discourage the application of science to agriculture; but directly the reverse, to prevent a total rejection from the disappointment and dis

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* A single instance of this advancement is mentioned by J. F. Herschel, in the fact that a man can now produce about two hundred times as much cotton goods, in a given time, from the raw material, as he could seventy or eighty years ago.

† Some years ago twenty thousand pounds were expended in England in a useless search for coal in Hasting sands. Although there were some apparent indications, a geologist could at once have predicted failure. "All are familiar," says James Hall, "with the mining enterprizes, now less frequent, in search of coal along the valley of the Hudson, in which there have been expended more than half a million of dollars within the last fifty years." And Murchison, in his treatises on the geology of Wales, remarks, that more wealth has been expended in the useless search for coal in that part of the country, than all the geological investigations of the whole world have cost.

gust, which must follow the practice of holding up false hopes. If an enterprise is attended with peculiar difficulties, that enterprise is not forwarded by representing it as easy of accomplishment, by concealing its difficulties and overstating its advantages. Those who are falsely allured at the outset, will, from the disappointment resulting, be led to refuse even the benefits which might be secured. Hence, one of the greatest injuries to science, is to invest it with false colors. On the other hand the highest benefit is to strip it of its artificial dress, and exhibit its true character, that proper caution may be used, and success instead of chagrin be the consequence.

A brief glance at the different ways in which science is expected to benefit agriculture, may serve to show in what direction the greatest assistance will be afforded.

In the first place, a more certain result is to be looked for in no quarter, than in the application of the principles of mechanical philosophy to the construction of farm implements and machines A great and decided benefit has already followed from this cause; and no doubt machines might be much improved, simplified, and rendered lighter, and at the same time stronger, by a strict observance of the nature of forces, of the mechanical powers and elements of machinery, to determine precisely where strength is indispensable, and where also it is not needed; and in changing and adapting the moving power in the best possible manner to effect the intended purpose. It is highly essential, that every thing of the kind in constant employ, and requiring for its use, perhaps thousands of repeated motions of the hand in a single day, should not be encumbered with a needless pound in weight. The laborer who uses the hand-hoe, usually makes with it no less than two thousand strokes in an hour, or twenty thousand in a day of ten hours. If in any part, where even to the amount of half a pound, then the aggregate force uselessly expended, would amount to no less than ten thousand pounds, or five tons, in a single day. In larger machines worked by horses, including wagons and carts, as well as threshing machines, and even plows and harrows, there is no doubt in nearly all cases a waste of power. A strict regard to mechanical principles, and their mathematical application, throughout the numerous implements, tools and machines, constantly in use by every farmer, would be of the highest benefit. An entire volume might be written on this subject alone. It is true that the manufacturer of these, is the person directly concerned; but farmers too are deeply interested in the improvement.

Those sciences, however, which are regarded more particularly and directly applicable to agriculture, are vegetable physiology, and chemistry, and geology. The intimate connection between vegetable physiology and vegetable chemistry, and between geology and the chemistry of the soils, render them all in a manner inseparable and they will be mostly considered together.

The relations of vegetable physiology to the practice of horticulture, are vastly more important than to agriculture. The far greater number of species which come under the cognizance of the horticulturist, and the variety of treatment they need, render it very necessary that he should understand the nature of acclimation, the influence of heat, cold, moisture, and fertility, on the germination, and action of the roots, stems, leaves, and various other parts of plants. Such knowledge would be also highly advantageous to the enterprising agriculturist, whose object, aside from the profit, is to introduce new vegetable productions for general culture, and who should therefore understand the effect of removal to an unlike climate and soil.

But this science often becomes very useful to the common farmer. A knowledge of physiology, and of the enormous quantity of moisture which plants perspire insensibly from the leaves, would have wholly prevented the very common and pernicous error, that weeds preserved moisture in the earth, and shade contiguous plants from the effect of drought, while in fact every weed is an outlet through which moisture as well as nourishment is rapidly drained from the soil. An acquaintance with the principles of botany would have prevented the prevalence of the equally pernicious notion, that the weed so common in wheat, termed chess, could ever be transmuted to wheat, a plant not only of a different species, beyond the boundary of which, a plant by no change ever passes, but is also of a different genus. A knowledge of the fact, that no root of a plant can long remain alive, which in a growing state, when deprived of its breathing apparatus, the leaves, would have prevented the wild attempt practiced some years ago, of endeavoring to destroy patches of Canada thistles, by carefully digging up every fibre of the roots from a depth of several feet; while a simple, obvious, and efficacious remedy consisted in merely starving the roots, by cutting off unremittingly the supply from the leaves for a proper length of time. Were the vital importance of the leaves to the health and perfection of the seeds of plants properly understood, the practice of "topping" corn would never have been restored to. In numerous other cases, this science serves to throw light on operations of culture, and to assist correct practices.

An intimate and important connection exists between agriculture and chemistry combined with vegetable physiology. In some cases, considerable accuracy of reasoning, and certainty of application may exist; in others, all seems as yet involved in uncertainty. The triple relations of the analysis of plants, of soils, and of manures, and the determination of the constituents of each, promise, perhaps, more important results than any other department.

The knowledge of the organic constituent of plants, composed of various combinations of the four elements, carbon, hydrogen, oxygen, and nitrogen, may afford some very useful suggestions in practice. By knowing for instance the pro-

portions of the constituents, we can often arrive at a comparative value of different kinds of grain. Analysis shows that some vegetable products contain more starch than others; some abound in gluten; some contain a large portion of oily matter, and others are distinguished for other ingredients. Now, some of these are best adapted to one object, and others to another object. If for instance, in feeding animals, it is intended to fatten them, those grains would be pointed out as best, which most largely contain oil; if to make them grow in flesh and muscular parts, those which abound in gluten; if the object is to make a cow yield butter, food containing only matter should be given; if to yield cheese, beans, peas, and clover should be given; and if milk in quantity merely, succulent food should be employed. But although in these instances, analyses may suggest useful practices, yet the *amount* of the benefit must be determined by practice. Theory may point out one course as better than another, but the difference may be so small, as not to merit attention in practice, which can only be determined by direct experiment.*

The difficulty of arriving at a correct practical conclusion, in relation to the quantity of nutriment in grain and other food by analysis, will be evident from the fact, abundantly proved by some of the best farmers in New-England as well as in Western New-York, that corn ground and boiled with water, is more effective in fattening hogs, than twice the amount fed in the dry grain.

Analysis, in other cases, will show the comparative value of different varieties of the same grain. A very valuable ingredient in wheat is gluten; of this, French wheat has been found to contain 12 per cent.; Bavarian, 24 per cent — H. Davy obtained 19 per cent from winter, and 24 from summer wheat; from Sicillian, 21, and from Barbary wheat, 19 per cent. But the uncertainty of permanent dependance on such analysis is proved by the fact that the nature of the soil may considerably influence the result — Hermbstædt found that the same wheat which, with vegetable manure only, gave scarcely 10 per cent. of gluten, yielded more than three times as much when manured with powerful animal substances, rich in ammonia. Some varieties of the potato are found to contain more starch than other varieties, and this quantity is also controlled to some extent by soil.

The analysis of plants will also indicate what plants are best to employ as manure by plowing in the green crop. A considerable portion of nitrogen is essential to the growth of wheat.— Now clover is also found to contain a large portion; hence a crop of clover becomes eminent useful as manure for this grain. Wheat abstracts its nitrogen chiefly from the soil, and is consequently exhausting; clover obtains it mostly from the air, and is not exhausting, but becomes in this way the provider for the wants of the wheat.

Analysis has also proved that in addition to the usual organic elements, there are about 14 organic or earthly constituents, most of which are invariably found in the same species, and are indispensable to its healthy growth. These are potash, soda, lime, magnesia, alumina, silica, iron, manganese, sulphur, phosphorus and chlorine. These substances are derived by the plant from the soil; hence a fertile soil—one from which plants may draw these essential constituents, must of course contain them. Here the intimate relation between the constituents of plants and of soils is at once obvious. Hence soils which are destitute of a part of these ingredients, or contain them in very small proportion, is necessarily sterile; or if they be destitute of one only, the same result must take place, if that one is an essential ingredient of the crop growing upon them.* And here it is that the great benefits to be derived from analysis of soils, at once force themselves upon the mind. If a soil is barren, determine its constituents—see what is wanting—what is in excess, apply at once the deficient ingredient, or counteract or neutralize the injurious one, and fertility is restored. A soil was shown to H. Davy, which, though apparently abounding in every enriching material, was incapable of yielding a crop. He found by examination, that it was poisoned by a considerable portion of sulphate of iron or copperas. He decomposed this sulphate by applying lime, and the difficulty was removed. Here the remedy was simple and certain, but such cases very rarely occur in practice.

As different plants draw from the soil the same substances in unlike proportions, analyses of the plants will show which substances are most large

* All results of this kind are greatly influenced by circumstances. For instance, experiments accurately conducted, have shown that Indian corn, ground and boiled, will fatten hogs more than twice as fast as the same amount of raw material.

* Those plants, says C. W. Johnson, which yield salt, never grow on lands which do not contain it; those in which carbonate of lime is found never flourish in soils from which this is absent. Plants which abound with nitrate of potash such as the sun-flower and the nettle, always languish in soils free from that salt; but when watered with a weak solution of it, their growth is very materially promoted, and saltpetre is then found in them, upon analysis, in very sensible proportion. The same writer states, that an old pasture became, in spite of various liberal top dressings of different manures incapable of producing a luxuriant crop. At last peat ashes were found to produce the best result, an increase of more than a ton of hay per acre. These peat ashes were found to contain one-eighth of their weight of gypsum, which was the ingredient the soil needed. Gypsum itself was then applied with the same successful result.

eded for the different crops. And it points out reason of the fact long since known, that a field hich may bear a profitable crop of one kind, y be unable to yield a good return of another; d that by alteration or rotation, different por- ns are variously abstracted, and time left for e restoration of each by various processes in ture, and by artificial means. But the fact t these ingredients vary in the same plants, ows the great necessity of caution in drawing actical conclusions. Justus Liebig, one of the st eminent chemists of modern times, but ose deductions are often deficient in value n a want of sufficient corroboration by actual periment in cultivation, says that one hundred rts of the stalks of wheat yield 1.55 parts of rganic constituents; barley 8.54 parts; and ts only 4.42 parts, all being of the same com- sition "We have in these facts," he then adds, clear proof of what plants require for their owth. Upon the same field which will yield ly one harvest of wheat, two crops of barley d three of oats may be raised." But every good rmer knows that oats is exhausting to an ex- ordinary degree, instead of being less so than rley, and only one-third as much as wheat, ac- rding to this conclusion of Liebig. Some of e best farmers of New York, never suffer an oat op to grow on land ever appropriated to wheat. ofessor Johnston has, however, demolished ebig's reasoning, by showing that these inorga- constituents are not only different in compo- on, but greatly variable in quantity, the oats metimes considerably exceeding the barley, and e wheat varying from 3.5 per cent. to 15 5 per t. But neither of these chemists appear to ve considered the composition of the *grain*, nor have remembered the difference in the *weight* of crop. Superficial reasoning and general ories often appear beautiful; but thorough in- tigation in detail, and the results of actual prac- e, will frequently exhibit their uncertainty and or.

A department of analysis, perhaps the least ble to erroneous results, is the examination of *nures*. Fertilizing substances are known by ir effects applied separately to plants or in mix- e; or by the fact that fertile soils and well wn plants are found to contain them. Now, lysis will show what proportion of the fertiliz- materials exist in different kinds of manure; hence the value of manures may be ascertain- at least to some extent, by a previous chemical mination. A comparison of common manure n guano, exhibits this principle in a striking t:

n of manure yields	2 lbs.	and	4 oz.	of	potash.	
" guano	" 66	"	8	"	"	
" manure	" 1	"	10	"	soda.	
" guano	" 36	"	15	"	"	
" manure	" 5	"	1	"	phosph acid	
" guano	" 283	"	9	"	"	
" manure	" 1	"	4	"	sulph. acid.	
" guano	" 93	"	8	"	"	
" manure	" 1	"	9	"	chlorine.	
" guano	" 62	"	00	"	"	

Here it will be seen that most of these enriching ingredients are from thirty to 70 times as great in quantity in guano as in common manure. Experiment accordingly proves that guano often produces from thirty to seventy times as great a growth in plants, as an equal quantity of manure.

One of the most powerful manures is poudrette, a preparation from night-soil. Let us see what kind of comparison analysis will draw between this substance and guano:

A ton of night-soil yields	6 pounds	7 oz.	of	potash.		
" guano	" 66	"	8	"	"	
" night-soil	" 4	"	10	"	soda.	
" guano	" 36	"	15	"	"	
" night-soil	" 120	"			phosph. acid	
" guano	" 283	"	9	"	"	

Here we seen that guano still vastly exceeds even night-soils in these important requisites to fertility, although the latter possesses a very striking superiority in composition over common manure. We accordingly find in practice, that the comparative value of these different manures is very nearly the same that analysis indicates, when the average of experiment is taken.

There are many other substances which chemistry points out as valuable for manure, which are found useful in practice. Many of these, however, if used singly, or mixed with only one or two others, often give uncertain results, frequently proves failures, and sometimes are a positive injury. Sulphate of ammonia, nitrate of soda, sulphate of lime, silicate of potash, and other salts have been known to produce extraordinary growth; but in other cases were valueless. So many causes control their action, that this uncertainty must continue to exist. The soil may be already supplied with them; drought may derange entirely their action; and other influences now unknown may produce a similar result.

Common barn-yard and stable manure, though not so powerful, appears to be more universally beneficial than any other from the certainty of its operation. This certainty is dependant on the great number of its ingredients. It contains a large portion of decaying vegetable matter derived from the pulverized hay consumed by the animal; it is rich in ammonia and other animal matters, resulting from the secretions; and it contains many salts, derived from both these sources. Poudrette possesses nearly the same advantages; and guano, from its great quantity of animals matter and enriching salts, rarely fails if properly applied. With single substances, however, there is great uncertainty, until experiment points the way.

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* London Ag. Gazette.

Wheat was found by H. Davy to contain more nitrate of potash than any other farm product, yet the author of British Husbandry says, "although it has generally occasioned an increase of straw, the yield of grain has not been improved; and the crops have in many instances been found unusually subject to mildew." Similar experiments, by the writer, have produced no favorable result. Hence we perceive that supplying, simply, an essential ingredient, does not always answer the purpose. Artificial guano, made by an observance of the analysis of the natural though useful has not been found nearly so powerful as the latter. Nitrogen, supplied properly to plants, causes a healthy and rapid growth, yet although this element exists uncombined as a component of the atmosphere, and in direct contact with the leaves of plants, they will perish for want of it before they will draw a particle of it from the air. Hence in all chemical deduction relative to manures, the experiments of the cultivator only are to be depended on, and to remain as the decisive test. Suggestions of incalculable importance may come from theory, but practice alone must prove their value.

The importance of the analysis of soils, to determine deficient ingredients, and then to supply defects, has been already adverted to. Although its value thus appears to be very great, and has been much extolled by chemical writers and their imitators, yet there are difficulties in practice which render extreme caution in drawing conclusions very necessary. The constituents of plants may indeed be determined with much accuracy, and the different ingredients in manures, and their consequent adaptation to those plants, and of their comparatively fertilizing effects, may be ascertained frequently in the laboratory. But the extensive diffusion of these ingredients through broad acres of soil, and the exceedingly minute proportion which some bear to the whole bulk of the soil, renders the determination of these proportions, if not the actual existence of the ingredients, difficult if not impossible. A distinguished chemist told the writer, that for ordinary earthly substances, the detection of a thousandth part required skilful analysis.—Minuter portions of some constituents are more easily detected than of others. But suppose a ten-thousandth part the utmost limit, for agricultural practice, a few instances will show the inadequacy of analysis in cases which may occur.

A considerable portion of sulphate of lime or gypsum is found to exist in red clover, and other leguminous plants. Hence a reason that gypsum so eminently benefits the growth of red clover.—And hence reason would here suggest, that to determine the fitness of a soil for clover, an analysis should be made, if it contain gypsum all is right, and the clover will flourish, but if not, then a dressing of this material must be applied. This is the theory. Let us compare it with practice. A hundred pounds of gypsum to the acre has often doubled the clover crop; and a tenth part of that quantity, or ten pounds to the acre, will produce in some cases very sensible effects. After it is spread on the ground, and before any sensible effect is produced on the crop, the rain has usually dissolved it and carried it into the soil, and amongst the roots of the young plants. It thus becomes intimately diffused through the soil. Now, will analysis detect its presence? If the soil is a foot deep, half a grain to a pound will indicate a hundred pounds to an acre. Yet this half a grain to a pound is only one fourteen-thousand part, though often producing a most luxuriant growth of red clover.—A tenth part of that is only one hundredth and forty-thousandth part, yet this minute portion often is found to exert a very visible influence in growth, though far beyond the reach of ordinary analysis. A crop of clover of a ton and-a half to the acre, contains only three times this amount, or thirty pounds of gypsum in its stems and leaves.

"Again, twenty pounds of muriate of ammonia applied to an acre of rye, added five bushels to the product.* But this is only one seventy-thousandth part of the soil. One hundredth and forty pounds of guano *added* more than sixteen hundred pounds to an acre of hay. But this manure, when diffused through the soil, constituted only about a ten-thousandth part; its proportion of phosphoric acid, forming about one-eighth, and a very important ingredient, would be about one eighty-thousandth part, its sulphuric acid would constitute less than a two-hundred-thousandth part, and its potash about one three-hundredth-thousandth part. I am not aware that many chemists claim sufficient skill to determine such small proportions in the soil, yet these experiments show their great practical influence when existing as added constituents.

The ammonia of the atmosphere is considered by eminent chemists as holding a very important relation to the healthy and vigorous growth of plants, yet its presence has never been directly detected, and only indirectly by favorable opportunities when absorbed in snow or rain-water.—Eminent and accurate experiments had not discovered even this until within a few years.

It is not denied that a bright light may be thrown on the practice of agriculture by carefully conducted analyses of soils. The results of many examinations difference between fertile and barren soils. But these analyses were conducted with the most rigid care and accuracy by men of such skill and eminence as could hardly be expected to be at the service of any common practical farmer. And after all accurate experiments in cultivation would determine all that is necessary in many points of practice, and would in any case be needed as a test of the truth of the theory.

It is to be hoped that chemists will continue to pursue their investigations on doubtful points, until certainty, if possible, may be arrived at; and that all well-established facts may have as

* Johnston's Lectures, Appendix, p. 29.

extensive application in farming as their value merits. But it must be admitted that there has been a disposition to take too much for granted, and to overstate the certainty of success in connecting chemistry with agriculture. The precision so striking in other sciences, and other applications of this science to various arts, does not hold in case of the growth of plants, which, though governed by fixed laws, is too much controlled by circumstances and too much obscured from view, to be thoroughly understood. This growth is slow and imperceptible to the sight, plants are surrounded by an invisible air above ground, and are hidden from view below ground, their surfaces receive nourishment by pores only seen by powerful microscopes; the nourishment is drawn from vapors and floating gases in the air, and liquids in the earth charged with many substances in minute proportions; and the whole process is entirely beyond the reach of the closest scrutiny of the eye.

It is not surprising therefore, that there should be a difference of opinion among high authorities. The constituents of vegetable mould have led to much dispute, and no less than twenty different substances have been discovered or named by various chemists. Dr. Dana, in attempting to prove the inutility of applying lime and potash as manures, shows that nearly all soils contain lime and potash enough for the growth of all the crops which may be produced on the land for thousands of years. Yet other chemists dwell on the importance of these substances applied as manures, and direct experiment shows their utility.* Liebig says, that "wheat does not flourish in a sandy soil, and that a calcareous soil is also unsuitable for its growth, unless mixed with a considerable quantity of clay,"—"because these soils do not contain alkalies in sufficient quantity.' But Johnston shows not only that excellent wheat crops are reaped from these soils, but that turnips, universally admitted to be finely adapted to sandy land, contain in a single crop of ordinary productiveness, nearly ten times as much potash and soda, as a crop of fifty bushels of wheat with the straw included. The contradictions of chemists on the single article of gypsum alone would perhaps fill a volume.—According to Kollner, its action depends on the power possessed by lime to form, with the oxygen and carbon of the atmosphere, compounds which are favorable to vegetation; according to Mayer and Brown, it merely improves the physical properties of the soil; while according to Riel, it is an essential constituent of the plant. Hedwig called it the saliva or gastic juice of the plant; Humboldt and Thaer considered it a stimulant; Chaptal ascribed its action to a supposed power of supplying water † and carbonic acid to plants; and Davy regarded it as an essential constituent of plants.‡ Accordingly to Liebig, it fixes the ammonia of the atmosphere, according to Sprengel, it supplies sulphur for the formation of the legumin of leguminous plants; and according to Dana, it merely assists the decomposition of other substances in the soil.

The question has been much oftener asked than answered, "Who shall decide when doctors disagree?" If great men who have spent their whole lives in examining such questions, are so much at variance, to what power is the farmer to look, to dissolve the thick mist and remove his doubts, in relation to such matters? The answer cannot be avoided, *To repeated, varying, and actual experiments to practical cultivation.*—Such experiments have long since established the value of gypsum, lime, and other manures; while eminent chemists are still disputing, not only on their theory of action, but whether they are really of any value whatever.

The distinction must be drawn between *The Application of Science to Agriculture*, and The Science of Agriculture. The former has been already explained; the latter consists of the facts which practice has established, and the truths it has developed, reduced to a system, and in some degree arranged under fixed principles. The Science of Agriculture explains the theory and operations of draining, plowing, subsoiling, and manuring, of rotation of crops, of cultivating the soil, of adapting culture to crops, and many other practices which distinguished the best modern specimens of farming. It is a systematic arrangement of knowledge, which the experience of centuries has accumulated. Many of its principles, it is true, are those of other sciences; but they were usually discovered in the course of cultivation, before those sciences had a distinct existence. A professor of one of our colleges has cited the practices of draining, subsoil plowing, trenching, and clovering and plastering, as specimens of the application of science to agriculture. But these have all resulted entirely from experience; they are indeed specimens of scientific farming, but they originated from the science of agriculture, as just explained, and not from science *to* agriculture in its common acceptation.

The best modern practices of agriculture, are in nearly all cases much in advance of the theory. It is for this reason that the cause of agricultural

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* It has been ascertained by Leibig and others, that the benefit of lime is owing to the potash it contains. Lime has been applied with great success to soils in Western New York, which contained many broken fragments of limestone. The lime was from localities, where, by the analysis of Dr. Beck, no potash existed.

† The opinion that gypsum owed its efficacy to the absorption of moisture, has been common in this country. H. Davy exposed a portion of gypsum to the air three foggy nights, and found it absorbed only a 720th part. Calculation will show that two bushels spread over an acre, would absorb at the same rate, a stratum of moisture only one-millionth of an inch in thickness, or five thousand times thinner than paper.

‡ Hlubeck.

improvement would be much better served by holding up for imitation the experience and management of the best farmers of the day, rather than a too frequent references to chemical authority. How many of our citizens might have avoided shipwreck of their property, and made handsome profits, if they had followed the best established courses of cultivation. But, have any *failed for want of knowing the sciences?* Some of our farmers make money rapidly—that is, they farm *well.* Others make a scanty living; and others are reduced to insolvency. What is the *reason of the success of the former*—what the cause of the failure of the latter? Is it a knowledge of chemistry in one case, and a deficiency in the other? No one will ever think of ascribing the results to such causes.

It is not denied, that important aid may yet be derived from agricultural chemistry. But its advance must be slow and attended with caution. Years of *careful* and *accurate analyses of soils,* and of the trial of manures, separate and mixed, in connection with experments on growing crops performed with the utmost judgment and precision, can only settle uncertain points. Reasons will thus be rendered clearly by science, and practices explained, enforced and established — But these experiments must be performed chiefly by the enterprising few, and not by the common farmer. The study is indeed deeply interesting and fascinating, and every one who has a knowledge of the natural sciences, will not unfrequently find useful applications in the every-day business of life. But to hold them up as a means by which the young farmer is to conduct his business most profitably, while he yet remains wholly or practically ignorant of the most improved modern systems of practice and management, cannot be followed by the best results. The most important knowledge must be first attained, and afterwards that which is less essential in practice. If possible, neither should be neglected. We should not denounce any study because it is encompassed with some difficulties. Chemistry is affording many valuable suggestions for trial and practice; and as Professor Johnston very justly remarks, "It is foolish to refuse to avail ourselves of the morning light because it is not equal to the mid-day sun." — *By J. Thomas, Trans. N. Y. State, Ag. Society.*

Maple Sugar.

One of the most costly imports that is brought into this Colony, is Sugar. It is a leading article, as commercial men term it, and as every body consumes the article, it appears, that by common consent every Grocer Merchant makes up his mind to supply the *luxury* of sugar to his customers, without any regard to profit. If it were practicable to make an exact calculation on the returns obtained from the sales of sugar, it would be found that the net proceeds would not equal what the article cost the country, when laid down at the various ports of entry. We wish it be understood to mean that the profits are s small, that they will not cover the losses sustain ed in bad debts, extra clerkship, wrapping pape and other charges that are made against thi branch of trade. If Canada could by any proces place herself in a position, to be independent other countries for sugar, the only interests tha would be affected by this arrangement, are th Revenue and Shipping. If this result could b achieved, so far as the actual wealth of the coun try is concerned, the gain would be equal to th surplus products of wheat. The importation sugar costs the Canadian people more than wha is realised from the annual exports of wheat, i an average of ten years The reason why whea *has become such an important article in Canada* is, because it is the largest and most profitabl article of export. If there were no more grow in the country, than what was annually consume by the population, the import merchants woul lose an important item of export, to place to thei credit in the markets, from whence they dra their supplies of sugar &c As important as is th export of wheat from Canada, still, that portio of this article that is really the growth of Canada would fall short in a series of ten or fifteen years of supplying the country with sugar Then the entire amount of sugar required for hom consumption, costs the country as much as realises from the sale of its principal expo wheat and flour, and if the country could be pr fitably supplied with all that would be required home production, at as cheap, if not cheap rate than it could be imported, it is very certa that it is in point of *national wealth,* equally valuable an interest to foster, and encourage that of wheat.

We are of opinion that sugar can be produce in Canada, from the juice of the maple, the sta of the maize-plant, and the sugar-beet, of a ve superior quality, in a sufficient quantity to supp the home consumption, and which can be a forded at as cheap a rate, as it could be impor from the Southern States, or the West Ind Islands. As the season for making Maple Sug is fast approaching, we shall offer a few hint which we trust, will be found useful and accep able to the friends of improvement. With prop management, ten millions of maple-trees mig be tapped annually, for fifty years to come, Western Canada, which at an *average* of tw and a half pounds per tree, would give a retu

twenty-five millions of pounds of sugar annually, which, at the rate of £2, per 100 lbs. would be worth a half of millions of pounds currency. Many are of opinion that manufacturing sugar from the maple, is an unprofitable business, but those who jump at conclusions, never study the costs of anything that is produced on their farms. To illustrate this matter, we would ask the farmer who is in the habit of cultivating wheat, and who is also in possession of a flourishing grove of sugar maples, to make the experiment, to test which branch of business will leave the largest proportion of profits, after all the expenses are paid. We will suppose the land for wheat to be summer fallowed, and the quantity cultivated to be ten acres, which shall yield twenty-five bushels per acre, and which shall bring in the market one dollar per bushel, or the entire crop to be worth the sum of £60. The number of sugar maples to be tapped, is to be 3000, which, besides molasses and vinegar, will give a yield in an average of seasons of 3000 lbs. of sugar, this at two pounds per 100 lbs., will be £60, being equal to the amount of the value of the supposed yield of wheat from ten acres. If every charge be honestly made against both of these experiments, the writer feels confident, that the profits will be greater by 25 per cent. on the sugar operation, than on the wheat.

Where the sugar bush is properly attended to, a greater average than 3 lbs. per tree may be made. Some trees will yield annually from 8 to 10 lbs of sugar, but a greater average than 3 lbs. per tree cannot safely be given, when a great number of sugar groves be included in the average. A smart active man, in three weeks time, will make from 600 or 700 lbs. of sugar, without employing the least assistance. We have frequently met with instances, where this, and even greater feats than this had been done by ambitious young men, who adopted this course to raise ready money, to enable them to make a payment on such farms. It would be pleasing to see such instances more frequently, and also to see the farmers who have an abundance of sugar maple, make a more profitable use of their very valuable forests. The best quality of sugar can be made from the maple. For ordinary purposes, the only thing necessary is cleanliness, and without care in this respect, the manufacturer need not hope to obtain a very superior quality of sugar. The young man who obtained the first premium at the New York State Agricultural Exhibition, at Auburn, in answer to some inquiries that we put to him stated, that he observed great care in keeping his sap perfectly clean, and also throughout the entire process of evaporation, the same rigid exactness was observed in regard to cleanliness. He run the hot sugar into connical vessels, and at the bottom of which he bored a half inch auger hole, which was kept plugged until the sugar became thoroughly hard. The top of the sugar was covered with three layers of a thick woollen blanket, and on which he poured about a pint of water every morning, for three weeks in succession. The water filtered through the loaf of sugar, and had the appearance of brown molasses, and the sugar to all appearance and taste, could not be distinguished from the first quality of imported loaf sugar.

A small quantity of lime water is found very useful, to prevent fermentation in the sap, and it will also facilitate the crystalization of the syrup. In some instances a filterer made of animal charcoal, has been used with great success, in clarifying sugar, or rather the syrup, before it is made into sugar. This species of charcoal is made by charring the bones of animals, and before they are fit to use for filtering syrup, they must be pounded down into fine powder. It must then be put into a box to the depth of twelve inches, and the syrup must be poured into the box and allowed to filter through. A little plaster of Paris might be used with the charcoal, to cause it to adhere more closely together, by which means the filtering process will be made more complete.

We hope that the Agricultural Societies throughout the Province, will encourage the manufacture of sugar, and by doing so they would have the satisfaction of rendering the country a most valuable and efficient service.

Sponge Cake.—One pound of sugar, half a pound of flour, eight eggs, one teaspoonful of essence of lemon or rose water, and half a nutmeg grated. Beat the yolks of the eggs, flour and sugar together, then add the whites beaten to a high froth, when just ready for the oven.—Butter some tin pans and put in the cake mixture rather more than an inch deep. Bake in a quick oven for twenty minutes; when cold, cut in squares.—*Gen. Fur.*

The Parsnip---its Culture and Nutritive Properties.

There are but few farmers in our country who have not experienced great inconvenience for the want of succulent food for their *milch cows and yeaning ewes* in early spring, at that period when winter fodder becomes exhausted, and before the pastures afford sustenance for these useful animals. To endeavor to supply the deficiency shall be the object of this paragraph. In reflecting upon the subject and comparing the relative merits of the several vegetable products usually cultivated in our country, the conviction has been forced upon our mind that there is none better adapted to such purposes that the *parsnip*. In the quantity of product, under the influence of good culture and congenial soil, it will produce as much upon any given quantity of land as any other of the root family.

It may be proper here to remark, that wherever parsnips or other roots are fed out to cattle or sheep, they should always be accompanied by portions of dry food, as hay or fodder of some kind, to correct any ill effects which might otherwise result from the succulent nature of roots.

There is one quality connected with the nature of parsnips which renders them a most availing spring feed. They may be left in the ground where they may be grown, all winter, without being the least injured. This operates as a great saving of labor in the fall, when potatoes, turnips, beets, carrots, and indeed, all other roots have to be dug, and buried, or housed in some dry cellar to preserve them from the effects of frost. Thus left out, the parsnips will be found in spring, when they may be wanted to be led out to the stock, just as good as they were before the frosts of winter set in.

As to the number of bushels of parsnips which may be grown on an acre of land, that depends entirely upon the quality of the land, the kind and quality of manure, the manner in which the ground may be ploughed and put into fine tilth, and upon the cleanliness of the after culture. All the circumstances to which we have alluded concurring, a *thousand* bushles of parsnips in a favorable season may be grown on an acre—we say may be, because more than that quantity has been raised on that quantity of land. It is, however, safer for those who may design to enter into their culture to fix their expectations upon 500 bushels, as that quantity we think, with ordinary good tending, may be set, down as an average yield.

This is not the time to undertake their culture but as we like that farmers should look well ahead, we revert to the subject *now*, in order that they may be providing manure, and selecting a good piece of deep *sandy-loam*, to begin the culture of an acre or two of parsnips next spring. Parsnips delight best in a deep soil in the character named above—the kind of manure best adapted to their growth, is a compost formed of 7 parts well rotted stable dung and 1 of ashes—the quantity may be set down at ten double horse cart loads, to which should be added 1 bushel of plaster and two of ground bones, the whole to be well mixed together, and suffered to lie in pile two or three weeks before being used. If the bones were moistened with 10 pounds of sulphuric acid, diluted with a 100 pounds of water and permitted to digest a few days before being put into the compost, their effects would be more prompt, as they would then immediately give out their nitrogen as well as phosphoric acid.—*Am. Far.*

Ice-Houses.

"1*st. An Ice-house above ground.*—An Ice-house above ground should be built upon the plan of having a double partition, with the hollow space between filled with some non-conducting substance.

"In the first place, the frame of the sides should be formed of two ranges of upright *joists*, 6 by 4 inches; the lower ends of the joists should be put into the ground *without any sill*, which is apt to let air pass through.—These two ranges of joists should be about two feet at the top. At the top these joists should be morticed into the cross-beams, which are to support the upper floor. The joists in the two ranges should be placed each opposite another. They should then be lined or faced on one side, with rough boarding, which need not be very tight. This boarding should be nailed to those edges of the joists nearest each other, so that one range of joists shall be outside the building, and the other inside the ice-room or vault.

The space between these boardings or partitions should be filled with wet tan, or sawdust, whichever is cheapest or most easily obtained. The reason for using *wet* material for filling this space, is, that during winter it freezes, and until

s again thawed, little or notice, will melt at the
les of the vault.

"The bottom of the ice vault should be filled
out a foot deep with a small block of wood;
ese are levelled and covered with wood shavings,
er which a strong plank floor should be laid to
ceive the ice.

"Upon these beams above the vault, a pretty
ht floor should also be laid, and this floor should
covered several inches deep with dry tan or
wdust. The roof of the ice-house should have
nsiderable pitch, and the space between the up-
r floor and the roof should be ventilated by a
ttice window at each gable end, or something
uivalent, to pass out the warm air which will
cumulate beneath the roof. A door must be
vided in the side of the vault to fill and dis-
rge it; but it should always be closed up
ther than the ice, and when not in use should
kept closed altogether.

2d. An Ice-house below ground. This is only
roughly made by building up the sides of the
with a good brick or stone wall, laid in mortar.
ide of this wall set joists, and build a light
oden partition against which to place the ice.
good floor should be laid over the vault as just
cribed, and this should also be covered with
tan or sawdust. In this floor the door must
cut to give access to the ice.

As regards the bottom of the vault, the floor,
lattice windows in the gables for ventilation,
, the same remarks will apply that have just
n given for the ice-house above ground, with
addition that in one of the *gables*, in this case,
st be the door for filling the house with ice.
f the ground where ice-houses of either kind
built, is not porous enough to let the melted
drain away, then there should be a waste pipe
arry it off, which should be slightly bent, so as
ays to retain enough of water in it to prevent
passage of air upwards into the ice-house.
Horticulturist.

Why some men never succeed—Because they
er do any thing properly. They are either in
a hurry or are so blundering and heedless,
ave such inadequate notions about adapting
ns to an end, that whatever they undetake
. If they grow wheat they sow the same
nds year after year, plowing each time about
e inches deep, never taking any pains either
electing or cleaning the seed, till their crops
diminish in quantity, and deteriorate in quality so,
that each year finds them poorer than the one be-
fore. If they grow stock, they take no pains in
procuring the best, but raise whatever comes to
hand. That is never half cared for, but is allowed
to take its chance, and depend upon what it can
get; and so on through the whole catalogue. The
ground slides away from under their feet con-
tinually; and though they may toil hard and save
rigidly in some part of their management, they
economise so badly in the balance, that the good
is neutralised.

To Boil Salt Meat Tender.—Put the meat over
the fire in cold water, and never suffer it to boil
faster than a gentle simmer, or it will be hard
and tough. When done, beef will separate easily
from the bones—ham and tongue from the skin.
A large shovelful of wood ashes may be put into
the water in which ham or smoked tongue is to
be boiled, and some hay at the bottom of the pot.
Allow a quarter of an hour for every pound of ham.
For corned ribs or plate pieces of beef, when well
boiled, take the bones out carefully, and put it into
good shape by wrapping about it neatly, all the
fat and loose hanging pieces; then put it between
two pieces of thick planks, kept for the purpose,
and press it until perfectly cold, with a weight,
say fifty-six. It makes large smooth slices when
cut, and at breakfast or lunch it is positively de-
licious.—*Am. Ag.*

Hen Management.—A Mrs. Dakin communi-
cates to the Poughkeepsie Journal the fact that
from 30 hens, she gathered in a little more than
eight months, 3,532 eggs and raised 200 chickens.
These eggs are one cent each, and the chickens at
one shilling per head, would be worth the sum of
$60,32, which may be considered a pretty good
interest on the 30 hens and their feed and shelter.

The management of Mrs. D. is as follows:

1. Provide a warm, dry shelter for winter.

2. Feed with oats soaked in warm water for 12
hours before feeding.

3. Burn clam shells and pound fine; let them
have as many as they can eat, and you may have
eggs from January to December.

I manage my chickens by feeding oats and rye
ground, two bushels of oats to one of rye. Keep
them in a warm shelter at night.

To prevent the pip, or gapes, change the male
every year, and your chickens will be healthy
—*Pr. Far.*

Making Candles.—Many farmers are accustomed to make up their supply of candles for the year about this time; and the common mode is to make them by dipping. The N. Y. Farmer and Mechanic gives the following rules for doing this, which are declared to be a great improvement upon the common method. It is common, with unskilled persons, in making candles, to heat the tallow boiling hot, and ta dip the wicks into it very rapidly; the consequence is, that the tallow runs down the candle, leaving the top of it very small, and the bottom with an immense butt, which is further formed into a bell shape by the dripping from it. The rule given is that the tallow should not be so hot but that a finger may be dipped into it without inconvenience; and the dipping should be done in a very deliberate manner, particularly the lifting out, which should occupy nearly a minute each time. The tallow will thus be taken on readily, and will cool at once, without any running down, and the candle will be of even size, and without the butt, which is to be cut away, before it is used.

To make "King Oil."—Take 1 oz. green copperas, 2 oz. white vitriol, 2 oz. common salt, 2 oz. linseed oil, 8 oz. molasses, and 1 pint urine; boil for 15 minutes over a slow fire, and when nearly cold, add 1 oz. oil vitriol and 4 oz. spirits turpentine—apply with a feather. This application I have tried on several severe wounds on horses, in very cold weather, with the best results. If applied early, it will keep out all cold, and cause the wound to suppurate and heal soon. (It need not be bandaged.)

Liquid Opodeldoc, for bruises and sprains of horses, and for pains and rheumatism on myself. —Take 1 quart whiskey, and dissolve in it 6 oz. castile soap, heating it over a slow fire till it is completely incorporated; then let it cool, and add 1 oz. of camphor.

I found the foregoing recipes in an agricultural paper some years ago, and having tried them effectually, can recommend them to others. If inserted in thy paper, I think some of thy subscribers may be led to say, as I have done, "this recipe has been worth more to me than the whole cost of the paper for a year."

Green Hill, Col. Co., O.

—Ohio Cult.

How to Cleane Furniture.—Oil rubbed ove varnish, when discolored by water, will restore th color and polish. I must remember to tell thi to Betsey, as she scolds terribly at the hot wate spoiling the varnished bedsteads; if the oil don' succeed, a little varnish will, but the hot wate must be used. Betsey and I had a long talk abou the best method of cleaning furniture, and the fol lowing recipes are decided on as the best. Var nished furniture should be nicely washed wit warm soap-suds on a very soft cloth, and wipe perfectly dry with a fine soft towel; and the polished with a little sweet oil, rubbed on an carefully wiped off again with a silk handkerche Mahogany furniture must be kept perfectly clean or it bespeaks bad housekeeping. Should it be come mouldy or otherwise soiled, wash it clea with warm soap and water, then polish by rub bing on a paste made of equal parts of beeswax soft soap and spirits of turpentine melted together when this is well rubbed in, spread on a thin co of hard beeswax, let this be thoroughly rubbed i with a hard brush, and then polish with a sil handkerchief.—*Ex. Pa.*

Recipe for Coloring Green.—For ten or twel pounds of the material you wish to color, take o ounce of indigo and one pound of oil of vitrio stirring it for half an hour in an earthen vessel— let it stand twenty-four hours. Make a stron decoction of equal parts, of the bark of hickor and black oak, with water enough to wet ten twelve pounds of material to be colored; to th add one pound of alum, and strain it through thick bag; place it over the fire, and when near boiling, add the liquid blue, then let it sta twenty minutes, and strain it well. Should a sediment remain, another straining will be n cessary—then put in your yarn dry, stir it a fe minutes over the fire, and after ten minutes ai ing, rinse it well in cold water. The stronger th yellow dye, the darker will be the green.

A Valuable Liniment for sore Throats, Bruis or Sprains.—Take one egg and beat it fine, th add one half gill of spirits turpentine and beat aga one half gill good vinegar and mix well, then a one half gill alcohol, and when well mixed app externally, and rub till it disappears. A trifle gum camphor is usually added to the mixt when not wanted for immediate use.

Buckwheat for Coloring.—The fresh blossoms nd succulent stems of buck wheat have been ap- lied in Europe to the purposes of dyeing wool, c. The infusion, by the addition of preparations f bismuth and tin, produces a beautiful brown olor. From the dried flower bundles, different ades of green are obtained. The Siberian ecies of wheat, in particular, yields a fine yel- w, which, upon boiling the wool still longer in e dye, changes into a golden tint, and at length comes a beautiful yellow.—*Far. Ency.*

For the Ladies.—A new way to make Calicoes ash well.—Infuse three gills of salt in four quarts f boiling water, and put the calicoes in while hot nd leave until cold. In this way the colors are ndered permanent, and will not fade by subse- ent washing.

To remove Worms from Trees.—Mr. Editor: -I was lately in conversation with a respectable rmer, who related the following instance of ccessful treatment of trees infested with worms. e bored with a nail gimblet near the root of the ee a hole about an inch deep, into which he in- oduced about as much calomel as could be lifted n a quarter of an inch of the point of a penknife, nd plugged it up tight with a plug made of a een branch of a tree. In 48 hours the worms ere all killed. The trees were from 2½ to 4 ches in diameter.

This mode of getting rid of insects, by treating em with salivation, may strike some as par- king of the marvellous; but the source from hich I had it, leaves me no doubt of the fact.

N. H.

Mich Far.

To Remove Dust or Motes from the Eye.— rmers, as well as many other persons, are often expos d in their labors as to get dust or motes their eyes, and frequently suffer considerably fore they can find means of relief. The fol- wing simple remedy is almost always near at nd, and in most cases will prove effectual:— ll a cup or goblet with clear cold water, quite the brim, and place the eye in distress in such position as to be completely within the water the cup; then rapidly open and shut the eye a w times, and the dust or mote will be immedi- ely washed away. If a cup or other vessel be t at hand, the eye may be placed in a spring or cket of water.

Baldwin and *Rhode-Island Greening.*—No two varieties of apples—fruits of the highest ex- cellence, too—are so hardy, uniformly productive, and profitable in all soils and situations, as these. We have noticed both of them this season, in or- chards in various parts of the country, where other sorts, often productive, have almost entirely failed, and yet these are giving *abundant* crops of large, fair, fruit. We doubt if any better market sorts all points considered, can be found for soils of medium quality.—*Horticulturist.*

Subsoiling and Manuring.—*C. E. Crosman*, of Rochester, says, in the Ohio *Cultivator*, "I raised 410 bushels of carrots on one-quarter of an acre; 550 bushels of potatoes on two acres; about 600 bushels of onions on one acre; and over 1000 bushels of beets, (several kinds) on three-quarters of an acre. I plow with a double team as deep as possible, and subsoil each furrow—adding plenty of compost manure."

Profitable Crops.—The following is the pro- duce of 10 acres of land, for three years, belong- ing to Charles Tenney, of Riga, Monroe county, New York:—

40 bushes of corn per acre, at 50 cts. -	$200 00
30 " " wheat, " at 87½ cts. -	262 50
2 tons hay per acre, at $10 per ton, -	200 00
35 bushels of clover seed, at $7, - -	245 00
3 colts wintered on clover straw, - -	25 00
	$932 00

The expense was estimated as follows:—Interest on land, $50 per acre, $105; manure, $3; ploughing both crops, $20; seed, hoeing, &c., $35; harvesting, $60; cleaning clover seed, $23. Total, $264; leaving a nett gain of $689.50c, or $68.65c, per acre.—*Alb. Cult.*

Cream that has been suffered to stand until ran- cid, or slightly mouldy, which is often the case, should never be churned; it may make very pal- atable cream cheese, but abominably bad butter. Cream never rises from the milk after thirty-six hours' standing. This may be proved by the lactometer. It becomes more solid, and thus ap- pears thicker, but nothing is gained in quantity, and much lost in quality, by suffering it to stand too long before skimming.—*Am. Ag.*

To prevent the smoking of a Lamp.—Soak the wick in strong vinegar, and dry it well before you use it; it will then burn sweet and pleasant.

A Receipt for making Hash.

New listen all ye matrons, who would save your husbands' cash,
And are willing on a washing day to dine on savory hash,
And save yourselves the trouble of roasting and boiling,
And the fear that each and every dish is in the the course of spoiling,
I'll teach how, with economy, you may save your scraps of meat
That are left from Sunday dinners, and make a hash complete.

Take beef that has been roasted, and rather underdone,
And from it take off the fat, the skin, and every bone,
Then cut it up in pieces, see no cartilege remains,
Pick out each little piece of bone, and all the stringy veins,
And pound it in a mortar, or with sharp chopping knife
Mince it like meat in winter, when Christmas pies are rife.

Now boil some white potatoes, which, having mashed with care,
You must pass through a wire sieve, to see no lumps are there,
Then mix them with your minced meat, and rub throughout the whole
Some little bits of butter, which well in flour you roll;
Or you may use the dripping that oozes from the roast,
Which every good and careful cook takes care shall not be lost.

Now season well with pepper, with salt, a little sage,
And cayenne, but for this spice your own taste must be the guage.
You may chop a little onion, or chives, to give it zest.
The taste of your own family, of course you know the best;
Some much dislike an onion, or shallot, in their food,
You may leave them out with safety—'tis equally as good.

Your hash now being seasoned, you turn it in a plate,
And smooth and flour it o'er the top, and set before the grate,
Or place it in an oven, till handsomely 'tis browned,
And set it to the table hot—a nice dish 'twill be found.
If any other meat you have, as mutton, veal, or lamb,
'Twill answer equally as well if minced up with some ham. T.

—*Neal's Gaz.*

Horse Fork, for unloading Hay.—This is of the last inventions which we have noth but we are by no means sure that it will p the least useful. The machine consists of a rope, and two pulleys. The pulleys are fast to the rafters of the barn. The fork is adju in the hay, and the other end of the rope is pa under a pulley wheel, and a steady horse attac to it, and the hay raised at once. It is sai unload 30 or 35 tons in an afternoon with e

It is the invention of Mr Garrett Brown Bucks co. Pa. The success of it is vouched by two persons in the N. Y. Farmer & chanic. From the description of it we sh think it might be easily improved upon.—*Pr.*

Swellings.—Swellings on oxen, cows, other domestic animals, may be easily scatte by using an ambrocation composed of the lowing ingredients. One quart proof spirits, half a pound of soft soap, and half an ounce c phor. The soap has to be dissolved in the and the camphor added after the mixture is po into the bottle. These articles, prepared in manner above described, form a liquid opodel with which every farmer should be suppl Lameness in oxen, from swellings on the legs neck, is quite frequent, especially at seasons w their assistance is of most consequence to farmer, and when, consequently, he can but afford to permit of their lying still.—*Ex.*

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