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The Farmer's Journal,

AND

TRANSACTIONS

OF

The Lower Canada Board of Agriculture.

Vol. IV. No. 11, Montreal, March, 1857. **POSTAGE FREE.** **Price 2s 6d per annum, in advance.**

The late William Evans, Esq.

Canada has just lost one of those men who, by zealous devotion to one important public object, leave their influence indelibly stamped on the history of their country. Agricultural improvement is no royal road either to wealth or extended fame, but when judiciously prosecuted and publicly expounded and enforced, it is second to no other department of public usefulness. Commercial enterprise, railways, manufactures, political and social reforms, all have their influence in urging forward the growth of a new country; but the growth of two blades of grass or two kernels of wheat where one grew before, is no less important,—in some sense more so, since increased agricultural, production, in connection with permanent improvement of the soil, proves the most safe and stable groundwork for all other kinds of useful enterprise.

In this great cause, Mr. Evans long, judiciously, and successfully laboured, and we have therefore a right to claim for him a niche among the eminent benefactors of his country. It is true, that much that he recommended has been only very partially adopted, yet it is also true, that when his advice has been followed, the most beneficial results have been realized, and that these results will, by the sure influence of example, eventually extend an improved practice throughout the land.

We are indebted to one of the near relatives of the deceased for the following short sketch of his public services :—

Mr. Evans came to Canada about the year 1819., In his early years he had in the occupancy of extensive farms in Ireland, acquired a thorough practical knowledge of agriculture. For several years he acted as Secretary and Treasurer of the Montreal District and County Agricultural Societies, and was I believe the first to suggest the necessity of having a separate class for Canadians at the Annual Exhibitions. He frequently published letters, about this time, on agricultural improvement in one or two of the Montreal newspapers. In 1835 he published a Treatise on the Theory and Practice of Agriculture in Canada. This publication, the Government ordered to be translated and published in the French language; and for this purpose the Legislature appropriated the sum of £215, and 1500 copies of the book were distributed amongst the French Canadians. The following year he published a Supplementary Volume to this Treatise in the English language. In 1837 he published in the *Montreal Courier* newspaper a series of letters on Agricultural Improvement, by the education of those who are engaged in it as a profession. These letters were subsequently published in a small book, addressed to the Farmers of Canada. In May 1838, he commenced the publication of the Canadian Quarterly Agricultural and Industrial Magazine; but from want of support this publication was discontinued after two numbers had been issued. In 1842 he became Editor of the British American Cultivator, published in Toronto, a monthly Agricultural newspaper. From the conduct of this journal he retired in May 1843, and commenced the publication, on his own responsibility, of the Canadian Agricultural Journal in the French and English languages. In 1848 the Lower Canada Agricultural Society was organized, and of this Society Mr. Evans became the Secretary and Treasurer. In January 1849 was published the first number of the Agricultural Journal and Transactions of the Lower Canada Agricultural Society in the French and English languages, under the charge of Mr. Evans as Editor. In 1853 the Lower Canada Agricultural Society ceased to exist, and the Board of Agriculture for Lower Canada was organized, of this Board Mr. Evans was unanimously elected the Secretary and Treasurer, which office he continued to hold until his death. In 1855 he published suggestions for the subdividing and management of a farm in the Seignories of Lower Canada, with plans and descriptions of farm, dwelling house, dairy, farm yard, and farm buildings, prepared for the Local Exhibition at Montreal. His last work was a Review of the Agriculture of Lower Canada with suggestions for its amelioration; first published in a series of communications in the *Montreal Gazette*, and subsequently in pamphlet form.

The above long list of efforts in behalf of agriculture, sometimes with very little public countenance, sufficiently show the enthusiasm of Mr. Evans in the work; and to the thoroughly safe and practical character which generally distinguish his writings, every intelligent agriculturist can testify. We trust that successors may not be wanting to carry out, under the present improved aspect of agricultural affairs, the task begun and so faithfully carried on by Mr. Evans, in a time when agriculture was a comparatively despised and neglected art.

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The Farmer's Friends and His Enemies.

Beside insect foes, the farmer has some little enemies which belong to the vegetable kingdom, and which are sometimes very destructive. We do not here refer to weeds though these are often injurious enough, but to those minute *parasitic Fungi*, often in-,

dividually invisible, that take root on or in plants, and feed upon their juices. The Fungi are leafless plants of very simple structure, growing from little creeping flims or fibres called their *mycelium* or spawn. They are of various forms and sizes, and are propagated by extremely minute seeds, called spores, either naked or collected in cases called sporidia. The mushroom, toad-stool, and puff-ball, may serve as examples of the larger forms, and the fine dust with which the latter is filled may give a good idea of the minuteness and diffusibility of the spores of such plants. The *moulds* which grow on stale bread, cheese and other decaying matters, are examples of the smaller kinds, and when we consider that some of these produce spores even smaller than those of the puff-ball, we need not wonder that they appear so readily whenever the conditions are afforded for their growth.

Peculiar species of mould attack many cultivated plants, and none are more injurious than those which affect our grain crops. Of this kind are the Rust, Mildew, Smut, Dust-brand, &c. Some of these attack the straw, leaves and chaff, others the flower and grain; but all are alike minute fungi, spreading their spawn through the tissues of the plant, and producing quantities of minute spores to continue the plague. We shall notice in this article only a few of the more common and destructive species, in relation chiefly to the best means of prevention.

1. *Rust or Mildew.*—This is a reddish, rusty, or dark-coloured substance which appears in the stems and leaves of wheat, speedily arresting its growth and bringing on premature decay. When examined by the microscope it is found to consist of innumerable minute fungi, that have burst through the skin, and are growing in dense patches and absorbing the sap of the plant. It may seem incredible that these rusty spots, appearing so rapidly, are really plants, but the microscope establishes the fact, and it must be borne in mind that the spawn of the fungus has probably been creeping unseen through the cells and vessels of the affected plant, until favourable circumstances enable it to become fully developed. This is in truth the case with most other kinds of fungi, and has sometimes caused them to be blamed, as in the potato disease, for injuries of which they were merely accompaniments.

The rust plants probably belong to different species of the Genera *Puccinia* and *Uredo*, though there are some reasons to believe that what have been regarded as distinct species may be different stages of the same. A more important question to our present purpose, is how do the spores find entrance to the plant. This may be in one of two ways, either by the minute pores or stomata of the leaves, which serve for the respiration of the plant, or by the roots from the soil. Possibly different species may enter by these different paths. We cannot prevent this entrance of the spores. Hence we have further to inquire, what circumstances are favourable or unfavourable to their development. We have enquired very carefully into these, and not to be prolix, give what we have learned in the following condensed statement, to which we ask the careful attention of our practical friends.

The attacks of rust are favoured by the following causes. *First*, damp and cold weather succeeding warmth, at the time when the straw is still soft and juicy; hence late grain is very liable to rust. *Secondly*, a deficiency of the outer silicious coat which in the healthy state protects the surface of the straw, or an unnaturally soft and watery state of the plant. These unhealthy conditions may proceed either from poverty and want of alkalies in the soil, from the presence of too much crude vegetable matter, as sod or raw manure, or from a wet and undrained state of the land, which both causes the crop to be late and fills it with watery juices. *Thirdly*, it is probable that when the grain of rusty wheat is sown, or when sound wheat is sown in ground in which wheat has rusted in previous years, the crop may be more easily affected by the disease, because the seeds of the rust fungus may be attached to the seed or may be in the soil.

The best preventives of rust therefore are; *First*, healthy seed; *Secondly*, early sowing; *Thirdly*, draining; *Fourthly*, abstaining from sowing wheat in lea land or bog; *Fifthly*, preparing the soil in such a manner that it shall be sufficiently rich, yet not filled with crude vegetable matter.

2, The *Dust Brand.*—This is a very minute fungus, fixing itself on the flower or young grain of wheat or oats, and turning the head into a mass of black dusty spores which blow away. This fungus sometimes destroys a considerable proportion of the heads. It is not easy to deal with an enemy of this kind, which fortunately, however, is not one of the worst that the farmer must contend with. The following hints may be useful. 1st. Some varieties of grain are more liable to the disease than others. This is especially the case with oats. Different varieties of wheat show very different degrees of liability to injury. 2ndly. Run-out varieties are often very seriously affected; change of seed is in this case a remedy. 3rdly. Washing the seed, as recommended under the next head, is also beneficial by removing the spores that may cling to the grain, and might pass up from the seed into the plant.

3. *Smut or bunt.*—This also is a parasitic fungus, which grows *within* the grain, and converts its substance into a dark colored fetid mass of spores or mould balls, which under the microscope look like rough berries, and are filled with the minute dust-like seeds of the smut. Its mode of propagation is pretty well understood and easily guarded against. When smutty grain is threshed, the infected seeds are broken, and the smut being of an adhesive nature attaches itself to the sound grain, and when this is sown, the sporules of the smut pass upward with the sap, and infect the new crop. In like manner, if sound grain be put into bags or boxes which have contained smutty grain, or if it be threshed on a floor on which smutty grain has been lately threshed, it will be infected. These causes of the disease should therefore be avoided by all prudent farmers.

In addition to this however, the seed wheat should always be washed before sowing, that any particle of smut which may happen to be attached to it may be removed. In this way the increase of the evil may be effectually guarded against.

"It is quite certain, that the disease may be at any time propagated by rubbing sound wheat against that which is infected by the fungus. If then the seed be sown in this condition, the result may be easily predicted. The method also of counteracting the evil at once suggests itself. It is merely to cleanse the wheat which is about to be sown, from all the smut which may have attached itself to it, by reason of its adhesive character. The principle of effecting this object clearly must be, to use means to convert the oily matter which causes it to stick obstinately, into a soapy matter which will allow it to be readily washed off. Chemistry here comes to our aid. An alkali will convert oil into soap, and this is the basis of all effectual *dressing* as it is called of seed corn. Almost every district has its peculiar dressing, but the best are merely modifications of this principle. Whatever other ingredients may be used, the effective constituent is some alkaline matter in the form of a ley. Lime, which possesses alkaline

properties, has accordingly not unfrequently been resorted to; it must not however be too much slaked in using, or it loses these properties and thus often fails. Common potash and substances containing ammonia, for example, the liquid excrements of animals, have been adopted for remedies. Some persons employ brine, sulphate of copper (blue vitriol), arsenic and other things not possessing alkaline properties. Whenever these methods succeed, it cannot be for the reasons advanced, but it may happen that they destroy the vegetative powers of the seeds of the fungus, though they still remain fixed to the grain."

It must be observed, that it is not merely steeping but *washing* that is necessary to cleanse the grain, and the washing process should be aided by some alkaline substance. Solution of potash, ley of wood ashes, and stale urine, are the best washing fluids; and the grain should be stirred in them for some time, and the liquid carefully drained or poured off, after which the grain may be dried by stirring slaked lime, gypsum or dry wood ashes with it. This method is very much to be preferred to the common steeping in brine or blue vitriol, the efficacy of which is very doubtful.

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The Agricultural Society, No. 1, of the County of Drummond, was re-organized on the 3rd February. Colonel Edmund Cox, to be President; the Hon. Wm. Sheppard, Vice-President; R. N. Watts, Esq., Secretary-Treasurer; and John Barlow, of Wickham, John Ralph, of Wickham, Joseph Boisvert, of Drummondville, Robert Heriot, of Grantham, Valentine Cook, of Wendover, Thomas Johnston, of Wickham, Alexander Lesperance, of Headville, Directors. The undernamed were chosen to replace the members of the Board of Agriculture going out of office, Major Campbell, of St. Hilaire, E. J. DeBlois, Esq., of Quebec, John Yule, Esq., of Chambly, and P. E. Dostaler, of Berthier.

It may safely be asserted that this Society ranks in the foremost class for permanent benefit conferred, with the funds placed at its disposal, as will be seen by the following extract from its journal:—

Since its first institution it has distributed amongst its members 2 Ayrshire Bulls, 3 Short-Horn Durham Bulls, 4 Short-Horn Durham Heifers, 8 Leicester Rams, 14 Leicester Ewes, 1 Stud Horse, (Cleveland Bay), besides improved Poultry, Farm Implements, Grain and Fruit Trees, to a large amount. It has been for some time observed that the prize animals at its annual exhibitions, trace their origin to the stock imported by the Society.

• "Blights of the wheat"—London,

CORRESPONDENCE.

To the Editor of the Farmer's Journal.

SIR.—In looking over the last number of the Journal, my attention was directed to the important letter of Mr. Hutton's, in regard to the importation of Black Sea Wheat by the Board of Agriculture, which I consider an important move in the advancement of agriculture in Canada. The Hon. P. M. Vankoughnet, Minister of Agriculture, is entitled to the warmest thanks of all those interested in the prosperity of agriculture. Such a measure as the above, I hope, will not be lost sight of by our County Agricultural Societies. There are but few farmers who do not readily admit the importance of selecting the very best varieties of seeds which he intends to plant or sow; still there are bnt few who give it the necessary attention it merits, but this opportunity of procuring the above article, from a port of the Black Sea, for its seleotion, is a chance which seldom offers to our farmers. From the experience I have had in the cultivation of the above variety of wheat, I consider it a most valuable kind for Lower Canada, resisting the ravages of the fly in a great measure. But by reason of its having for such a length of time constantly been sown upon the same soil, it is hereby ultimately reduced to a very inferior sample, which in my opinion loudly calls out for a change of seed. It is a well known fact to all intelligent agriculturists that by a change of seed from one soil to another is of the utmost importance. I, therefore, sincerely hope that our worthy President of the County of Quebec Agricultural Society will lose no time in calling a meeting of the Committee of Management, to determine what quantity of the above mentioned valuable article may be required for the County of Quebec—the time being limited to the 15th March for receiving orders.

I remain yours very respectfully,

MATTHEW DAVIDSON.

St. Foy's Road, County of Quebec,
20th February, 1857.

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HOW THE HUMAN BODY KEEPS WARM.

The phenomena of heat in the body is something like that produced by the combustion of fuel, such as coal; only in the body the combustion is slow, and the heat far lower than that of flame. The act of breathing is very like the bellows of a smith, and our food is very much the same as the coals which he puts upon his fire. It is probable that some heat may be produced in the various secreting organs of the body by the chemical action which takes place in them. From these two sources animal heat is probably derived. It is positively certain that the blood is heated at least one degree of Fahrenheit in passing through the lungs; and that arterial blood is warmer than venous.—Most of the phenomena which occur in the production of heat may be explained by attributing it to a combination or union of the oxygen of the air with the carbon of the blood in the lungs.

This supply of animal heat enables the body to resist the fatal effects of exposure to a low temperature. In the polar regions the thermometer often falls to 80 or 90 degrees below zero; and yet the power of evolving heat, possessed by our bodies, enables us to resist this degree of cold. The temperature of our bodies in that region is about the same that it would be were they in the regions near the equator. The thermometer, if plnnged into the blood of a man in both situations mentioned, would indicate about the same. Our bodies have nearly the same temperature in both places; because, so to speak, and it is not very absurd, the combustion or fire in the lungs gives out more heat, it burns with greater intensity in polar regions than in the equatorial. We all know that a large fire will warm our rooms, no matter how cold it may be. We can give our rooms the same temperature in winter that they have in summer, if we regulate our fires accordingly. A little more fuel is all that is requisite for that purposes. Nature has so ordered that when our bodies are in a cold temperature, we inspire more air than when they are in a warm temperature. In other words, she compels us to take in more fuel, and increase the combustion in the lungs.

The Esquimaux eats blubber, which is nearly all carbon, and the Laplanders drink plenty of grease. In warm countries, the food of the Laplander would kill the negro, and the food of the natives of the West Indies would not be able to keep the Esquimaux from perishing with cold.

The temperature of the human body, and of most warm-blooded animals, is from 98 to 100 degrees Fahrenheit, and is affected but a few degrees by any variation of that of the surrounding atmosphere. Animals are warm-blooded when they can preserve nearly an equal temperature, in despite of the atmospheric vicissitudes from heat to cold and from cold to heat. They have a temperature of their own, independent of atmospheric changes.

The time will soon arrive when thicker clothing must be worn by our citizens at the North. They must line their vests well along the back bone, and provide against freezing. It is a fact that warm clothes tend to save food in proportion to the cold of the atmosphere. This is the reason why cattle that are well housed consume less food, and keep in better condition, than those which are shelterless and exposed.

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Make Labor Agreeable.

Last eve as I was in at a neighbor's I heard the father express to his sons a hope that they would take good care of a calf which he intended to purchase for them, to which the mother replied it would only bring censure on them to feed it with corn and potatoes, which they immediately expressed a wish to do. Then the thought suggested itself at once, that though the father purchased it with the hope that it might influence them to take good care of it, and consequently of other things, still, would they

not be likely to err in want of attention, or by feeding it with what the father would think he could hardly afford? Then the thought presented itself, why would it not be better for him, and every man who possesses a son and a garden spot, to expend what they wish to give them, for influences of a like nature, in purchasing some light, handy tools, for any thing in which a child takes a pride he likes to have for a constant companion; and would not possessing good handy tools lead them to love work a part of the time as well as play, and especially, when they are assisted to make a garden for themselves, and taught how to transplant fruit trees of their own! Can a parent find any better or surer method to keep their children at work, and save themselves the trouble and vexation of forcing them to work with large unhandy tools, than by furnishing them with lighter, modern implements, that they will find a pride in using and keeping clean; Though they are children now, how soon will they be called to act for themselves, and the reins of government even be in their hands.

I have derived much assistance in training children from a work by A. B. Muzzey, entitled "Aid to Parents."

Kennebunk, Sept. 27, 1856. A. A. WELLS.

—:o:—

Feeding Cattle.

Much attention is now given in this country to the *breeds* of all the various kinds of farm stock, from horses to bantams. The old world has been pretty thoroughly explored for choice specimens of animals, which have been purchased and brought to this country with little regard to cost or expense. At nearly all our cattle shows may now be seen the representatives of the herds of England, France, Spain, and even of the Celestial Empire, and they very often carry away the highest premiums. We do not object to this. We rejoice to see American farmers manifesting a determination to have the best stock the world affords, and to avail themselves of all improvements, whether made by the Arabs, by the Caravan drivers, or by the graziers of Europe. But while we have admired the fair forms of these animals at our Agricultural Exhibitions, or traced their pedigrees in the books, the inquiry has often been suggested to our minds, whether in our admiration of "Blood Stock," there is not great danger of overlooking the importance of that judicious care and feeding by which they have attained their present degree of excellence, and without which they will certainly deteriorate.

Our attention has been specially directed to this subject by the perusal of a detailed and long report on the "Management of Dairy Cattle," lately published in the *Journal of the Royal* (British) *Agricultural Society*. We propose to embody in the following remarks a very brief synopsis of some parts of this Report. We will premise that the writer, Mr. T. Horsfall, appears to be very much of a "scientific farmer," and that various analyses are given in his report, and indeed that his experiments are based upon them. With these, however, we shall not trouble the reader; as the results of his experiments are all that we shall attempt to present.

In the neighbourhood of the cities of England, where the produce of the dairy is sold in milk, and where quantity, and not quality, is the object, incalving cows are purchased, with much regard to their condition, and are then fed in such a manner as to produce the greatest possible quantity of milk, and, at the same time, to convert the stores of flesh and fat of the animal itself into that desirable liquid; which being done, the cow, greatly reduced in flesh, and no longer profitable, is sold to purchasers in farming districts where food is cheaper, to be fattened for the butcher or for another term of service with the city dairy keeper.

Mr. H. is not a city dairyman. He fattens his own cows, and purchases others to fatten. Much of his dairy produce is converted into butter. The objects, therefore, at which he aims, are quality as well as quantity of milk, and the production of beef; and his study has been to combine in the food of his cows, those substances best calculated to produce rich milk, and, at the same time, an improvement in the condition of the animal. Starting with the principle, that substances peculiarly rich in nitrogenous or other elements have a higher value for special than for *general* purposes of feeding, i.e., food rich in albumen has a much higher value for the production of milk than for fattening, or beef-making,—he sought assistance from what are usually termed artificial feeding substances, and while paying a strict regard to their comparative cost, he selected such as are rich in albumen, oil, and phosphoric acid, and other substances which analyses showed to be necessary to his purposes.

After various experiments and modifications, he has for the two past years adopted the following "bill of fare" for each cow: rape-cake, (an article generally used for manure, but which, by being steamed with the bran, &c., is rendered palatable) 5 lbs., and bran 2 lbs., mixed with a sufficient quantity of bean-straw, oat-straw, and shells of oats, in equal quantities, to supply them three times a day with as much hay as they will eat. The whole of the materials are blended together, and, after being well steamed, are given to the animals in a warm state. Bean meal is added to the various messes, in proportion to the milk given by each cow, in such a manner as to give those in full milk, 2 qts. each per day, while those that give but little milk get but little or no bean-meal, which is added dry to the messes as fed out separately. When this is eaten up, green food is given, consisting of cabbages, from October to December; Kohl rabi, till February; and mangold till grass time. With a view to nicety of flavor, green food is limited to 30 to 35 lbs. per day, for each, and turnips are entirely rejected. After each feed, 4 lbs. of hay, or 12 lbs. a day are given to each cow. They are allowed water twice a day.

During May the cows are turned out on a rich pasture near the homestead; towards evening, they are again housed for the night, when they are supplied with a mess of the steamed mixture, and a little hay each morning and evening. During June, when the grasses are better grown, mown grass is given to them instead of hay, and they are also allowed two feeds of steamed mixture. This treatment is continued till October, when they are again wholly housed. His stalls are kept during the winter at a temperature of nearly 60 degrees.

Under this treatment, very satisfactory results are claimed. The whole stock is weighed monthly. The cows in full milk, 12 to 16 quarts a day, vary but little—some gain, others lose a trifle. Those giving 12 quarts and down to 5 per day, when free from ailment, gain without exception. This gain on an average of 8 quarts of milk per day, is at the rate of 7 to 8 lbs. per week each. A cow intended for fattening, continues to give milk from ten months to a year after calving, and is then in a forward state of fatness, requiring but a few weeks to finish her for sale to the butcher.

A great variety of statements are given to show the improvement made in the quality of the milk, by this system of feeding, which are summed up by the remark:—"I therefore assume in my calculation 16 quarts of milk as yielding a roll (25 ounces) of butter." To show that this is a large proportion of butter, a great number of cases are quoted from books, &c. A Mr. YOUNG, an extensive dairy keeper in Scotland, and a "high feeder," obtained 20 ounces from 16 quarts. A Mr. RAWLINSON churned 20,110 quarts of milk, and obtained 14 ounces per 16 quarts; and again, 23,156 quarts averaged over 16 ounces of butter to 16 quarts of milk. In Mecklenburg, Prussia, Holland, &c., 14 quarts of milk yield, on the average, one pound of butter, and in rare instances 12 quarts are found to yield one pound. On inquiry in his own neighborhood, Mr. HORSFALL found it computed that each quart at a milking represents one pound of butter per week. Thus a cow which gives 4 quarts at each milking will yield 4 pounds of butter a week; equal to one pound of butter to 14 quarts of milk.

No definite statement of the average quantity of milk per year, produced by this system of feeding, is given, because a portion of the cows are bought when nearly dry, and fattened. But the writer says:—"The cows I buy as strippers, for fattening, giving little milk, from neighboring farmers who use ordinary food, when they come under my treatment increase their

yield of milk, until after a week or two they give two quarts per day more than when they came, and that, too, of a much richer quality."

The effect of this mode of feeding on the fertility of the soil of the farm is alluded to with much satisfaction. The improvement in the condition of his pastures, the writer says, is apparent. But we must not follow him into details here. With the statement of one individual, who, with a neighboring farmer, procured a steaming apparatus, and adopted the system of Mr. Horsfall, we must close our notice of this very interesting paper. We quote his words:

"In about five days I noticed a great change in my milk, the cows yielded two quarts each per day more, but what surprised me most was the change in the quality; instead of poor winter cream and butter, they assumed the appearance and character of rich summer produce: it only required 20 minutes for churning, instead of two to three hours; there was also a considerable increase in the quantity of butter, of which, however, I did not take any particular notice. My neighbor's cow gave three quarts per day in addition, and her milk was so changed in appearance that the consumers to whom he sold it became quite anxious to know the cause."

Perhaps some of our readers are ready to inquire if the editor of the *Farmer* really supposes that Americans are going to follow the example of this Englishman,—heat up their stables to sixty degrees, while their kitchens are down to zero; purchase a steaming apparatus, and then deal out to their cows three times a day such a compound of doctors' stuff as is here recommended—"rape-cake," "bran" "bean-straw," "kohl rabi," "bean-meal," &c.—and then weigh all their cattle once a month, to see just how many pounds they gain a week? We expect no such thing. But we do expect that such examples will set us to thinking, and show us that some little improvement in our management of stock is as possible and as desirable, as the improvement of breeds.

———:o:———

"Wanted—Less Land or More Labor."

BY PROF. J. A. NASH.

This is the title of an excellent article in a late number of "*Moore's Rural New-Yorker.*" Is it true, that we want less land or more labor? and if so, which will be best, to diminish the land, or to increase the labor?

Uncultivated land produces *as much* as cultivated, perhaps more. The same sun shines upon it, the same rains water it; the same atmosphere embosoms it. It is the nature of land to be always producing; it *will* produce *something*. An acre in Massachusetts produced more wood three hundred years ago, than it does corn now. It happened that wood was worth nothing then; there was no market for it. An acre on the Rocky Mountains produces as much now. But whom does it benefit?

The province of agriculture is to make the acres produce the greatest value at the time and place; or, if not the greatest value absolutely, the greatest value above the cost of production, or the greatest profit. It would be a great piece of folly for a shoemaker to build a shop a hundred feet long, and then do in it only the work which he could do with his own hands. The interest on the outlay would more than balance the income. It would be possible for a farmer to make as unwise a distribution of his capital. If he should hold a hundred acres of high-priced, arable land, and do no more work on it than he could do with his own hands, the case would be similar. The long shop would be dead capital, because not in use; and the farm would be dead capital, half dead at least, because he could not possibly draw out its capabilities.—There is a proportion to be observed between the fixed and the floating capital in every business. You will not catch a shrewd merchant, in Broadway, or in Washington Street, laying out all the money he can raise in a fine store, nor in the store and the goods to fill it. He reserves something to hire clerks with. Is there any reason why the farmer should invest everything in land, implements, and stock, and leave nothing with which to hire labor?

A thousand acres of land, with no labor at all on it, would produce some game, some fish, if there were streams on it, some wild fruits and berries, and possibly, some roots, that would serve to prolong life, in case of extreme hunger. A native, with his squaw and papooses, might possibly eke a living from it. This would be an extreme case.—Let us look at the opposite extreme. If a thousand strong men were to work on these acres, one man to each acre, the whole would soon be cleared; the rocks would be worked into walls, or so disposed of as not to impede cultivation; the wet portions would be underdrained; portions admitting it would be put under irrigation; the soils on different portions of it would be mixed, by putting clay upon sands, and sand upon clays; the whole would be securely fenced, and every acre would be like a garden. Instead of feeding one lone family, it would now give food for a population of ten thousand persons. But all this might not be profitable. A thousand dollars a day would be a large sum to pay for labor.

These are the extremes. The golden mean is somewhere between; and, depend upon it, it is not very near either extreme. Not a few are managing as if they thought it in the very neighborhood of the first mentioned. If they would not invest the last penny in land, and nothing in labor, they would come as near to it as possible. Others may by running too near the other extreme—paying too much for labor in proportion to the land they cultivate; reclaiming their waste lands faster than is profitable, and cultivating larger crops than they can afford; for all this is possible; and if any one knows of a well attested case of the kind, he would do well to report it, that the errant farmer, whose reclaimed land and large crops are likely to prove ruinous, may have a guardian put over him in time.

Our fathers paid fifty cents for a yard of India cotton, in butter at ten cents a pound; fifty cents for writing a dunning letter of three lines to them, in meal at three cents a pound; and fifty cents for an English door-lock, that would make a rogue laugh, and an honest man cry, in cheese at five cents a pound, or less. No wonder *they* did not improve their farms. Their best way was to wag along as easily as they could. There was no reward for enterprise. The only wonder is how they wagged at all. If they could have bought a better yard of cotton for a quarter of a pound of butter, instead of giving five pounds for it; if they could have paid the lawyer for his short epistle, with four pounds of meal, instead of seventeen, or if they could have bought an American door-lock for some less than ten pounds of cheese, that would have kept out all manner of rogues, and their father into the bargain, they would have made all New England a garden before our day. Why will men manage their farms now just as their fathers were compelled to do under the policy of George III. and Lord North, and, it may almost be said, of Jefferson and James Madison, so far as protection to the farmer is concerned? Then it would not pay to employ labor. But will it not pay now? The price of labor is relatively lower than it was then; it takes less produce to pay a man's wages, than it ever has since the fathers landed at Plymouth. Laborers are coming in upon us, down from Canada, over from Ireland back from the far West. Perhaps you say they are ignorant and dishonest. They are as honest as we are, which is not saying very much for them; and they will work well, if you tell them how. It would seem as if divine Providence meant that New England should now become a *cultivated* country. Will New England farmess be true to themselves, and to the old cradle of American liberty?

Never has the encouragement for farmers to hire labor, put their land to producing, and go ahead, been as good as now. Present prices may not hold. We have a big West to compete with on the more portable items of produce. It may not be two years before they will be underselling us under our own noses. But it is not probable that we shall again have to pay five pounds of butter for a door-lock that none but a burglar would be pleased with: or seventeen pounds of veal for a yard of Indian cotton, too light for any purpose but for a millerite to go up in, and not strong enough to patch a mouldy cheese with. If government should do its worst, it could not bring back those times. The tariff of '47 shows no special favor to the farming interest, and yet, farmers have had pretty good times since. But how many farmers have not profitted by high prices the last two years—have lost the high prices by having nothing to sell? And why? Not because their farms could produce nothing, but because they were not worked. The farmer himself has labored as hard as one ought, perhaps too hard, may have broken down his courage, broken his spirit, and tamed his enterprise by too severe labor. This is sometimes the case. But what is one man in a hundred acres. The allies might about as well have sent one man to humble the Muscovite. He cannot alone amend his soils; cannot make the bad soils good ones; can but half cultivate those good by nature; can gather up no fertilizers by lubor, can buy none, for he has nothing to pay with. After trying all the year to do what no mortal can—to take care of a hundred acres with his own hands, the result is, that he has broken himself down, and built up nothing, buildings no better, fences no better, land no better, and has nothing to sell to make things better with next year. If he had cultivated ten acres well, with his own hand, or if he had *put through* a hundred acres with the help

of four men, (five men can do as well by a hundred acres as one can with ten,) it would have been otherwise. In the first case, he might have had a little to sell; and in the latter he could have shown an improved farm at least. Land well cultivated pays better than land run over. It *is* true that we "want less land, or more labor"—as true as it is that you can see the nose on a man's face, after he has swallowed enough of the ardent to make it biggest at the little end.

But how are we to arrive at the end? Shall we sell a part of the land, or hire more labor? The latter, beyond all question, if circumstances favor the enterprise. "A little farm well tilled," is better in "song" than in practice. You cannot afford, for a small farm, the variety and excellence of implements that are requisite to a good and profitable production of crops. The best implements, and buildings every way ample and convenient, cheapen the cost of production in large farms, but increase it in small ones. The farmer of a few acres must be content to creep along as he can, to produce what he can at a higher cost than his neighbor on a large farm, and to live only by screwing down the wants of his family to the zero point; a course, the whole tendency of which is to degrade, instead of elevate—to give occasion to fools and fops to speak foolishly of it, to frighten sensible girls away from the rank of farmers' wives, and to make a certain class of misses, good for nothing but to be taken care of by their daddies, think farming a very *thmall buithneth*.

Tastes and predilections, and a thousand circumstances, known only to the individual himself, are to be taken into account. It is not desirable that all should be farmers, for then there would be none to buy their produce; nor that all who are farmers, should be great farmers, for then there would not be land enough; and besides, some are bound to be small in any business, and they may as well be small farmers as anything else. If a man has no relish for the splendors of nature; if he prefers brick and mortar and fœtid gutters to flowering landscapes, if his soul is unattuned to the music of a country home, if he feels no pleasure when the noble horse obeys him, when the sturdy ox looks wishfully to him for his food, and the whole tenantry of the stall rejoice at his coming, let him burrow in the city, and retail milk in the suburbs, or ribbons at the counter. Or, if he has a genius for mechanics, let him benefit himself and the world by exercising it. Or if his genius is for commerce, let him plow the ocean, while others plow the land. Both must be vexed, in order to carry out the designs of a beneficent Providence towards our race. If an individual would be a farmer, and yet loves a quiet life, less land would of course suit him better than more labor. If he has little capital, and has not the integrity which, in a farmer, always affords a just basis for credit, or, if like some, he has not the faculty to make his integrity known to an extent that will command money at reasonable rates, then *less land* will be his best course; for farming without either capital or credit is a bad business, and will be worse as the country grows older.

But if a man is willing to take the trouble of a business life, (that of farming is not more onerous than others,) if he has money, or the basis of a character that will command it at ordinary rates; if he has cultivation, as much as consists with his being a safe man—enough to prompt him to vigorous action, to make him desirous of distinguishing himself without wronging any one, if he has a knowledge of his business, and loves it, and especially if he has what some have not, the faculty to direct the labors of others, why talk to him about less land? Let him have a thousand acres. It would be well for him and the country that he should have. Not less land, but more labor is the *want* for such a man. "A little farm well tilled," is just the thing for a farmer, who wishes to take life easy, and barely live. It is a fine thing for men who have made their fortune, and want something to recreate themselves with, in order to enjoy it the longer. No amusement is more innocent or more rational. Nothing is better adapted to prolong life, and to make its decline happy. But why should a man in the prime or meridian of life, whose trade is farming, and who loves his trade, wish to be a little farmer? Let him rather change one word in the old song, and say, "A big farm well tilled give me;" for, though a little farm well tilled is a good thing in many cases, better always than a great one, badly tilled, yet a large farm well tilled, the holder being master of his business, and willing to plunge into it, is better than either.

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What a Poor Farmer cannot Afford.

The following remarks are from an Address by Horace Greeley, at the annual fair in Erie County, N. Y., last autumn. Mr. Greeley had a pretty thorough agricultural training while a boy, so that nearly all the processes of the art are familiar to him. To this he has added a close and discriminating observation, and thus qualified himself to write as good an agricultural address as we read from any source.

"The truth I am most anxious to impress, is that no *poor* man can afford to be a poor farmer. When I have recommended agricultural improvements, I have often been told, this expensive farming will do well enough for rich people, but we who are in moderate circumstances can't afford it.' Now, it is not ornamental farming that I recommend, but profitable farming. It is true that the amount of a man's capital must fix the limit of his business, in agriculture as in everything else. But however poor you may be, you can afford to cultivate land well if you can afford to cultivate it all. It may be out of your power to keep a large farm under a high state of cultivation, but then you should sell a part of it, and cultivate a small one. If you are a poor man, you cannot afford to raise small crops; you cannot afford to accept half a crop from land capable of yielding a whole one. If you are a poor man you cannot afford to fence two acres to secure the crop that ought to grow on one; you cannot afford to pay or lose the interest on the cost of a hundred acres of land to get the crops that will grow on fifty. No man can afford to raise twenty bushels of corn to an acre, not even if the land were given him, for twenty bushels to the acre will not pay the cost of the miserable cultivation that produces it.

"No poor man can afford to cultivate his land in such a manner as will cause it to deteriorate in value. *Good* farming improves the value of land, and the farmer who manages his farm so as to get the largest crop it is capable of yielding, increases its value ever year.

"No farmer can afford to produce weeds. They grow, to be sure, without cultivation; they spring up spontaneously on all land, and especially rich land, but though they cost no toil, a farmer cannot afford to raise them. The same elements that feed them, would, with proper cultivation, nourish a crop, and no farmer can afford to expend on weeds, the natural wealth which was bestowed by Providence to fill his granaries. I am accustomed, my friends, to estimate the Christianity of the localities through which I pass, by the absence of weeds on and about the farms. When I see a farm covered by a gigantic growth of weeds, I take it for granted that the owner is a heathen, a heretic, or an infidel—a Christian he cannot be, or he would not allow the heritage which God gave him to dress and keep, to be deformed and profaned. And if you will allow me to make an application of the doctrine I preach, I must be permitted to say that there is a great a field for missionary effort on the farms between here (East Hamburg) and Buffalo. Nature has been bountiful to you, but there is great need of better cultivation.

"Farmers cannot afford to grow a crop on a soil that does not contain the natural elements that enter into its composition. When you burn a vegetable, a large part of the bulk passes away passes away during the combustion into air. But there is always a residue of mineral matter, consisting of lime, potash, and other ingredients that entered into its composition. Now, the plant drew these materials out of the earth, and if you attempt to grow that plant in soil that is deficient in these ingredients, you are driving an unsuccessful business. Nature does not make vegetables out of nothing, and you cannot expect to take crop after crop off from a field that does not contain the elements of which it is formed. If you wish to maintain the fertility of your farms, you must constantly restore to them the materials which are withdrawn in cropping. No farmer can afford to sell his ashes. You annually export from Western New York a large amount of potash. Depend upon it there is nobody in the world to whom this is worth so much as to yourselves. You can't afford to sell it, but a farmer can well afford to buy ashes at a higher price than is paid by anybody that does not wish to use them as fertilizers of the soil. Situated as the farmers of this county are in the neighbourhood of a city that burns large quantities of woods for fuel, you should make it a part of your system of farming to secure all the ashes it produces. When your teams go to to town with loads of wood, it would cost comparatively little to bring back loads

of ashes and other fertilizers that would improve the productiveness of your farms.

"No poor farmer can afford to keep fruit trees that do not bear good fruit. Good fruit is always valuable, and should be raised by the farmer, not only for market, but for large consumption in his own family. As more enlightened views of diet prevail, fruit is destined to supplant the expensive quantities of animal food that are consumed in this country. This change will produce better health, greater vigor of body, activity of mind, and elasticity of spirits, and I cannot doubt that the time will come when farmers, insteads of putting down the large quantities of meat they do at present, will give their attention in autumn to the preservation of large quantities of excellent fruit, for consumption as a regular article of diet, the early part of the following summer. Fruit will not then appear on the table as it does now, only as dessert after dinner, but will come with every meal, and be reckoned a substantial aliment.

"No farmer can afford to work with poor implements, with implements that either do not do the work well, or that require an unnecessary expenditure of power. To illustrate this, it will be necessary to ask your attention to the nature and office of the mechanical operation. requisite for the production of good crops. It is essential to the thrifty growth of a plant that the air should have free access to every part of it, the roots as well as the leaves, and that the soil in which it grows should be moist, but not too moist, and should have a certain degree of warmth. These necessities of vegetation will enable us to understand the mechanical operations on the soil demanded by good farming.

"The soil should be light and be finely pulverized, in order that the little fibres sent out by the roots in search of nourishment may easily permeate it in all directions. It should be porous to be easily penetrated by air and water, and as its own weight and the filtering of rains tend constantly to bed it down into a compact mass, it needs frequent stirring."

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HORSES AND CARROTS.—The following remarks contain some useful hints, worthy of the attention of horse owners. The amount paid for carrots, however, is very high. Half the price named would afford a handsome profit for raising the crop if properly managed. Five hundred bushels per acre, would be a moderate product, and would not cost over thirty dollars to raise, and which would be less than three dollars per ton. We admit that by bad management they might cost ten times this amount.

For two months past I have fed my two horses upon carrots and hay. My horses are in constant service on the road; and under this treatment they usually come out at the end of the "pile" looking better than when they commenced. My dose is two quarts, morning, noon, and at night—four to each horse; they have as much good, sweet English hay as they will eat, and *cut*, whether fed to them dry or otherwise. This latter I have always practieed since I have had the management of horses; and I am satisfied that it is the cheapest and best way in which it can be given to the horse. There is no waste, and horses eat it better, and have more time to rest, which is quite an important consideration, when the horse is liable to be taken from the stable at any moment. I am satisfied there is no better way of feeding horses, nor is there any cheaper one—that I have ever tried—than the one mentioned. If there is, will not some person who knows please report? I always cut them quite fine before using. Carrots are most excellent for horses whose wind is any way affected—such as the heaves, &c. Those who have tried them for this purpose will, I think, agree with me in this; if not, just try the experiment and be satisfied. They are usually cheap, compared with other articles of food of equal nutritiousness. Last year I paid nine dollars per ton, this year eleven, and at the latter price I prefer them to oats—measure for measure.—*Saturday Evening Post*

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ENGLISH MODE OF FATTENING POULTRY.—The food usually selected for fattening poultry is oatmeal mixed either with scalding milk or water. Cooped fowls should be supplied with fresh food three times daily —namely, at daybreak, or as soon after as possible, at mid-day, and again at roosting time; as much as they can eat should be given them on each occasion, but no more than can be devoured before the new meal; should any be left, it should be removed and given to other fowls, as, if kept it is apt to become sour, when the birds will not eat freely. The troughs for the soft meal should be scalded out daily, which can only be done conveniently by having a supply of spare ones. In addition to soft food, a supply of fresh clean water must be constantly present, and a little gravel must be given daily, otherwise the grinding action of the gizzard, which is necessary to the due digestion of the food, does not go on satisfactorily; the supply of a little sliced cabbage, or some turnip tops, or a green turf to pick occasionally being all that is required. A variation in the diet will be found very conducive to an increased appetite, and therefore the occasional substitution of a feed of boiled barley for the slaked oatmeal is desirable. Some feeders have a division in their troughs, or still better a small extra trough which always contains some grains for the fowls to peck at. Should the birds be required very fat, some mutton suet or trimmings of the loin may be chopped up and scalded with the meal, or they may be boiled in the milk or water preparatory to its being poured over the food, and the fat of fowls so fatted with be found exceedingly firm.

THE DORKINGS.—Says John Baily, "I believe the grey or speckled Dorking to be the best fowl there is for the table."

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AN ANCIENT AUTHORITY.—Mr. Wainwright of Dutchess Co. has in his possession a copy of a very early work on English Agriculture. It was printed in London over two hundred years ago, in 1652, the palmy days of Protector Cromwell, to whom it is dedicated in an appropriately humble and flattering address of some pages. Its title page is headed "*Vive la Republick*," and is as follows:—"THE ENGLISH IMPROVER IMPROVED, or the Survey of Husbandry Surveyed. Discovering the Improvableness of all Lands: Some to be under a double and Treble, others under a Five or Six Fould. And many under a Tenn Fould, yea some under a Twenty fould Improvement. By WALTER BLYTHE, *a lover of Ingenuity*." The above is enclosed within a border coarsely engraved upon copper, representing the days when swords shall be beaten into pruning hooks, by various artistic designs which we have not room to describe. It faces a second title-page, which is more full, and conveys a tolerable idea of what "Peeces of Improvement" the author especially reccommends. The reader will gather from them that the best systems of the present day are not quite as new new as might be supposed, while Mr. W. especially called our attention to a caution in the body of the work, against *quack Agricultural chemists*, quite as forcible now, as the day it was written. We quote the second page alluded to:—"All clearly demonstrated from Principles of Reason, Ingenuity, and late but most real experiences; and held forth at an Inconsiderable charge to the Profits accrewing thereby, under SIX PEECES OF IMPROVEMENT

"1. By Floating and Watering such Land as lieth capable thereof.
"2. By Draining Fen, Reducing Bog, and Regaining Sea Lands.
"3. By each Enclosures as prevents Depopulation and advanceth all Interests.
"4. By Tillage of some Land lost for want of, and Pasturiug other destroyed by Plowing.
"5. By a discovery of all Soyls and Composts with their nature and use.
"6. By doubling the growth of Wood by a new Plantation.

"*The Third Impression much Augmented.* With an Additional Discovery of Severall Tooles and Instruments in their Forms and Figures promised. *With a second part;* containing SIX NEWER *Peeces of Improvement.* 1. Our English Husbandrng Clover, and St. Foyn as high as may be. 2. The facilitating the charge and burden of the Plough, with divers figures thereof. 3. The planting Welde, Woode and Madder, three rich commodi-

ties for Dyers. 4. The Planting of Hops, Saffron and Liquorish, with their Advance. 5. The Planting of Rape, Cole seed, Hemp, and Flax, and the profit thereof. 6. The great advance of Land by divers Orchards and Garden Fruits. *The Experimenting whereof makes good the Improvement promised.—Cultivator.*

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On Superphosphate of Lime.

The enormous quantities of material that have been sold under the name of superphosphate of lime, within a few years, with a prospect for increased sales in the future, prove that the use of a genuine article is remunerative, and make all contributions to our knowledge of this subject of exceeding interest.

In the Eastern States, where the soil is poor and the market good, this and kindred artificial fertilizers, have now become almost indispensable to many of our best farmers.

In 1852, I published in this paper, the analyses of two superphosphates, then the only ones sold in this country, so far as I knew. Both were of a quality not inferior to good samples made in England, the birthplace of this manufacture.

Since 1852, the business of making artificial manures has increased to a great degree. There are now in market in our Eastern cities, eight brands of superphosphate alone, which I can recal without looking up the advertisements. Last summer seventeen analyses of superphosphates, on eight different samples from five manufactories, were made in the Yale Analytical Laboratory, either under my eye or by my own hands. The results, published in detail in "*The Homestead*" of July 17, demonstrate that of these five brands, only two, viz: "Deburg's No. 1, Ammoniated," and "Coe's Improved," were manufactured with any respectable combination of knowledge and honesty, two indispensable requisites for this kind of business. And these manures contained respectively but 2½ and 4¼ per cent. of soluble phosphoric acid. Hildreth's Superphosphate (New York.) contained but 5½ per cent. of phosphoric acid, and of this none was soluble!

In face of these facts, he is a bold man who now buys superphosphate of lime. Farmers have communicated to me their experience of the past summer, confirming the accuracy of the deductions I have drawn from my analyses, and recently I have had application for advice in the home manufacture of this fertilizer.

The most advantageous method of preparation that has come under my notice, appears to be the following, by Dr. Alexander Muelfer, Chemist to the Ag. Experiment Station at Chemnitz, in Saxony. It refers to the article made from ground unburned bones. I translate the essential part of the account from the *Landwirth-schaftliches Centralblatt* for June, 1856.

After remarking that, in the ordinary method, when the ground bones are directly treated with acid, the action of the acid is chiefly spent upon the finest parts of the bone meal which least need solution or decomposition, and scarcely affects the coarser portions—he proceeds to describe his process which has a reverse result, as follows:

"The bone-meal is passed through two sieves so as to divide it into three portions, one consisting of particles less than one-twentieth of an inch, another of grains less than one-tenth of an inch, and a third of fragments over one-tenth of an inch in diameter.

The bone-meal should be so fine that not more than 40 per cent remains upon the coarsest sieve.

Of 100 lbs of meal, the coarest portion is now well mixed with 25 lbs of oil of vitrol, and after a little time 12 to 13 lbs (6 qts.) of water is gradually added (a quart at a time) the whole being stirred. The heat thus produced greatly facilitates the solution. The mixture is allowed to stand 24 hours, after which interval, the fragments of bone will be found so soft that they can be crushed in the finger. The meal of medium fineness is now thoroughly mixed with the mass, and the whole allowed to stand again two or three days; finally the finest meal is stirred in, which brings the preparation to a convenient state of dryness, or it becomes dry by a short exposure to the air, if thinly spread out.

By acting on 100 lbs of bone-meal in this manner, with 25 lbs of oil of vitriol and 13 lbs of water, about 130 lbs of superphosphate are produced, which is indeed dearer than an equal weight of the common preparation; but is equal in effect to 200 to 300 lbs of the latter, and is therefore cheaper, to say, nothing of easier transportion.

The superphosphate thus made is a light gray, crumbly or powdery mass; in dry air it does not become moist in the slightest degree; to the taste it is not perceptibly sour, and therefore can be conveniently preserved in sacks.

The advantages of this plan of treating bone-meal over the common method are:

1. The acid acts most powerfully on those parts which are most difficultly soluble.

2. Therefore a much smaller quantity of acid is necessary, and thus the loss occasioned by the conversion of so much acid into comparatively worthless plaster is avoided.

3. The greater concentration of manure cheapens transportation." *Yale Analytical Laboratory, Sept.* 27, 1856.

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THE FARMER'S WIFE.—It is a common saying, and perhaps as true as it is trite, that one woman is worth two men on a farm. It is certainly beyond dispute that those branches of husbandry which come mostly within a woman's department are among the most profitable parts of the business. The dairy is a source of large profit, *if well conducted.* It would not be a remarkable cow that would give thirty dollars in butter yearly,—and with a dozen cows yielding at that low estimate, the farmer, with the addition of a garden and a hog, will very nearly have a support for a family. And this is in great part, from the care and labor of his wife. In the report of the committee on butter and cheese to the Hampden County Agricultural Society in 1846, it is said, the value of butter, according to the statistics of the assessors returned to the Secretary of the commonwealth for the year 1844, was nearly double that of all the sheep then in the State. It also exceeded the aggregate value of wheat, rye, barley, buckwheat and oats raised during the year.

The dairy, however, important as it is in the labors and profits of the farm, is not the only branch of rural economy which requires the care and labor of the wife. Poultry, though smaller in amount, is, in proportion to the expenditure, an object of much profit. And the domestic manufactures, wrought out by the spinning wheel, (for there are some left yet) loom, needle, and other modes and processes of woman's handiwork, are not inconsiderable.

All these labors are in addition to the house-keeping cares and duties, which alone are considered by the industrious wives of the city, to be quite sufficient for any woman.

The farmer's success depends very much on the industry and good management of his wife. It is in the power of the woman, at least, to do a large share in making up the yearly income of the farm, if she is not really equal to two men.

With a few good cows, and a wife who is skilful and careful in the management of the dairy, the farmer always has a safe dependence, even though the drought or depredating insects should somewhat diminish his crops. But the farmer's wife must not have too much required of her. Good, dry fuel, and plenty of soft water, should always be conveniently supplied, and all heavy and exposed work be performed by the farmer or his men. Then he will have a cheerful, tidy help-mate, who will bear up her end of the yoke in such an even, easy, and agreeable manner, as to make the domestic duties a source of contentment and bliss.—*N. E. Farmer.*

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PRESERVING SHINGLES ON ROOFS.—Some paint roof shingles after they are laid. This makes them rot sooner than they otherwise would. Some paint the courses as they are laid; this is a great preservative, if each shingle is painted the length of three courses. But about as sure a way to preserve shingles, and that with little or no expense, is a mode recommended in a letter to us by Hon. David Hunter, of Clinton, on the 23rd of Feb. last. We republish so much of his letter as relates to this subject, in hopes that it may be of service to many of our readers.

"There is one thing more, that nearly all

people know, if they would only attend to it; that is, to sprinkle slacked lime on the roofs of their buildings, in rainy days. Put it on considerably thick, so as to make the roof look white, and you never will be troubled with moss, and if the shingles are covered ever so thick with moss, by putting the lime on twice, it will take it all off and leave it white and clean, and will look almost as well as if it had been painted. It ought to be done once a year, and, in my opinion, the shingles will last almost twice as long as they will to let the roof all grow over to moss. I tried it on the back side of my house ten years ago, when the shingles were all covered over with moss, and they appeared to be nearly rotten. I gave the roof a heavy coat of lime, and have followed it nearly every year since, and the roof is bettes now than it was then, and to all appearance, if I follow my plan, it will last ten or fifteen years longer. The shingles have been on the roof over thirty years. There is no more risk about sparks catching on the roof than on a newly shingled roof. Those who do not have lime near by, can use good strong wood ashes, and these will answer a very good purpose to the same end."

The action of the lime is to cleanse the surface of all impediments to the free and rapid passage of the rain-water off. This enables the shingles to dry, very soon, and consequently prevents rotting. Moss-covered roofs will rot very rapidly.—*Rural Intelligencer.*

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Two Mountains Agricultural Society, No. 1, for County of Argenteuil.

The report of the proceedings of the Agricultural Society of County of Argenteuil, for the year 1856, appeared elsewhere, at the usual time; the distribution of premiums having been unavoidably retarded until now, we again call the attention of the successful competitors to the following list, with notice that the several amounts will be paid on application to the Secretary at his office, St. Andrews.

EXHIBITION AT LACHUTE VILLAGE, ARGENTEUIL, 25TH SEPTEMBER, 1856.

Medal Farm.

Albert Burwash (River Rouge).

Best Managed Farms (Class No. 2.)

Thomas Jefferson, James Woods, Moses Waldron, William Albright, Ivon Fuller, John McGregor, (Chûte Road.)

Hay.

Ewen Cameron, John McGregor, (Chûte Road), Alfred Centers, John Wainwright, John McGregor, (Lachûte.)

Barley.

John McPhee, Samuel Webster, George Hooker.

Rye.

Edward Jones, John McPhee.

Wheat.

Albert Burwash, Thomas Jefferson, Duncan McGregor, George Hooker, Nelson Albright.

Oats.

Daniel DeHertel, Alfred Center, Andrew M'Couat, Robt. Crozier, Herman Nichols.

Pease.

Matthew Burwash, (Bart.), James Robinson, John McPhee, Albert Burwash.

Maslin.

Martin Leroy, Duncan Dewar, (Chûte Road,) Finlay McMartin, Andrew McGregor, Robert McGregor.

Corn.

Martin Leroy, Alexander Gordon, Duncan Dewar.

Potatoes.

Samuel Hill, Albert Burwash, Heman Nichols, Andrew McGregor, Amaziah Barch.

Carrots.

Matthew Burwash, (Bart), John Wainwright, James Woods, Nelson Allright, Alexander Paul.

Mangold Wurtzel.

James Woods, James Clarke, Andrew McGregor.

Rutabaga.

Ebenezer Hendrie, Ewen Cameron, Mark Berry.

Stud Horses.

Alexander McGregor, Robert Thompson, William Whinfield, Paul Labelle.

Mare and Foal.

John Smith, Walter Graham, James Law, Edward Kingsbury, James Woods, Patrick McClintock.

Stud Colt, 3 years.

Mark Berry, Nelson Albright, Sylester Branton.

Stud Colt, 2 years.

Toussaint Rebasté, John Smith.

Filly.

Alexander Paul, Thomas Barron, James Patton.

Old Bulls.

James Gordon, Martin McMartin, Andrew McGregor.

Bull 2 years.

Robert Daig, Duncan McMartin, Thomas Jefferson.

Milch Cows.

Martin McMartin, Ewen Cameron, Geo. Glynes, Duncan Dewar, John McCruer.

Heifers 2 years.

John McEwet, William Drew, Alexander Gordon.

Heifers 1 year.

Andrew McGregor, Duncan Dewar.

Rams 2 Shears.

Martin McMartin, Thomas Lockie.

Rams 1 Shear.

Peter McMartin, Alexander Paul, John Paul.

Old Ewes.

James Gordon, James Clarke, Martin McMartin, John Grant.

Young Ewes.

Martin McMartin, James Gordon, Thos. Lockie.

Boars.

John Harrington, Heman Nichols, Daniel DeHertel, Thomas Jefferson.

Sows.

Andrew McGregor, John McPhee, James Wilson, Heman Nichols.

Butter.

Duncan Dewar, Samuel Hills, Phineas Hutchins, William Drew, Nelson Albright, Albert Burwash.

Cheese.

Geo. Glynes, Sam. Hills, John McEwet, James McEwet.

Etoffe.

Peter McMartin, Matthew Burwash, Ewen Cameron, Alexander Hyde.

Dressed Cloth.

James Wilson, Martin Leroy, Alexander McGregor, Orlando Powers.

Flannel.

Martin Lery, James Ewet, Wm. Drew, Stephen Burwash.

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PLOUGHING MATCH.

Held, 16th October, 1856, on David Rodger's Farm, East Settlement.

Men's Class.

William Todd, James Woods, Alexander McFarlane, William Rodgers, Wm. Law.

Boy's Class.

Paul Daig, John Gordon, Alexander McFarlane, James Wilson, Edward Kingsbury.

Draught Horses.

Samuel Hill, John Case, William Drew.

St. Andrews, *28th February*, 1857.

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ORNAMENTAL GARDENING.

Ornamental gardening is one of the fine arts. It is classed with painting, and sculpture and architecture. It is justly reckoned with those arts, for it is founded upon the same principles in the mind, and calls into exercise the same powers. The love of the beautiful, of fitness, of harmony in form, in color, and proportion, are the basis of all the fine arts. Ornamental gardening was formerly one of the luxuries of princes and nobles. Poets and travellers tell us of the beautiful gardens of the east—of the groves of spices, and the fields of roses—the avenues of trees, and walks bordered with flowers, the grottoes, and arbors, and water-falls, which adorned them. Ornamented grounds were no less valued than painting and statuary. Indeed, painting and sculpture and architecture were put in requisition to ornament the garden. No palace was completed, until the grounds were wrought into forms of beauty, and covered with the beautiful forms which spring from the bosom of the earth. But ornamental gardens are no longer a luxury confined to the great and the noble. The increase of intelligence, and taste and wealth, have converted many things that once were luxuries into the comforts and even necessaries of life. Every man who cultivates even a small patch of ground, and who has a taste for beauty, can

ornament his culture; can mingle with those plants which are sweet to the taste, and which are designed to nourish the body, such as are pleasant to the sight, and such as shed an agreeable fragrance around him. In Europe, ornamental gardens are laid out by artists, and cultivated under their direction. An artist is there as indispensable as an architect. Several gentlemen in this country are devoting themselves to the cultivation of the art of landscape gardening, and are doing much to promote ornamental and tasteful culture in the vicinity of our large cities, and much to improve the public grounds of the cities themselves, and thus to cultivate and gratify the taste of the citizens.

Men of wealth, and those who have little knowledge of cultivation, and little time to devote to it, and who wish to create rapidly a world of beauty around them, may employ the artist. But every farmer should be his own artist. Nature has implanted in every man, the love of the beautiful, and every man should cultivate the taste which nature has given him, and it will become to him a source of pleasure and enjoyment. Every man cannot paint, but every man can make a picture. The farmer has not time, or patience, or the cultivated taste necessary to success in painting. But the farmer can make a beautiful garden, and what more beautiful picture can anywhere be found, than a well-arranged, well-cultivated garden? The cultivator can make a garden anywhere; among the rocks, upon the steep declivity, he can form a terrace; by the side of the brook, around the pond, or along the borders of the marsh, he can make beautiful flowers spring up. He can plant flowering shrubs, or climbing vines, or fruit-bearing trees. He can form beds of rich vegetables, and borders of roses, or pinks and verbenas. He can arrange them in straight lines, or curved lines. He can form them into parallelograms or squares, into circles or ellipses, into triangles or hexagons, into any forms that may please his fancy, or best suit the nature of the ground. He may so arrange the vegetable forms that spring from the soil, and which are beautiful in themselves, and so combine their shade and hues, as to increase and brighten the beauty of the whole. And he can set the picture in a beautiful frame. He can surround his garden with trees—evergreens, forest trees and fruit trees, so arranged as to give shade, to those plants that require it, and to protect all from the cold winds. By doing a little at a time, by adding one improvement after another, and one beauty after another, every farmer may, in a few years, create a beautiful scene around him that will amply reward all his pains.

A garden thus formed by degrees, is much better than one produced at once, and by a large outlay of labor and money. The pleasure of creating it is prolonged, and the expenditure being but little at a time, is not felt, and in this way, new flowers, and vegetables and fruits are added from time to time, that yield new pleasure, and add new beauty to it. A beautiful garden is a source of pleasure to the family. The wife and children can here indulge their taste, and study the beautiful forms and wonderful instincts of nature. It is one of the most fruitful sources of instruction. The farmer can here bring his children around him, and speak to them of the wisdom, and skill and benevolence of the Creator. He can dissect flowers, and plants and seeds, and show their curious structure, and how wonderfully nature has provided for their preservation.

This is that one of the fine arts which the farmer can cultivate. It is the one that is suited to his condition and circumstances, and by the cultivation of it, he can gratify the love of beauty that nature has given him; and while he is gratifying this love, he is improving his intellect and his heart. The mere allusion to this part of the subject will suggest a multitude of pleasant thoughts to the mind.

The cultivation of a garden is a source of recreation to the farmer. His strength and time are severely taxed in cultivating the staple products of the field. Like all men, he needs relaxation and recreation. Where can he find it so well as in his garden? It will make him fond of his home. It will keep him from temptation. Instead of seeking pleasure in the store and the tavern, he will find it in his home. How many a young farmer, had he early commenced the cultivation of a beautiful garden, would have been saved from ruin.

This is a subject that needs to be urged upon the community. Every improvement in agriculture meets with opposition, and works its way slowly into use, especially if it does not yield immediate profit. Editors of agricultural papers have a work to do with regard to this matter. They must press it upon the attention of the cultivators of the soil. Every man of taste should seek to interest his neighbors, and especially the younger portion of them, in the subject. By-and-bye it will take hold upon the public mind, and add greatly to the beauty of our land, and increase our attachment to our beloved country. It will surround our homes with associations of beauty, and memories of pleasure and joy, that we shall carry with us wherever we roam, and that will never forsake us, till we lie down to our final repose in the bosom of the earth. R.

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A Curious Question.

It is a singular illustration of the inexactness of agricultural knowledge, that the question how many seeds there are in the pound of our commonly cultivated field plants, should still remain to be answered. It is plain that the answer will not necessarily affect farm practice—for the quantity of seed which it is proper to sow per, acre, is a matter to be determined by experience, not by argument apart from trial; and yet surely it is most desirable to compare the number of the seeds we ordinarily sow with that of the plants we raise. If in ordinary practice, 1,000,000 seeds of wheat are sown on every 40,000 superficial feet, or what is more extraordinary, fifteen to eighteen million seeds of flax are scattered on the same extent, about three to every inch of land, it is surely well to let the farmer know it. He knows very well he does not raise so many plants as this—and struck, as he must be, by the enormous disproportion between the means he uses and the result he gets, he will inquire into its causes.

The turnip seed employed per acre, numbers from 600,000 to 1,000,000, according to the kind and quantity adopted; this, if the rows are two feet apart, is two or three dozen seeds per foot of row, where a single plant alone is to be grown. No doubt nothing like so many generally come up, but then there is a great destruction by the hoe, which will explain much of the discrepancy in this case. What, however, becomes of the 18,000,000 seeds of flax which are commonly—of the 6,000,000 seeds of oats which are sometimes sown per acre? There is no destruction by the hoe in either instance here. A single ear of oats may contain 100 grains—a single plant will generally include half a dozen ears, but if 6,000,000 plants should yield as much as this implies, they would produce 100 loads of grain. Instead of 600 seeds a piece, they yield but half a dozen each to produce an ordinary crop of oats. It is plain that five-sixths of the seed, or of the plants that they produce, are killed in the cultivation of the crop; and the proportion is vastly greater than this in the case of other plants. What is the ordinary seeding of the clover crop? Eight pounds of red clover, four of white clover, and four of trefoil may be sown—that is at least 6,000,000 seeds per acre—a seed on every inch of land—but instead of 144 are there generally half a dozen plants on every square foot of the clover field?

There are about 25,000 seeds of sainfoin in a pound of 'rough' seed, as it is called, and it weighs some 20 lb. per bushel; four bushels is an ordinary seeding, and they contain 2,000,000 seeds, or 50 per square foot of land. This is the number, too, of seeds in an ordinary seeding of vetches. It is manifest that in both these cases there is an enormous destruction either of young plants or seed; and these are the two great divisions under which the causes of this anomaly must be classed: faults of seed and sowing, and faults of cultivation. We are enabled, by the assistance of Messrs. Rendle, of Plymouth, to lay before them the following answers to the question—how many seeds to the pound?

Name.	No. of seeds per lb.	No. of lbs. per bush.
Wheat,	10,500	58 to 64
Barley,	15,400	48 to 56
Oats,	20,000	38 to 42
Rye,	23,000	56 to 60
Canary grass,	54,000	

Buckwheat, ...	25.000	48 to 56
Turnip (Rendle's Swede),..	155.000	50 to 56
" (Cornish Holdfast..	239.000	"
" (Orange Jelly),....	233.000	"
Cabbage (Scotch Drumhead	128,000	56
" (Drumhead Savoy),	117.000	50 to 56
Clover (Red),.....	249,600	60
" (White....	686,400	59 to 62
Rye grass (Perennial), . .	314,000	20 to 28
" (Italian), ...	272,000	13 to 18
Sweet Vernal Grass.. . .	923,200	8

[*Scotch Paper.*

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UTILITY OF MOLES.—Mr. George Wilkins. in the Agricultural Gazette, gives the following statement:—" The Journal of the Royal Agricultural Society affirms that in one year, and every year, full 60,000 bushels of seed wheat, equal at this time to nearly £30,000 worth are destroyed by wire worms. If 60,000 bushels of seed are destroyed, full 720,000 bushels of crop are prevented, equal in value, at this time, to upwards of £300,000 a year! If farmers, instead of killing moles, partridges, and pheasants, would protect them, 720,000 more bushels of wheat would go every year into the English markets; but the creature designed by a kind Providence to perform the chief part of this immense good is the mole. Some years since I had two fields, one of which was full of wireworms, and the other was infested with them to the extent of more than one-third part of it. My crops failed for the first two or three years the land was in my possession, but every year afterwards they improved, and at length rapidly. The cause was this:—I bought all the live moles I could obtain, first at 3s. a dozen and then at 2s., and turned them down in my fields; and one year in which I had 8 quarters of barley on an acre and nearly 7 quarters of wheat the moles were at work all the summer. and in such numbers that, as I walked among the growing crops, the ground under my feet was like a honeycomb; but that was the last year I had a mole on my land; their work being done, their food—the former pests to my crops—being all consumed, the little innocent workmen, who had peformed for me a service beyond the powers of all the men in my parish, migrated to my neighbors to perform for them the same kind of benefit they had for me; but of course, death met them at every move, and soon the whole colony was destroyed. I will add that now I will allow all farmers in this country to turn upon the glebe I myself occupy all the moles from their farms they can bring, being convinced they would do me no injury; but, if I happen to have a wireworm, they would by destroying him do me good."

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THE APPLE TREE BORER.—I have suffered from the effects of the " Apple Borer," having lost some seventy beautiful trees during the space of three years. I made use of all the preventatives suggested by others that I could get hold of, but all to no purpose. I came to the conclusion four years since that the tree must be protected by a covering, in order to prevent the little animals from making a deposit. My process was this, and so far successful to the extent of the covering. Early in May, which is the proper time for this region, I examined every tree, and if nits or grubs were there, I followed them with a knife and removed them. I lifted the earth from the collar or base of the tree to the depth of two or three inches, and made use of worn wool bags, of little value, for wrappers, which, when cut into strips, are very convenient. I commenced two inches below the surface, and wound the extent of two feet, giving the tree two thicknesses of sacking, and securing the same with slender twine. I then replaced the earth, and the work was done for the season.

It is necessary to loosen the sacking or covering early in May every succeeding year, and wrap the tree again as above stated. If the animal is prevented from piercing between " wind and water," its favorite haunt, it examines for some vulnerable point, but his depredations with me, have been exceedingly rare, and when committed, easily detected. Should it be necessary, it is an easy matter to wrap the tree to and around the forks, as there is nothing effectual short of a complete protection.

Since pursuing the above course, I have not lost one tree that was not too far gone to recover, and no new deposits under the covering have come to my notice. [WM. MCKIE, Salem N. Y., in the Horticulturist.

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Exhaustation and Fertilization of the Soil.

Notwithstanding the much greater length of time during which the lands of England and of Europe generally have been under cultivation, than those of the United States, we have reason to fear that there might be found more instances of exhaustation of the soil in the latter than in the former, if equal areas taken without selection, were to be put into comparison This is somewhat contrary to an impression which is rather prevalent in some parts of this country. Exhaustation has been found so frequently to happen from skinning modes of management which are not at all uncommon, (as on the pasture lands of New-England and the tobacco lands of Virginia,) that it is easy to credit our own supposition, or the reports of travellers, that exhausted lands must be or are very common in England, France, Germany, and other of the long-cultivated countries of Europe.

That the fact is not in accordance with this natural expectation and rather prevalent impression. or in other words, that there are few cases in Europe of soils so thoroughly exhausted and deteriorated as those in this country to which we have just referred, and to which might be added some similar ones in States more recently settled, is a fact which we find satisfactorily testified to every now and then. The most recent testimony upon this point which we have met with is the following, which we extract from a letter by C. Reemelin, Esq., in the *Ohio Farmer* of Sept. 20th: " We read in America," says Mr. Reemelin, " much of the exhausted soil of Europe. I have seen none of it. So far from being exhausted, I think the soil of Europe is now better, than ever, and that it is made to yield larger crops than ever. How can soil be exhausted, which has, for centuries, received plentifully of manures, and manures made upon the best possible systems? I think a little reflection, coupled with the proper observance of European agriculture, must lead to the conviction, that the soil of Europe is constantly receiving more back in manure, &c., than is taken away in products. Of all farm products, the atmosphere and rains furnish the larger quantity of its (their) component parts, and whenever a proper system of manuring exists, the ground *must* become constantly enriched. In Europe, *manure is the ever present idea* of the farmer, and by gathering all offals, and making manure in any (every) conceivable way, he does, not only by green manuring. such as plowing clover under, but by stable, factory, street, and dwelling-house manure, take good care to return to mother earth, the rental she requires, and to do it without grudging and with compound interest. Soil is only there exhausted, where crops are raised which are entirely removed, and of which nothing is retured to the soil."

Exhaustion of the soil, and poor crops, are the corrective means provided by Nature for the punishment and improvement of those who violate one of her irrevocable laws. One reason, probably, why the tillers of the soil in Great Britain and the continent of Europe pay more attention to the making and saving of manurial matters, and to keeping their lands from the curse of exhaustion, than their brother-farmer in this country do, is, that they have been *cured* of the propensity to skin their lands and neglect them, by frequent applications of the above-named punitive and corrective means in successive generations, while we have had the folly remain with us, because we have run away from the punishment by seeking more fertile acres in the virgin soils of some newly-settled territory. It would be wiser, and more for our comfort probably, were we to profit by the punishments which have been sent down upon the violation of Nature's laws of fertility, both here and elsewhere, and give up our skinning practices, make and save fertilizing materials in every possible way, and feed well those a res which are to feed us and all dependent upon us. The rod will continue to be laid on, until we turn from our evil ways.

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Chemistry as Applied to Agriculture.

At the present time there seems to be quite a difference of opinion among agricultural writers as to the amount of service

chemistry has rendered to the practical farmer.

The result has been produced by several causes. The honest zeal of too credulous parties, who, seeing tne first results of the chemist's labor, hastily concluded and proclaimed to the world their conviction that the good time was rapidly approaching when science would do all the work of the farm, that the study of soils and vegetable physiology would soon enable a man to carry enough concentrated manure in his vest-pocket to manure a field.

There are many such over-sanguine men, and there is another class of men who stand ready at all times to take advantage of their credulity and coin it into money. If the man of science should make known to the farmer that the moon's rays had a beneficial and marked influence upon vegetation, this latter class of men would manufacture the concentrated extract of moonshine to meet the wants of the first.

The high expectations of the over-zealous, not being met by the slow advances of science, a reaction takes place in their minds, and they are carried to the other extreme and denounce all science as humbug.

Another cause of the reaction is found in the fact that there exists a class of pseudo-scientific professors whose aim is to take advantage of the willingness of farmers to believe that the revelations of science may be made directly available to them. These self-styled professors will, for a consideration, analyze a sample of a man's farm and write a prescription for the whole plantation by it, warranted to make it produce enormously.

These professors recommend young farmers to turn their attention to the study of chemistry *at least so far as to be able to analyze soils and plants*, intimating that a mere superficial knowledge will enable them to do so. We have frequently seen the analysis, so called, made by such persons, and would much rather have the opinion of an old practical farmer who could neither read nor write, formed upon the bare inspection of a handful of soil, than one of these same analyses of it.

The truth is, there are but few chemists, who are capable of making such an anslysis of soils and plants as to be of any value. Organic chemistry is the most difficult branch of that science, and the inorganic constituents of plants are found in most soils in such minute portions that none but a man endowed naturally with the requisite tact as well as a deep love of science, will ever become capable of making a reliable analysis, the minuteness and particularity of which would be incredible to the uninitiated, and the bare details of which few general readers would have patience simply to read

The duplicity of speculators, the pretensions of unqualified men, and the reaction of the minds of the over-sanguine are the great drawbacks to the advancement of scientific agriculture.—*Louisville Journal.*

KILLING DAISIES.—Norman Porter, Esq., of Berlin, top-dresses two years running with *barn-yard manure* for destroying daisies; the first nearly does the business, and the second makes a finish of them.

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Stable Management.

What a mass of consequences is comprehended in that short sentence, "Stable Management!" What a host of ruined constitutions and crippled limbs has it not to account for! What new diseases introduced, and what old ones perpetuated, by stable management—verily, we should write it rather *mis*management? for how, in fortune's name, the absence of everything that could tend to an animal's comfort, and the presence of everything that could tend to the contrary, came to be dignified with the title, we profess ourselves somewhat at a loss to understand. "Stable management!" Shades of departed steeds, from the time that man placed the iron in your mouths, and claimed by might the right to make you slaves, we can fancy the concentrated irony of your version of stable management; we can fancy the "high-mettled racer" telling of his aching limbs and cracked sinews, his heart-sickness from the perpetual hot-air bath in which he spent his best days; we can hear the hack tell of his bad provender, his eyes smarting from the accumulated pungent gases of his badly ventilated home; while the cart-horse is sullenly groaning his disapprobation of the chaff on which he often tries to live and do his duty. What a history we should get of "stable management" if its victims could state their grievances!

But we are forgetting that our intention is to be practical, and not speculative; let us come to plain statements, and answer the question. What is the object of any system of stable management? We imagine, to keep the animals in the best health and working condition on the most economical plan. How are we to do it? According to all that has been said and written on the matter, we may select from twenty systems for the purpose, each one claiming to be the best. Now, we are not going to talk any nonsense about keeping the animals in a condition as nearly as may be to a state of nature; on the face of it, working horses are not in a natural condition; it is not natural to live in stables, to draw loads, or have iron rings nailed on to their feet. What the horse is in his native wilds, wherever they may be, and what he is under domestication, are two very different things; his habits are totally changed, and his functions materially modified. We do not wish to exclude the aids of scientific reasoning on what an animal was evidently intended for by nature, but we do wish to state our conviction that, under totally unnatural circumstances, the question of what is best to do or be done is one to be answered by actual experience—experience founded on correct knowledge of principles; the most philosophically correct statement may become the most arrant rubbish when some of its premises are altered.

To begin at the fountain head—a word about breeding. We are not about to tell the farmer how long he may work his mare in foal, or what sort of horse is adapted for his country, because we have an idea that farmers are in a great measure like other people; they fancy they know their own business best, and, providing they find a certain system answer their purpose, they are not fond of trying experiments; "and small blame to them for that same." But we must take the liberty of asking some of them why they do not act up to what they known to be correct? They have an idea, we fancy, of the meaning of hereditary transmission of disease; on what principle, then, is the groggy, or broken-winded, or the blind old mare, when no longer of service, kept on just to "get" a foal or two out of her? Do they fancy they are proceeding the right way to continue a healthy stock, or do they make their colts for the same purpose that a certain honest tradesman made his razors—to sell?

Before we can hope to ensure a healthy condition of our studs, we must have a hnalthy constitution to start with,and healthy colts are only a very common sense consequence of healthy parents; give us fair play, then—in other words, give us some healthy material, and we will endeavour to tell you how to keep it so. First, as to the stable in which our animals for agricultural purposes are to reside. Of course, most of those for whom we write have their stables built; to those who have not we offer a few concise directions; and those who have may modify their estabiishment accordingly, that is, provided the they think it worth the trouble.

1. Keep as far away from a northern or eastern aspect as possible: south before all, and west next.

2. Swear by loose boxes, and don't believe in stalls.

3. Have the floors of brick, nearly level, slightly tending to the drain in the *centre* of the box.

4. Have plenty of light, and have the windows so arranged that you can regulate the quantity as you please.

5. Ventilate! on scientific principles if you can—but ventilate! Have openings above for the foul air to escape, and some below for the pure air to enter. Very little ingenuity is required to arrange some simple contrivance for directing the lower current so as not to strike on the animal's legs.

6. Make each box as high and long and wide as your ground will permit; we don't prescribe any particular number of feet; in reason, you cannot have too much room, and you must have enough to permit the horse to turn easily in all directions.

7. Patronise iron mangers, water troughs, and racks, and let every box have one of each, taking the liberty to put the rack quite low, that the horse may eat his hay in the

way he prefers, with his head down; if you will put the fodder nearly out of his reach, he will occasionally show his contempt of your ignorance by pulling it to the ground before he eats it, employing it then in about equal proportions as food and litter. So much for the mere receptacle; now for the thing to be received.

At what age may the cart-colt be taken from the paddock and straw yard, for the purpose of being stabled and worked? We assume that the animal has been well kept; that he has had plenty of good grass in the field, and good hay in the yard. If you wish to be economical, and starve your horses, wait until they have done growing; it does not pay before time. We assume also that the young animal has been handled about the head and legs frequently, and accustomed to the sound of clanking iron; otherwise his first visit to the forge will perhaps leave an impression of so disagreeable a character as to render him totally unmanageable for a long time afterwards on each recurring visit. These preliminaries being settled, we answer our question of "what age?" by saying three years at least, and we don't intend to abate one single. If we could trust you, or rather your servants, we would let you have the two-year-old for some very light work; but we cannot make you understand that the light work of an adult horse is abject slavery to so young a one, and having been more than once deceived we cannot run the risk again. At three years old, then, take your colt, and have him shod for the first time. Ah! this first shoeing! what a point from which radiate contracted hoofs, corns, navicular disease, and all the ills that feet are heirs to: how we would wish to become a subtle spirit in the brain of every smith about to apply the first shoes, how soon we would dispel the notion that a colt's foot is a very unsightly piece of mechanicism that requires to be rasped and cut into proper form. Save us—proper form! How we would in the gentlest manner insinuate to him the propriety of shutting up his knife in the cupboard for that time, or, at the most, using the back of it to scrape away any broken horn, and not cut and leave open these tubes which will pour out their liquid contents, and forthwith become hard and brittle. Then, becoming more subdued as we found our suggestions attended to, we should in the most matter-of-fact way ask him to make a shoe to fit the foot, and not the foot to fit the shoe; we should pray him to protect the sole by a broad cover, to leave the heels of the shoe thinner than any other part, and, lastly, to put two nails in the inside quarter, and four on the outside; having so done, we should quit our temporary habitation, with the pleasing conviction that for once in his life at least a horse had been properly shod by our instrumentality.

We have our animal in action now, condition good, worked at first moderately, and located in an appropriate stable, well lighted, drained, and ventilated; we will treat him as a working horse, and inquire how and when we shall feed and tend him.

The quantity of food and frequency of administration must, of course, altogether depend upon the amount of work the horse is called upon to perform; the quality, also, and character of the provender will be modified by the same circumstances; the really hard-worked animal, the fly-horse during the London season, can and does take his eight or ten feeds per day, sometimes of pure unmixed oats, no time being allowed him for the consumption of more bulky and less nutritious material; the draught horse, at the time he is but little required, will keep up his condition even without oats at all, providing he has meanwhile a plentiful supply of good hay. We are acquainted, indeed, with establishments where the work is irregular, though sometimes severe, the horses being entirely fed on bran, but the result appears to be anything but satisfactory: a rough coat, soft muscle, and excessive perspiration under exertion, show the system to be ill sustained under such aliment, independently of the disposition such animals have to skin diseases of various types, especially surfeit.

We are justified, then, in holding as an axiom that for the working horse oats are an indispensable requisite for the maintenance of robust health. It is a question with many as to whether oats should be crushed or not under all circumstances; some contending for the universal application of the system, while others would limit it to the old horse, on the plea that young horses contract a habit of gross feeding on discovering that their provender does not require so much mastication; for our own part we confess to a leaning to the side of crushed oats generally employed; perfect mastication may be ensured by combining a little bran and a double or treble portion of chaff; and certainly the superior facilities for digestion, and the consequent relief of the organs, are points worth attending to.

As to green food and roots, they stand rather in the position of alterative medicines, very valuable in moderate quantities, but by no means adapted for supporting the nutritive functions of a working animal. Another important consideration is the amount of water to be allowed. Wherever it is possible, we advocate the trough system; the vessels being kept filled, and the fluid being always the temperature of the stable. If an animal comes in too warm he may be kept from it for a short time, or only permitted a small quantity, but usually he may be left to himself; experience having taught him that his supply will not be taken away, he usually manifests no eagerness to consume a large quantity at a draught. If, however, troughs are not conveniently applicable, care should certainly be taken not to allow the animals hot from work to walk into the pond and fill his stomach with an immense quantity of cold fluid; the caution would seem almost unnecessary, were it not that cases of colic are the constant consequences of its neglect.

We have not, in the course of our observations, entered into the minute details of the several phases of stable economy, remembering that our readers, at least those who will take any interest in the subject, are practically acquainted with them, and would not be likely to alter their times of feeding or quantities of food at our suggestion.

We have simply ventured to string together a few notions that struck us as being somewhat cast on one side in ordinary practice. "A word to the wise is enough." Another time, possibly, we may catch a few ideas floating in our minds relative to the hack and hunter. If we should be so fortunate, we promise to fix them, for our reader's amusement at least, if not instruction.—*Oxford Journal.*

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Renovation of Worn-out Lands.

Messrs. Editors.—The farmers of the old States, who cultivate worn-out land, or land that has its maiden richness exhausted by long culture, and who depend upon manuring to secure crops, cannot but view with interest any mode of regenerating their land at small expense and certain profit. Stable manure is not to be had in sufficient quantity, guano is dear, and mineral manures are not always sures, nor cheap either. Green manuring, or the plowing under of green corops or vegetables, constitutes an important branch of agricultural improvement, hitherto, I think, not sufficiently attended to.

I wish to call the attention of your readers to the subject anew, and endeavor to show them, with the assistance of Prof. Johnston and actual experience here, in renovating sugar and cotton lands, that they have within their means one green manure which is a powerful adjuvant to the improvement of their soil, hitherto not much ushed in the Northern and Middle States. I am the more induced to offer these remarks from perusing with interest the editorial on "cow peas" as a green manure, published in the "American Farmer" for May last, as sound an agricultural paper as exists in the United States.

I desire more particularly to speak of the Pea—cow pea or Carolina pea as it is called. The annual crops of sugar and cotton raised upon the same land for successive years, at last exhaust even the rich soils in this state, and in order to make a crop, the land must be assisted by manuring. As yet this has not been done, except by green manuring, and when I tell you that a piece of land so treated by one green crop turned under, is so much improved that it bears fine crops of sugar cane for the next three or four years without other manuring, I but state a simple fact. Prof. Johnston, in his Lectures on the Application of Chemistry and Geology to Agriculture, (a book every farmer ought to have) says:

"In the sap of plants there generally exist certain compounds containing nitrogen, which not only decompose very readily themselves, but have the property of persuading or indncing the elements of other

organic matters, with which they are in contact, to assume new forms, or to enter into new chemical combinations. Hence, the sap of plants almost always undergoes more or less rapid decomposition even when preserved from the contact of both air and water. When this decomposition has once commenced in the sap, it is gradually propagated to the woody fibre, and to the other substances of which the mass of the stems and roots of plants is compose. Hence, recent vegetable matter will undergo a comparatively rapid decomposition, even when buried to some depth beneath the soil, and the elements of which it consists will form new compounds more or less useful to living plants, in circumstances where dry, and where many forms of even partially decomposed vegetable matter would undergo no change whatever."

Here is stated one way in which green manures tend to improve the soil, and furnish food for any crop sown afterward. Without now noticing other principles "on which the efficacy of green manures depends," which are explained by Prof. Johnston, I will state some of the "important results by which, in many localities," green manuring is "uniformly followed"—these results being peculiarly so in this region. He says:

"The plowing in of green vegetables on the spot where they have grown, may be followed as a method of manuring and enriching ALL land, wnere other manures are less abundant. Growing plants bring up from beneath, as far as their roots entend, those subsrances which are useful to vegetation, and retain them in their leaves and stems. By plowing in the whole plont we restore to the snrface what had previously sun. to a greater or less depth, and thus make it more fertile than when the green crop was sown."

2d. "This manuring is performed with the least loss by use of vegetables in the green state. By allowing them to decay in the open air, there is, as above stated, a loss both of organic and inorgance matter—if they be converted into fermented (farm-yard) manure, there is also a large loss, as we shall hereafter see; and the same is the case, if they are employed in feeding stock, with a view to their conversion into manures. *In no other form can the same crop convey to the soil an equal amount of enriching matter as in that of green leaves and steams.* Where the *first* object, therefore, in the farmer's practice is, so to use his crops as to enrich his land, he will soonest effect it by plowing them in in the green state."

Other beneficial results, which the Professor states, are, the immediate benefit accruing from turning under green crops,—that grain crops following such manuring are never laid, and produce grain greater in proportion to the straw than fermented dung—"that green manuring is especially adapted for improving and enriching soils poor in vegetable matter. Living plants draw their sustenance not only from the earth but from the atmosphere. Plow in these living plants and you necessarily add to the soil more than was taken from it—you make it richer in *organic* matter."

The question arises, are any soils beyond the reach of this improvement? "Those only are so upon which plants refuse to grow at all, or on which they grow so languidly as to extract from the air no more than is restored to it again by natural decay of the organic matter which their soils already contain."

And now, Messrs. Editors, to the point in question—the kind of plant to be used as a green manure. Prof. J. says:

"But for those plants which grow naturally upon the soil, agricultural skill may substitute others, which will increase more rapidly and produce a larger quantity of green leaves and stems for the purpose of being buried in the soil. Hence the selection of particular crops for the purpose of green manure manuring—those being obviously the fittest which in the given soil and climate *grow most rapidly, or which produce the largest quantity of vegetable matter in the shortest time, and at the smallest cost.*"

I have draw rather largely from Prof. Johnston's work, but thought it necessary to more thoroughly elucidate my subject to those farmers who do not read such works, and to induce them if possible to buy such books and enlighten themselves.

Different plants have been used in different soils and climates for green manure, some being more applicable to one place than other. Spurry, white lupins, vetches, rape, buckwheat, rye, turnips, borage and clover, are enumerated by Prof. J., to which may be added peas and corn sown broadcast or in drills, and turned when about two or three feet high. Those plants which shade the ground best, and thus keep it free from weeds should be used when available, the more especially when such plants contain the most nitrogen, a valuable stimulant to the growth of all living plants. Chemists say the straw of beans, peas and all pod or leguminous plants, is richer in nitrogen than in straws of grain or cereal plants. Dana's Muck Manual says, "pod plant straw contains more vegetable matter, and a greater quantity of potash salts, than grain straw; more geine, more ammonia by putrefaction, and are therefore preferable for composts." For the same reason are pod plants most beneficial where they can be used for green manures.

The sugar cane crop, as I have before stated, exhausts the land of the constituent principles necessary for the growth of that plant. The planter *must* make sugar every year, and his object is to reinstate his land as quickly and as cheaply as possible. He cultivates his acres by hundreds, and the expenses of a sugar plantation are very great without the item of manuring.

Experience has shown him that the Cow pea is the readiest, cheapest and most remunerative manure that he can use, turned under as a green manure. It furnishes to the soil all that it has lost by former cropping, and enables the planter to raise fine crops for several years; some planters only sowing peas every six or seven years on the same ground. The best peas are thought to be those raised in Mississippi. Why so I cannot tell. They cost from one dollar to three, per bushel, according to the supply ane demand; average cost about two dollars. When the corn is being laid by, they are sowed in one of the furrows next every row of corn, at the rate of half a bushel to three pecks per acre, more or less. After the fodder is pulled and the corn gathered, the whole of the vines and corn stalks are turned under with a large plow of three or four mules, and left to decompose.

This land is then planted in January or February, with cane or cotton as the case may be.

The crops, following such green manuring are, *cæteris paribus*, (other things being equal) excellent, showing by their vigorous growth and healthy appearance, the beneficial result of the manuring.

That this kind of manuring is all that is needed by farmers to improve their lands, I do not say—but that it will be found one of the best means in connection with others. And that the pea as a green manure will render less assistance from other manures requisite in improving poor soils, I do not for a moment doubt. I shall rely on it mainly in improving a farm I own in Maryland, and may at a future day be able to give you some practical results in the shape of my experience there. That the cost is less than clover, and its beneficial results greater, can, I think, be well established by some Maryland farmers who have already tried it. If my remarks induce any one to use the pea as a green manure, let him give through your columns, the result, with *all* the attendant circumstances. It is by published experience that we learn good from evil, more than by private observation. H. H. *Bayou Lafourche. La.*

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MISTAKEN REASONING.

Nothing is more common than the practice of forming false opinions from insufficient date. It is a fruitful source of all the differences existing on various subjects in agriculture.

A single trial may be followed by certain effects. They may be accidental, and not occur again; or they may often occur, and yet have no connection with the supposed cause. A solitary proof of this sort should never be received as anything more a suggestion for further trial. If, on being repeated, the same effect follows, the probability is increased; but it is only by many trials under all possible circumstances, that an indisputable connexion between cause and effect is established—a mode of proof, known as the *experimentum crucis* of Baconian philosophy

We may adduce a few examples. Some years ago, the theory was advanced that electricity was a most important agent in the growth of plants. It was found that a grape vine, planted at the foot of a lightning rod, made a growth several times greater than another vine in a similar soil a few yards distant. This was thought to be proof positive—"no doubt at all," but the electricity streaming down the rod, stimulated a most vigorous growth of the vine. An experiment to prove the same theory, was made by burying a copper wire a foot or more beneath the soil, the ends of which passed upwards like lightning rods, and terminated in sharp points. The row of beans planted over the buried wire, was twice as large as any other beans in the garden—another "indisputable proof" of electrical influence. It was found however, by more careful examination and other experiments, that the rapid growth of the vine was solely owing to the deep and loose bed of earth, made by digging the large hole in which the lower end of the rod was buried; and that the loose earth of the trench in which the wire was laid, was the sole cause of the fine appearance of the row of beans.

The luxuriant appearance of the grass under the shade of a tree standing in a pasture, was pointed out recently as a proof of the theory that "shade is the best manure." The tall green growth at this spot, was indeed in strong contrast with the short pasturage elsewhere; but a further examination proved

that other trees growing in adjoining fields not occupied as pastures, exhibited no such appearance ; and that the larger crop in the shade was a result of the amount of *top dressing* the land had received here, from the numerous cattle which had made the shade of this tree a resort for several hours each day, —with the added reason that cattle always prefer grass grown in the sun, to shaded pasturage, especially if that shaded portion has been stimulated by fresh manure ; and hence this grass was not gnawed so short as the other.

A striking instance of this fallacious mode of reasoning, occurs in the origin of the opinion that wheat turns to chess—the more remarkable on account of the singular combination of causes to favor such an opinion. A farmer sows a field of wheat : a part of it is injured by winter ; chess is found growing abundantly on the injured spots and no where else ; and the first doubtful thought is that the wheat by partial injury has been changed into chess plants. But so bold a conclusion needs stronger and additional proof. This is found in the fact that if the wheat was eaten off early in the season by cattle, chess spring up in its place ; that, if injured seed is sown the same result often takes place ; and especially that when apparently clean wheat is sown, plentiful crops of chess immediately follow. The application, however, of Bacon's *experimentum crucis*, which requires that the experiment should *fit the theory* in all possible variations, proves the fallacy of the opinion of transmutation. For it is founfl that there are many parts of the world where the chess plant is entirely unknown, but which are equally liable to the changes of weather producing winter killing, and where cattle are as liable to break into wheat fields, as here. It has also been ascertained, that the chess plant will grow and perfect its seed, in a dense growth of wheat and other plants, unperceived, and thus fill the ground with its ssed ; but that when this shading is removed, as by the winter-killing of the wheat, or its destruction by cattle, the chess plants will spring up several feet high and spread abroad in every direction, bearing many thousand fold, and that this remarkable property alone is sufficient to account for the supposed change of the wheat to chess. It is likewise found, that from the smallness of the chess seed, it frequently exists unperceived in great numbers in what is supposed to be clean seed wheat, and is thus often largely sown, unknown to the farmer ; and that its extreme hardiness enables it to escape injury during its dissemination in manure, and in the dung its dissemination in manure, and in the dung of cattle and other animals. The fact that with all these adverse circumstances, many farmers in various parts of this State, have succeeded by many years of great care, in entirely eradicating the weed from their seed and from their soils, shows beyond a that some other explanation than transmutation must be adopted for the appearance of fields of chess where wheat only has been sown.

We could adduce other instances ; but these may be sufficient to show the importance of forming opinions with great care, and and not until a thorough course of accurate experiments has been resorted to,—whether it be in the estimate of the value of manures, different modes of planting and cultivation, he profitableness of different breeds of animals, or any other important question in farm economy.

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Removing Evergreens.—There is no season for removing evergreens in the ordinary way like that when the buds are just swelling and the roots pushing out new fibres. There are fifty different opinions about the best time to plant evergreens. The above may be taken as ours, and it is not given without plenty of trials of other modes. We except, of course, moving the trees with a large frozen ball during winter—but one which is only occasionally practiced. These who can get their trees with a ball of earth attached, during this winter, should not put off so very beneficient an undertaking.

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Scientific Phenomena.—During a recent lecture delivered by Professor Faraday, at the Royal Institution of Science, a piece of pure iron, peculiarly prepared, so that its particles might present a large surface to the action of the oxygen in the atmosphere, was ignited and continued to burn like tinder. The ready combustion of iron, compared with gunpowder, was shown by a very simple experiment. Some iron filings and gunpowder were mixed together and sprinkled into the flame of spirits of wine burning on a plate, when the iron filings caught fire and burnt in bright sparks, whilst the gunpowder passed through the flame without igniting ; and the quantity that fell on the plate was afterwards dried and exploded.

Lead prepared in a similar way was shown to be still more inflammable, for it caught fire in a beautiful flame when exposed to the air. The Professor stated that lead was nearly as inflammable as phosphorus, and he explained the cause of its not burning in ordinary circumstances to be that the solid product of combustion forms a film that prevents contact with the oxygen, and the conducting power of the other parts of the metal draws off and dissipates the heat. He pointed out the admirable arrangement by which those combustible properties of the metals are kept in proper control, and bodies that are really so inflammable are made to serve as strong resisters of combustion.

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MONTREAL MARKET PRICES.

Rates at which produce is purchased from the Farmers.

5th March, 1857.

Hay from 9 to $10½ per 100 bundles.
Straw from 3 to $4. do.
Fresh Butter, per lb. from 1s 4d to 1s 6d.
Salt Butter, do from 11d to 1s.
Country Cheese. from 6d to 8d.
Wheat, none offered.
Barley, 3s 9d to 4s 3d.
Rye, none.
Oats, from 2s 3d to 2s 6d.
Yellow Indian Corn, none.
Indian Corn, (Ohio) none.
Buckwheat, none.
Peas, from 3s 9d to 4s 3d.
Beef, per 100 lbs, from $5 to 8.
Pork, $8½ to $9 per 100 lbs.
Mutton, per lb., from 5d to 7d.
Veal, 6d to 7½d.
Eggs, 10d to 1s.
Honey per lb. 7½d to 8d.

BUREAU OF AGRICULTUE AND STATISTICS,
Toronto, 15th August, 1856.

PRIZE ESSAYS.

£40, £25, £15.

THE above PREMIUMS will be Paid for the Three Best Essays. respectively, on the Origin, Nature and Habits, and the History of the Progress, from time to time, and the Cause of the Visit, of the Weevil, Hessian Fly, Midge, and such other insects as have made ravages on the Wheat Crops in Canada, and on such Diseases as the Wheat Crops have been subjected to, and on the best means of evading or guarding against them.

The Essay to be furnished to the Bureau by the FIFTEENTH day of APRIL next, and to be designated by a motto, a copy of which shall be also forwarded in a sealed note with the name and address of the author. The Prizes will be awarded according to the decision of a Committee, to be named by the Board of Agriculture for Upper and Lower Canada, or, in default of any such decision, by the Bureau, the Essays selected to become the property of the Bureau. A premium will only be awarded in case an Essay of sufficient merit is produced.

It is feared that the farmer in his eagerness to produce wheat, is not paying sufficient attention to the danger of over-cropping, and it is hoped the warning, and the information and advice which may be obtained through the Essays sought for, will aid in arresting the great scourges of the wheat.

P. M. VANKOUGHNET,
Minister of Agriculture, &c.

12 ins.

Montreal: 37, St. François Xavier Street.