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THE
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We believe that an augmented production would create in this country an augmented consumption, independent of exportation. If we had a large production it would encourage consumption, or the settled residence of those who would consume. By the division of labour consumption of agricultural products is encouraged. It is seldom considered that there are other parties engaged with the farmer in agricultural production. Every individual employed in the manufacture of articles which the farmer finds necessary to purchase for himself, his family, or his business, may be said to have an indirect share in agricultural production. The clothes the farmer wears, the implements he employs, &c., are all necessary to the products of agriculture. The farmer, while employed in his business which he understands, has other persons employed for him in furnishing him necessaries which he could not produce himself so cheaply by his own labour: hence, the carpenter and blacksmith, when making the cart and plough, are actually performing a part of the work necessary to agricultural production. The manufacturers of cloth, cotton, wearing apparel, &c., for the farmer, are also indirect labourers with him in his work; and certainly, payment must be made for all these from the produce of the soil. Our proposition may not be clearly understood or admitted, but it is perfectly capable of demonstration. It would be very difficult to show from what other source means of payment for the labour of man can be derived, except from the produce of the soil. This *alone* can first set all other trades in motion; and while we are convinced that this is the case, we say, that an abundant production will be an encouragement to increased consumption, because it will furnish the means of employment for persons not directly employed in agriculture. We admit, that at present, a large amount of capital, or money from England is expended in Canada, to the troops,—for public works, &c. that goes directly to the support of trade and commerce here; but this is only a temporary supply. We may be asked how this money goes directly to the support of trade and commerce, and in reply we say,—firstly, that the engineers, contractors, and labourers, expend a large proportion of the money they receive on British and Canadian produce and manufactures, and secondly, that part of the food the troops and those

employed on public works consume, that is the produce of Canada, and purchased from the Canadian farmer these farmers also pay for British and Canadian products and manufactures and other foreign goods brought here by commerce, and hence it is, that the greater the quantity and value of the Canadian farmer's products, the more certainly will the trade and commerce of Canada be augmented and prosperous.

How vastly would the means of comfortable enjoyment be increased to the agricultural class in Canada if the produce from each farm was doubled; and that such a result is possible, we have no doubt whatever. Of course, a larger expenditure of labour would be required, but then, if this labour was judiciously employed, it should produce much more than it would consume; and this surplus would be the profit of those who employed labour. It is only the food consumed by the labourers employed in production that is actually lost to a country generally. Where there is a judicious division of labour and the agriculturist purchases from others all that he requires, except his food, the money or produce paid for his clothing and implements is the means of giving employment and support to the tradesman, manufacturer, and merchant, who may again pay to the farmer for his produce what the farmer has paid him for his commodities. Hence it is, that a large agricultural produce must prove beneficial to every class of this community. What, on the contrary, is the consequence of a small production? The farmer has little to expend on any article not produced on his own farm. He must endeavour to exist in the best way he can upon his own productions,—manufacturing all he requires of clothing and implements, within his own family. No extra labour is ever employed, however much required or profitable it might be. The land is left in an unproductive state, when it might yield both the means of employment and profit. Every increase of capital, which we consider an augmented production would be, must lay the ground-work of a perpetual annual profit, not only to the producer himself, but likewise to all those whose industry may be set in motion by this new addition of capital. Can a doubt exist, that the comfortable enjoyment of the Canadian population would be vastly increased by the augmented production of

the soil? We do not say that their true happiness might be greatly increased by the possession of wealth; but we know there is not the slightest chance that the agricultural class in this country shall ever be so wealthy as to jeopardize their happiness by its excess. The agricultural classes in Canada are not by any means inclined to be extravagant in their living or habits; not nearly so much so as other classes of our community; but there are, nevertheless, many enjoyments and comforts they would know how to appreciate as well as other classes, if they could obtain them.

We wish to see the capital of the country enlarged by means of an enlarged and improved production; and we conceive it to be the duty of all those who have either power or influence, to forward the improvement and increase of our productions, to do so by every means in their power. We may imagine we are not called upon to trouble ourselves with any matter in which we cannot perceive we have a direct interest, or which we do not find included in the list of duties prescribed for us as belonging to our office, whatever it may be; but these excuses will not justify us to our country, or to the community to which we belong, for neglecting to do good to our country and her people when we had it in our power to do so, without any great sacrifice,—more than a useful exercise of the power, influence, and station, bestowed upon us perhaps by the good will of our country and people. The world would be a very different one from what we see it, were every individual to act for the general good, as they may have power or opportunity to do so. We do not attempt to say that any individual should be called upon to sacrifice his own and his family's interest for the public good; but there are some who could do much for the public good without neglecting their own interests in any degree that would be injurious. On all these, we would respectfully and earnestly call, to follow the example of the respectable classes in England, who are ever ready to give their most hearty support to any measures that may be likely to promote the general prosperity of their country;—and it is this which has exalted England to her present high and proud position,—the envied of all other nations of the earth.

The following is a part of a Speech delivered by Dr. John Murray, of Edinburgh, at a public dinner given lately to that gentleman at Kelso, in Scotland.—We may hear from every country except Canada, the great efforts that are being made to forward the improvement of Agriculture. They have organized in Scotland, an "Agricultural Chemistry Association,"

and it is expected to produce immense benefit. Lectures are given by eminent men on Agricultural Chemistry, and everything possible is being done to improve the art of Agriculture. In the British Isles, the first in rank, fortune and talent, interest themselves in this subject, and are sure to do all that is necessary and practicable, to forward the improvement of Agriculture. In Canada, it is different with us, and whilst our Government and Legislature follow this suicidal policy, of neglecting to adopt the means that would be best calculated to instruct and encourage an improved system of husbandry in Canada, we need not expect much improvement in our system. We require here that the Government and Legislature should act in this matter, in the same way that the great landed proprietors do in the Mother-Country. In France there is a Minister of Agriculture, and from all we have learned of his duties, we believe he is not the least useful of the King's Ministers. There is very little doubt that the most remote farms in Canada, if an ordinary good quality of soil, might be kept in a profitable condition of productiveness, if managed properly under a judicious rotation, a due proportion of tillage, meadow, pasture and stock kept, and a careful application of all the manure that could be made on the farm. Manure is wasted, and improperly applied in Canada, and this is a great defect in our system which might readily be remedied, if proper instruction and encouragement were given.

Gentlemen, we live in an age that teems with discoveries in all branches of knowledge, but particularly so in regard to chemistry; and of all the numerous and diversified benefits it confers, none are greater in importance, or more demand our attentive consideration than its application to the purposes of agriculture, the explanations which it gives of its practices and the suggestions it offers for its improvement. Until within these few years, the practice of agriculture may be said to have been in a great measure empirical and transmitted from one generation to another by rule of thumb. Now a new era has dawned upon us, and benefits are conferred on it by science which cannot be too highly estimated. It is more especially from the cultivation of one department of chemistry, which may be said to owe its origin principally, if not altogether, to Dr. Liebig and the continental chemists. There has been little or nothing done for it in Britain; but circumstances explain this. On the continent there are schools for instruction in chemistry, supported in a great measure by the government. Thus, individual professors are not obliged to struggle for their daily maintenance, but have time and means to devote to experiment and research—time also to instruct others, and bring forward whole classes of highly educated chemists, competent to the minutest investigation; and in this way the progress of science has been facilitated far beyond expectation. It is a credit to Britain to have done so much as she has done, circumstanced as she is. It is a kind of suicidal policy for Government not to encourage the science in this country as it is encouraged on the continent; for it would come back upon them with a return of benefit equal to that which has repaid the application of scientific principles to all the arts and manufactures (*loud applause*). It is to be hoped that in future we shall have schools which shall not be inferior to any in the

known world. This branch makes us acquainted with the nature of the various products of the animal and vegetable kingdoms, the different kinds of food, and the manner in which they are formed in the plant, and the laws which regulate their transformations; how, for instance, the very same elements in the same proportion can form gum, sugar, starch, and woody fibre. By the same science we ascertain the food of plants, and the source of it. We see that a large part is derived from air and water; and by analysing the ashes of plants and of their products, we can trace their mineral constituents to the soil and manure applied. This knowledge gives us power over the soil, and discovers to us many sources of waste. The great truth that animal manures are nothing else but the ashes of the food consumed in the bodies of men and animals, is the chief cause of the scientific improvements in agriculture. By such discoveries we are made aware of the cause of exhaustion of soils, namely, the removal of its most precious ingredients in our crops, and we thus learn what to add to our soils to restore and augment their fertility. We obtain the constituents of the bread and meat that nourishes and sustains us in the form of guano from Africa and America, while the mineral ingredients of plants are abundantly obtained from the waste products of manufactories. It was only a few years ago supposed that the earthy and saline constituents of vegetables were merely adventitious or accidental, but the researches of organic chemistry, aided by physiology, have taught us that these bodies, though small in quantity, are as essential as the larger ingredients. Thus we learn from the researches of Liebig, that the phosphates and the alkalis are always present in the seeds and roots of plants cultivated for food, and that they enter into the animal system and contribute to the formation of the bone, muscle, fat, &c., of the body; while the excess is removed in the solid and liquid excretions to be returned to the soil, absorbed by plants, and again undergo the same unceasing circle of changes. Now, what are we to expect to be the result of this application of science to the theory and practice of agriculture? Obviously to great results—the first, an increased fertility in our soils, and a corresponding increase in all the crops cultivated for man and beast; the other, a higher quality in the nourishing property of these products. At the present time the average produce of food in Britain is inadequate to supply the wants of our rapidly increasing population; but, from what is already done, we have every reason to hope that, when all the arable land is improved by thorough draining, deep ploughing, &c., and waste lands brought into cultivation, and chemical manures of a far richer and stronger nature manufactured and supplied, our supply of home-grown food will not only be commensurate with the present, but with a greatly extended population; and I trust, ere long, to see this country not only independent of the foreign grower, but even an exporter of corn as it once was (*applause*). To many, such anticipations may be regarded as visionary, but a little reflection on the immense results effected by scientific skill in our system of manufactures will go far to establish such an opinion. I will just ask if there is anything in the art of agriculture to render it less susceptible of improvement than the art of manufacturing cotton or woollen goods? There is nothing but what is susceptible of improvement. It is in vain to look for improvement in any art, if we do not make the workman acquainted with his tools: and to make improvements in agriculture, the agriculturist must be acquainted with the nature of the bodies he works with, with the ingredients that enter into his seed, and with the manures which he applies to his soil, so

that he may know how to put them to the most beneficial use. Until this is the case, we cannot expect any great result. Guano might have been used without the knowledge of chemistry, but it is the facts discovered by organic chemistry that tells us the reasons why it should produce such and such results, for it shows us that no more will vegetable life, than that of man, thrive without its proper food; and that when the food is given to it in that state in which it can be most easily taken up, it increases its vegetating powers, and causes an increased production. In regard to the supply of corn, I am rather disposed to adopt the opinion that for any amount of population that may exist on the earth, subsistence will always be found; and this would be the case in Britain at present, if we attended as we ought to do to the immense and incessant waste of the most valuable manure at home, instead of going to great expense to bring the very same from the distant isles of the ocean. We are greatly at fault in not attending carefully to the operations of nature. The supply of food and the production of manure are commensurate with each other. Were we, therefore, to collect the whole of the daily solid and liquid excretions of any man or animal, ferment and properly prepare and apply it, I believe it would grow on any given well-prepared soil as much food as would support that animal. Hence, to use a homely expression, every animal may be regarded as a manufactory of manure (*laughter*). Look at what is done in this respect in foreign countries. Look at the Chinese, who take every means for preserving these substances. If they were acquainted with the laws of chemistry and not only collected these substances, but knew, how to ferment, prepare, and preserve it, they would have an immense increase of produce. It would be a curious and highly interesting point to investigate as to the productive value of these manures—to collect for instance, all the liquid and solid excretions of one animal, properly prepare and apply it, sow the seed, grow the food, and then ascertain whether it was sufficient for the sustenance of that animal. If such were the case, as I believe it would be, from philosophical principles, we would see in it another adaptation of means to ends, and another beautiful illustration of the connection between the animal and vegetable kingdoms, as we have seen one already, during the lectures in the case of plants absorbing carbon from the atmosphere and giving off oxygen, while animals inhale the oxygen and exhale the carbon, thus constantly keeping up the purity of the atmosphere. (*Great applause*.) By attending to these natural processes, we may thus be enabled to supply food for any amount of population. You are aware that, since the introduction of guano as a manure, various mixtures have been manufactured to resemble its composition and effects. None of these have succeeded as a manure like guano; it still keeps its superiority, and the reason is, that many of these artificial manures are made by men indifferently acquainted with or altogether ignorant of chemistry. It is not to be expected that such can succeed; to do so requires a thorough knowledge of the whole range of chemistry; we must endeavour to imitate nature in the decomposition and fermentation of the animal matter. I have had some thoughts of commencing to make artificial manure myself, but have hitherto been prevented from want of capital. I see no difficulty in making up an immense amount of manure from the refuse daily thrown away, such as fish, the refuse of slaughter house, and the excretions of man and animals. These could be treated in such a way as to preserve their fertilizing properties, and at the same time remove their offensiveness. It is quite possible to get a richer and stronger

manure than guano. It is an object to get manures condensed, so as at the same time to preserve their properties, and to reduce the cost of carriage; and those individuals who have attempted to do this have failed; they passed out of the field of competition, and others succeeded them to fail in their turn; but, until a proper application of scientific principles, we can never expect to get any mixture equal to guano. Guano does not contain all the materials necessary for all kinds of crops. The reason is, that it is obtained from animals feeding on one kind of food alone, namely fish. No manure is so rich as that of man; in this case there are all the ingredients necessary for the cultivation of any species of vegetable food, and were these properly worked up we should have a manure far richer than any guano, and nearer home. (*Applause.*) Another point in reference to mixed manures is the light to be thrown on the subject by their practical application. This is a point that cannot be determined by theory. It is altogether a matter of practice. Try these manures—try them mixed with one another—and ascertain which is the best for certain kinds of crops, and on certain kinds of soils, and publish the results. As I mentioned in the lectures, it is very important that in every case you should attend to every circumstance—the quality of the soil, the climate, the state of the weather, the quantity of the manure used, the state of it, the quantity and quality of the crop, the time of cutting it, &c. Unless you carefully do all this, you may, unknowingly, omit one or two principal elements in the calculation. But, by attending to this, we shall be enabled to attain a far higher degree of cultivation even with the manures we now have. There is another point, with regard to what may be called specific manures. You have heard of specific medicines—medicines for specific diseases; and if particular doses produce distinct consequences, why should it not be the same with manures? It may be very well to have guano as a general one; but if we wish for the highest state of cultivation, we must, by analyses of the several crops, find out the substances they require, and make up specific manures for them; and when this is carried to its full extent, we shall have a specific for wheat on certain soils, and so on; and then when that is united to all the other appliances of draining, deep ploughing, &c., I have no doubt but you will bring agriculture to such a state of perfection as the most sanguine amongst us cannot now anticipate. (*Loud applause.*)

MACHINES FOR DRYING CLOTHES.—Machines for this purpose are used in the large cotton print works in the neighbourhood of Manchester. These machines, which are generally made of copper, somewhat resemble a large or deep washing tub, with the sides perforated all over with holes about the size of those in a common cullendar. The goods to be dried are placed in this machine, which is then made to revolve with great rapidity, causing the contents to fly to the sides against which they were pressed by the centrifugal force, and the moisture they contain is thus sent off through the holes, leaving the cotton or whatever it may be in a few seconds nearly dry.

An accident of simple occurrence but rather of serious consequence, involving the loss of a very valuable animal, as well as the breakage of one of Howard's wheel ploughs (which, "by the bye," is the best sort of plough I have ever used) happened on my farm a few days since, from the circumstance of the bearing rein being left loose, so that the animal got his foot over it, and was thrown back on the plough, falling on the upright of the counter. The skin of the belly was

torn, through which the bowels of the horse protruded, and immediate death followed, the horse having by kicking and plunging, torn the intestines dreadfully.—*From a Correspondent.*

A medical paper recommends the application of the inside coating of a nutshell or of a raw egg, as the best remedy for a cut, bruise, or burn. We can add, from experience, that the application of a little flour paste is very efficacious.

AIR AND EXERCISE—People who are travelling, especially in clear frosty weather, when the atmosphere is of the greatest specific gravity, and more oxygen is taken into the lungs at a single inspiration than in hot or hazy weather, will drink as much spirit with impunity as would intoxicate them five or six times over were they sitting in a confined room. It is not an uncommon thing for a man, whose maximum of whiskey toddy is a couple of glasses, to find, after having ascended Ben Lomond, that he has unknowingly swallowed a whole bottle of undiluted Glenlivet. The Highlanders are proverbial for the quantity of whiskey they drink and for the little injury it does them.—Many of them habitually drink a wine-glass of raw spirit directly upon rising in a morning. To them it is "a cup that cheers but not inebriates." They are not intoxicated by it for the moment, nor do they suffer in any marked degree from the usual remote consequences of dram-drinking. They are not like the tavern frequenter and spirit-tippler of the crowded city—jaundiced, consumptive, impotent, imbecile, or paralysed, dying before his time. They are hale, cheerful, and vigorous, despite their practices. And wherefore this marvellous difference? Fresh air and free exercise are the foundation of it all.—*Medical Times.*

SINGULAR CUSTOM AT MUNICH.—In Munich, Germany, all the boys found in the streets asking alms are taken to an asylum established for that purpose. As soon as they enter the door, and before having been cleaned, or their dirty clothes removed, a portrait of each one is taken, representing him in the same form as when found begging. When the portrait is finished, he is cleaned, and presented with a new and neat suit of clothes. After going through a regular course of education, appointed by the directors of the asylum, they are put to a trade, at which they work until they have earned enough to liquidate all their expenses from the first day they enter the institution. When this is completed, they are dismissed from the institution to gain their own livelihood. At the same time, the portrait taken when they first entered is presented to them, which they swear they will preserve as long as they live, in order that they may remember the abject condition from which they have been redeemed, and the obligations which they are under to the institution for having saved them from misery, and given them the means of feeding for the future. Such an institution might do good here.

CURING HAMS.—In Spain and Portugal, where the hams are remarkably fine, sugar is very commonly used in the proportion of about one pound to two or three of salt, and two ounces of saltpetre; this is most frequently rubbed in dry, the hams being at the same time exposed to the air; but if pickle be used, the brine is made with the common wine of the country instead of water. In Westphalia, where the hams also bear a high character, the process is much the same; though juniper berries are commonly added, and the use of sugar is omitted. The pickle is also made of strong beer instead of wine. The peculiar

flavour of hams is generally thought to arise from the mode of drying, which is always done by smoking them in the large chimneys of the farm-houses, where oak wood is the only fuel used; whilst in this country, fir, or any sort of timber, and even charcoal is not uncommonly employed. In the curing of hams at Bayonne and Strasburgh, which are so deservedly celebrated, not only is sugar largely used, but garlic, allspice, cloves, and other spices are also used, in different quantities, to add to their flavour; nor would English curers do amiss in following their example.—Sugar must assist both in preserving the meat and rendering it mellow, as it corrects the pungency, which it often occasions by the too free use of salt, and a slight taste of spice could do no harm. There is, indeed, in this country, so strong a prejudice against garlic, that it might not be easily overcome; but there are few condiments which, if delicately employed, will imperceptibly impart such high flavour.—*Farming for Ladies.*

GARDEN SEEDS.—It is time that seeds should be selected. Good seeds are the very first requisite for a good garden. Soil and culture cannot make good crops out of bad seed. We insert a table exhibiting the length of time which different seeds will retain their vitality:

Asparagus,	4 to 13
Beans,	1 or 2
Beets,	8 or 10
Cabbage,	6 or 8
Carrot,	1 or 7
Celery,	6 or 8
Corn,	2 or 3
Cress,	2
Cucumber,	8 or 10
Caraway,	4
Marjoram,	4
Melon,	8 or 10
Mustard,	3 or 4
Nasturtium,	2 or 3
Onion,	3
Parsley,	5 or 6
Parsnip,	1
Pea,	2 or 3
Pumpkin,	8 or 10
Pepper,	5 or 6
Radish,	6 or 8
Rue,	3
Ruta Baga,	4
Salsify,	2
Lettuce,	3 or 4
Squash,	8 or 10
Turnip,	3 or 4

The cucumber, squash and melon tribe do better on seeds 3 or 4 years old. We can recommend from repeated trials, the seeds of Risley, Chataque Co., N.Y., and of Messrs. Breck & Co., Boston.—*Indiana Farmer and Gard.*

THE BEST MANURE.—But here is a manure which, when properly managed, is of greater importance to the Irish farmer than any derived from a foreign and uncertain source—that is, farm-yard manure. Chemical examination teaches us, that in this we have all the elements necessary to vegetable life. Nature always producing offal enough to preserve her power of reproduction unimpaired, when her supplies are properly husbanded by man. By mingling the waste straw of the farm-yard with the excrements of animals, we form a mixture containing all the materials which our crops can require for their development. In the de-

composed stalks of plants we have silica, in a state capable of being taken up by corn and grasses, while the excrements of man contain a rich supply of phosphates; and urine furnishes by its decomposition, abundance of ammonia, and other valuable principles. A mixture so prepared will, by the economical farmer, be considered as superior to guano, for that substance does not contain all the elements which plants require for their food. If you neglect the manure lying at your own doors, you are neglecting the true remedy provided by nature herself for restoring the fertility of the soil; and, when you are informed that, with every pound of ammonia which escapes from a manure heap, 30lbs. of corn, and with every pound of urine which we allow to waste, 1lb of wheat might be produced, you will, I trust, be convinced that it is your interest to adopt some means for their preservation.—*Hodges' Lecture on Agricultural Chemistry.*

PRESERVATION OF FOOD.—Whilst in former times during long voyages, mariners were confined to salt and smoked meats, which in the long run, always proved injurious to health, and thousands of human beings lost their lives for the want of fresh aliments, which were even more essential in sickness, these dangers and discomforts become more and more rare at the present day. This is certainly one of the most important contributions to the practical benefit of mankind ever made by science; and for this we are indebted to Guy Lussac. At Leith, in the neighborhood of Edinburgh, at Aberdeen, at Bordeaux, Marseilles, and in many parts of Germany, establishments of enormous magnitude exist, in which soup, vegetables, animal substances, and viands of every description, are prepared and sent to the greatest distances. The prepared aliments are enclosed in canisters of tinned iron plate, the covers are soldered air-tight, and the canisters exposed to the temperature of boiling water. When this degree of heat has penetrated to the centre of the contents, which it requires about three or four hours to accomplish, the aliments have acquired a stability which one may almost say is eternal. When the canister is opened after the lapse of several years, the contents appear as if they were only recently enclosed. The colour, taste, and smell of the meat are completely unaltered. This valuable method of preparing food has been adopted by many persons in my neighbourhood and other parts of Germany, and has enabled our housewives to adorn their tables with green vegetables in the midst of winter, and with dishes at all times which otherwise could be obtained only at particular seasons. This method of preserving food will become of the greatest importance in provisioning fortresses, since the loss incurred in selling off old stores, and replacing them by new, especially with respect to meat, ham, &c. is more considerable than the value of tin canisters, which, moreover, may be repeatedly employed after being carefully cleansed.—*Liebig's Letters on Chemistry.*

PROPERTY IN RAILWAYS.—It has been calculated that the traffic of the last six months of 1844, on the 38 principal railways in Great Britain, amounts to three millions and a quarter or more—exactly £3,260,450. This traffic has been carried on upon 1,522 miles of railway, and 234 miles of branch lines, making in all 1,756 miles. This revenue is £450,000 more than the corresponding half of last year, and amounts to about £4,000 per mile per annum. The total sum available this half-year for interest and dividends will be about £2,000,000, giving, for the value of all the important lines of the country, at 20 years' purchase, a sum of £80,000,000.

EFFECTS OF TRAINING.—The state of health, or "condition," as it is termed, into which a man may be brought by training, is often extraordinary. This training, it must be understood, consists in nothing more than the regular exercise and living. The most salubrious and retired country places are usually chosen, and there the man, under the guidance of an experienced trainer, performs his systematic duties. He retires early to his bed, which is a mattress, with sufficient covering to ensure a suitable warmth, without encouraging unnecessary perspiration. He rises betimes in a morning, and after a general washing and rubbing, partakes of a slight repast, and commences his day's work by a quick walk of a few miles. He then returns home, and eats with what appetite he can. After a short rest, he is again exercised until his next meal time, and so on throughout the day.—His diet is chiefly confined to the lean of underdone beef and mutton, fowl, and stale bread. He takes two or three glasses of sherry, with, perhaps, a little old ale daily. The distance he is made to walk and run, every day, varies from ten to forty miles. He begins with what he is conveniently able to bear, and increases his exertions in proportion to his increasing strength. By these means, a man is shortly brought from a state of plethora and listless inactivity, to one of liveliness, energy, and endurance. Body and mind are alike invigorated and improved; but the benefit is mainly referable to the air and exercise. No training, however skilfully conducted, would bring a man into good condition who had to breathe an impure atmosphere.—*Med. Times.*

THE COLOURING MATTER OF PLANTS.—This matter called chromule, is contained in cells protected by the epidermis, by its transparency, permits the colour to be transmitted. It is chemically composed of carbon in large quantities, hydrogen, and a small proportion of oxygen; it is found in the leaves of plants, and proceeds from the carbon fixed by the decomposition of carbonic acid; its colour in this situation is green, and as such it may be considered as carbon, presented by the vegetable kingdom in its least degree of combination with oxygen. Many leaves change their colour at the approach of winter, and frequently assume a bright red appearance (as is the case with the Virginian creeper) a circumstance caused by their having ceased to fix carbon during the day, but continuing to absorb oxygen at night. This condition, then, may be assumed as carbon, or chromule, in its least amount in quantity, under its highest state of oxygenation, and is most frequently met with in flowers whose function (the reverse of that of leaves) is to part with carbon, whilst they absorb oxygen. We have in these examples the colouring principle of plants (carbon), presented under its two most opposed conditions, namely:—in an abundant quantity, and little oxydised, assuming a dark green colour; whilst, in the opposite state, there exists only a small proportion, but at the same time it is exhibited in its highest degree of oxygenation, appearing as a bright red.—*Medical Times.*

THE SUM OF THE MATTER.—The sum of the matter, in all who diet for full strength, is, that they should make the sustenance, or prop, upon corn; they should temper with meat, they should exhilarate with wine; and they must have continued freedom of air to the lungs. The want of this latter important aid to natural dieting is the cause of great failure of health and strength in those whose occupations at the bar expose them to the confined air of the study-room, and the noxious atmosphere of crowded small courts of law.—*Perry on Diet.*

REMEDY FOR ROT IN POTATOES.

A friend calling upon us a few days since, in the course of conversation gave us the following account of his method of saving his potatoes from rot: During the last two years I have examined numerous potato fields, and invariably found the vines early in the season completely covered with a species of flea; at a late period the tops of the same vines appeared brown prematurely. On cutting them open I discovered a small insect, having numerous legs, and I think they sucked the sap which should have gone to the nourishment of the tubers, and the rot consequently ensued.

In the year 1843 I planted a field of several acres in drills harrowed the ground level, and top dressed it with lime and charcoal dust. The yield was 432 bushels per acre; at the same time the potatoes throughout the neighbourhood were decayed. This year I planted the same seed in the following manner: The ground was thrown into drills, and manured heavily; the potatoes were cut into sets of single eyes fourteen days before required for planting, and covered with plaster and lime; they were then placed in the drill, nine inches apart, tops, centres, and ends separately, to mark the difference in growth; and each alternate three rows then covered with different substances, such as lime, sulphate of ammonia, silicate of potash, &c. When dug, they were all sound except a few rows on which nothing had been used but the manure, and these were decayed, although received only three weeks before planting, directly from France. The only reason that I can give why my potatoes have escaped the rot is that the above substances used in dressing them were offensive to the insect.

CHINESE AGRICULTURE.—Among other subjects to which I have lately directed my attention is that of Chinese agriculture. I have addressed some remarks to the Bengal Agricultural Society; and as I think they will interest you, I purpose sending a copy by the first opportunity. It is sufficient to say of the excellence of the Chinese system of farming, that by it her immense population are both fed and employed and enjoy an extent of comfort beyond any nation in Europe. I can see in it a means of relief for the degraded paupers and starving manufacturing population of England.—*Times' correspondent.*

MILK AND BUTTER IN CHINA.—During his late visit to Manchester, Sir Henry Pottinger stated that in China he had never been in the habit of seeing either milk or butter; but when the young Englishmen at Chusan were determined to have milk to their tea, they set some of the Chinese to work, and for the first milk they got paid a dollar. The consequence was, that the Chinese set their wits to work, and began to keep cattle, and to produce both milk and butter; and now the civic service in China was supplied with some of the finest milk and butter that existed in the world.

MARRIED MEN.—The more married men you have, says Voltaire, the fewer crimes there will be. Examine the frightful columns of your criminal calendars—you will there find a hundred youths executed for one father of a family. Marriage renders a man more virtuous and more wise. The father of a family is not willing to blush before his children.

The American salt provision trade to Jamaica has almost extinguished the Irish trade in that article.—The proportion of American is now nine to one of Irish at Jamaica.

CHINESE PROVERBS.—The greatest cowards are those who have most courage to do ill. The flatterer only is despised; whilst the calumniator is both hated and despised; notwithstanding which, a hundred calumnies are sooner believed than one eulogium: and it is not even necessary for them to be probable. What is a man in office who has no merit? A dwarf in a giant's dress. Whoever wishes others to resemble him, should be like himself. Those who have nothing to do themselves, find most for others. The silliest person is not so foolish as he who measures his talents. He is rich who has nothing to lose. Till, nourish, sow, water, hoe your fields, and then pray for the harvest as if it were to fall from Heaven.

The Canadian Agricultural Journal.

MONTREAL, APRIL, 1845.

We have often regretted that this country, which is, and must be, for ages to come, an agricultural country, should have so few agriculturists to represent them in either Houses of the Provincial Legislature. However well disposed individuals may be towards the agriculture of the country, it is not to be expected that they can, or will be so really interested for all that concerns agriculture as if they were themselves agriculturists,—understood perfectly all its wants and wishes, and felt a conviction that its success and prosperity, was their success and prosperity. It is actually necessary in such a country as this, that the mercantile and agricultural interests should be represented by a due proportion of their own body, and though we should stand alone in our opinion, we do say, that they never will be fairly or advantageously represented, unless they are represented by a due proportion of their own people. The learned professions are represented, and we offer no objection to that, but agriculturists are quite as well entitled to be represented by members of their own class as any other class in Canada; and we shall never consider that our interests are properly taken care of, or taken as much care of as they might be, until this is the case. The agricultural class in Canada must indeed have a very poor opinion of their own abilities and qualifications when they send so few of their own class to represent their interests in the Legislature. They constitute about nine-tenths of the electors, and how many of their own class now represent them in the Provincial Legislature? This has been the true cause of the backward state of agriculture. No measures were ever adopted that could be expected to forward its improvement, because agriculture was not represented by men who understood its wants, and what measures would be the best cal-

culated to supply these wants. A vast majority of both Houses of the Canadian Legislature, are now, and always have been unconnected *directly* with agriculture, and therefore, felt no direct interest in doing all that was possible for its prosperity. In the time of Lord Sydenham's government, we made application, that some statistical information might be obtained of the true state of agriculture in Canada East, in order that the best remedies might be applied to improve our agriculture; but there was no attention given to the proposition we submitted. We simply suggested the same plan of obtaining this statistical information that had been adopted successfully in England. This last Session of our Legislature, when we saw that a liberal provision was made for a Geological Survey of the Province, we presented a petition that an Agricultural Survey might also be authorised in order to ascertain the state of agriculture, and the means of its improvement; but though we take upon us to say, that the survey we petitioned for was fully as necessary, and would prove of as much general usefulness as the other survey, our petition was barely read, and thrown under the table. Any man that has the slightest knowledge of Canada, must be perfectly certain that, for centuries to come, she must depend more upon the cultivated produce of the surface of her soil than upon any treasures which may be discovered below the surface by a Geological Survey. An Agricultural Survey, that would answer a most useful purpose, might be made for a much less amount than that appropriated for the Geological Survey; and we hesitate not to say, that the expense of the former Survey would be refunded to the Province a thousand-fold. It is from these facts, we have very little hope that the general improvement of our agriculture is a matter of any particular interest with our Legislature. We pretend not to say that our petition should have been granted, but we do say, that the subject to which it referred, was one of the most general interest that came before the Legislature during the last session,—and consequently, if there was any great interest felt for the prosperity of agriculture by the Legislature, some enquiry would have been made into the subject to ascertain upon what grounds the petition was made. There were many petitions of less consequence submitted to committee.

There has been a considerable amount of money voted by the Legislature to Agricultural Societies throughout the Province, and no doubt it would be of great benefit, if judiciously applied to its encouragement of improvement, and in giving instruction

where most required, but all the general benefit to be expected from this liberal appropriation, will depend upon the mode of its application. We consider that this expenditure should be under the general superintendence of a Board of Agriculture named by the Government, who would have exactly the same directing and controlling influence as the Royal English Agricultural Society, the Highland and Agricultural Improvement Society, in their respective countries. Agricultural Societies have been in operation in Lower Canada for nearly thirty years, and there cannot exist a doubt that they have not produced much improvement, where improvement was most required, and desirable—and it was on this ground alone, we suggested the expediency of adopting different means to produce the required improvement, if improvement was desirable, or expected to be for the general advantage of the country.

There is another Act of the Legislature which no doubt is considered a great concession to Agriculturists. The renewal of the Agricultural Protection Bill. For our own part we view this Bill only as a necessary and expedient measure for the encouragement of general improvement and production in Canada, and as being as much for the real advantage of other classes as the farmer. If the country was unsuitable for producing the articles of foreign production which have been taxed, we never should have suggested such a measure, but if it is capable of producing these in perfection, and abundance, we say that the Legislature would not have done their duty to their constituents, if they had not passed the Bill referred to—and that it will be equally advantageous to every class of this community. It was not to raise the value of Agricultural produce to an unreasonable price that we ever advocated the Bill, but in order that by securing steady prices, and a constant demand, encouragement would be given to improvement, and production, that would be sure to promote the general prosperity of all classes in Canada, persuaded as we feel, that it is the produce of the Canadian soil, *after all, that must pay for all, including the taxes imposed on Foreign Agricultural produce* by the Bill in question. This we fear not to be able to demonstrate to the satisfaction many who will dispute the matter. We repeat now what we have often advanced already, that Agriculturists require no protection for their own exclusive benefit, unless it would be for the general advantage of the country. The tax upon Foreign Agricultural produce will augment the Revenue for general benefit, but other classes will allow us to say, on behalf of Agriculture, that it is the produce of the Canadian soil that must directly and indirectly pay all. It is impossible it can be paid from any other source, unless that

portion of it which is paid by persons who have incomes from another country, and expend them here. We may have little support in our opinion, but we can at all events, give an extract from a late number of the *London Morning Chronicle*, which concurs fully in our ideas respecting taxation, as well in England as in Canada.

“TAXATION.—Another class of fault-finders lament that the agricultural interest is to derive no benefit from the proposed reductions. What! the agricultural interest derive no benefit from a reduction of three millions and a half of taxes? We have been accustomed to think and to argue too, that the agricultural interest, either directly or indirectly, pays all the taxes, or nearly all—and holding this opinion as we do firmly hold it, and pledge ourselves to maintain it, can we doubt that in whatever shape a remission of taxes come, if not in the shape of a repeal of protecting duties, the agricultural interest must be the gainers?”

A man who makes it his duty to understand the laws of nature, and endeavours to direct them to the greatest possible benefit of his country and of mankind, receives a very small proportion of the products of that industry which often derives so great advantage from the knowledge whereof he has been the promoter and circulator. Few take the trouble to think that this knowledge may be acquired by many sacrifices, much research, time, and thought by the individual; and all this he may transmit in a few pages, which spreads itself, and when once published, becomes imperishable, and the advantage is obtained by the country without making any adequate return for it, and frequently, not even acknowledging the benefit received. It may be answered, that, persons who do employ themselves in this manner, do it to gratify themselves, and that no obligation rested upon them to do so. This may be perfectly true, but it is not a very generous reply of those who may be vastly benefited by the labours of him that is so ill paid. It is a well established fact, that no labour is so ill paid as that which we refer to. It receives, indeed, a very inadequate portion of the value of the product to which it may have largely contributed. In Canada, we know by experience, that individual endeavours to promote improvements and augment the production of industry, is almost sure to cause the individual considerable loss, instead of reward or consideration. It is from a sense of this injustice, that in other countries and nations, legislators, who are sufficiently enlightened to conceive the immense benefit of scientific pursuits, have endeavoured by special favours, and flattering distinctions, to indemnify men for the devoted exertions of their natural and acquired faculties to advance the interest of

their country. Men who feel the conviction in their own minds that they never have done any act, or made any sacrifice to promote the general good of their country, cannot understand or admit the possibility of any other individual doing so. The principle of devotion to the public good, is so utterly at variance with the governing principle of our lives—self-interest, that it is neither acknowledged nor understood by most men. In England there are exceptions,—enlightened and high-minded men come forward to encourage and reward; and it is this praise-worthy consideration which has raised that country and her people to that proud station she now occupies,—the first in arts and sciences, industry, wealth, and power, amongst the nations of the earth. It is the circulation of useful information that excites men, induces them to think of what is proposed to them, and encourages them to introduce improvement. The best informed men in existence, and those who know the most of what would be useful to mankind, if they only exercise this knowledge for their own exclusive benefit during their lives, or keep it to themselves altogether, all their attainments are of no general usefulness—is buried with them living, and dies with them when dead. The most useful attainments, therefore, must be those that are exercised for the good of mankind in general; and we believe gifts were bestowed by the Creator upon a few for the benefit of the many, and His wise purposes are defeated when they are not so employed. It may be possible that men are deterred from giving the benefit of their useful information to the public, because they may be ungrateful for it, and make a most profitable use of it without acknowledging the benefit, or paying for it; but this is not a good excuse, though we have experienced its truth. We may be wrong in our opinions on this subject, but we conceive that any individual exertions made in this country, decidedly to promote the industry and prosperity of the country, or of any class of her population, should meet decided encouragement and support from those who possess the power, as well as of those who may be benefited. Unless this is the case, how can we ever expect to see the country advance much in improvement. We have, in this article, submitted opinions which, we trust, may obtain some consideration, not as it might be supposed to refer to ourselves, but as it may generally refer to any individuals of this community, now, or at any future time.

We have constantly stated that we do not know of any improvement so necessary, and which would

prove so useful to Canadian farmers, as sufficient draining of the fine strong soils we have in this country. We do not know the degree of fertility to which our wet clay soils could be brought by proper draining and deep ploughing. The susceptibility of improvement of these soils is very great, and if judiciously gone about, would be a profitable investment of capital. The very foundation of fertility in all such soils is, bringing them into and maintaining them in a proper mechanical state,—that is entirely free of superabundant water, and deeply and finely pulverised; and until they are in that state, manure will be of little use to them; nor need we be surprised that they produce, in many cases, as much of useless weeds as of good grain. It is said in England, that one deep ploughing, (ten or twelve inches,) of well drained soil, will do as much in destroying weeds as two or three ploughings of the ordinary depth.

We have often heard the English plan of harnessing horses in a line, one after the other, instead of abreast, in ploughing, ridiculed and condemned, but the cause assigned for adopting this plan is, in our judgment, a very correct and sufficient one;—namely, to prevent in strong clay and heavy soils, the horses when ploughing from treading upon the ploughed land which we know to be exceedingly injurious, in almost any state of dryness in which it is possible to plough strong soils. The weight of the horses, and of the draught of ploughing upon them, treading upon the ploughed soil, when the ridges are finishing is exceedingly injurious, and renders the part of the ridges so walked upon harder than before it was ploughed; it also makes holes that are very objectionable. We have often in this country, had one horse put before the other when the ridges were being finished, and this we think should always be done in strong soil.—We have seen a plan recommended when sowing in spring, to prevent horses (trampling the soil. They have two wheels fixed on an axle the width of the ridges that have to be harrowed. There are shafts fixed at each end in a line in front of the wheels, so that the horses walk in the furrows and the wheels follow them. The harrows, which may be so constructed as to cover the whole ridge, (suppose nine feet in width) are attached to the axle, and by this means, the horses do not walk upon the ploughed soil or trample on it. We have no doubt this plan might be adopted with very favourable results in Canada. We have seen here great injury done to the soil when sowing in spring, from the soil not being sufficiently dry. The whole machinery would not cost much, as cart wheels might be made use of. The lighter the wheels, however, the better, and a farmer might have some made broad, and without iron. We submit the

plan for consideration, to those who have strong clay lands.

From the moment that milk is drawn from the cow it begins to be effected by the air, and changes of temperature, and circumstances almost imperceptible to our senses will materially effect its quality; hence, the importance of extreme care and attention in every step of the process of the dairy, especially in making butter. The cows should be milked in the cool of the evening; they should not be much driven immediately before milking, and it would be well to bring them to the place of milking some time before the operation begins. As the slightest acidity or putrescence immediately causes an internal chemical action in milk, it is of the greatest importance that the place where the cows are milked, and the persons employed, should be of the greatest purity and cleanliness. In England they wash out the dairy, where they are very particular, twice a day, immediately before each milking, which, besides ensuring cleanliness, produces a refreshing coolness, highly useful to the milk. The tins, or other vessels in which cows are milked, should be kept perfectly clean and bright, so that any speck of dirt is immediately discovered. All these precautions are necessary to be observed by those who wish to have butter of the best quality.

As the greatest portion of the butter which is made here is put up in casks, we beg to submit what we conceive to be the best method. The cask or firkin into which the butter is put up, should be made of clean white wood, and contain about 56 lbs. of butter, be well hooped, and an equal size at both ends, the same shape as a small beer keg. The quality of the salt used is of great importance; if it be pure, the butter will keep its flavour for a long time, but where it is impure, and contains bitter and deliquescent salts, the butter soon becomes rancid. The Dutch are very particular in this point. They use a kind of salt which is made by slow evaporation, and perfectly crystallized. The salt is intimately mixed with the butter; from 3 to 5 lbs. are sufficient for a firkin of 56 lbs. The cask previous to putting the butter into it, should be carefully washed inside with strong brine, made hot, and rubbed over with salt. The butter being quite dry, is pressed close into the cask, a small layer of salt having been first put on the bottom. If the cask is not filled at one time, (which would be desirable) every addition of butter is carefully incorporated with the preceding portion. If the cask is not filled at once, the surface is made smooth, some

salt is put over it, and a cloth is pressed close upon it to exclude the air; when the remainder is added, at the next churning, the cloth is taken off, and the salt which had been put over the surface, is carefully removed with a spoon. The surface is then dug into with a small wooden spade and laid rough, and the newly salted butter is added and incorporated completely. This prevents a streak which would otherwise appear where the two portions joined. When the cask is full some salt is put over it, and the head is put in. If the butter was well made, freed from all the butter-milk, and the salt mixed with it quite dry, it will not shrink in the cask, and it will keep its flavour for a long time. Should there be any appearance of shrinking, the cask must be opened and melted butter poured round it, so as to fill up the interstices between the butter and the cask: in this way it will not suffer in its quality. It is the shrinking of butter in the cask, from its not having been freed from all the butter-milk or water when salted and put into the cask, that causes butter not to keep sweet; the air is admitted and this will injure it. A bad quality of salt is also very injurious. The following mixture is said to have been found superior to salt alone in curing butter for immediate consumption:—half an ounce of dry salt, pounded fine, two drachms of loaf sugar, and two drachms of salt-petre, mixed together, for every pound of butter.

The quality of butter will depend upon very minute circumstances which escape the notice of all those who do not pay particular attention to the matter. The smallest particle of putrescent matter accidentally added, and even mere effluvia, give a turn to the chemical action going on from the moment the milk is exposed to the air, and they taint the cream more or less. The quantity of pure cream which rises with the milk when set in the pans, as well as its quality, is influenced by these circumstances. When the milk curdles before the cream is separated, it is said to be almost impossible to prevent some portion of the curd from being mixed with the butter. In its perfectly fresh state the taste is not affected by this; but the butter will not keep fresh above twenty-four hours, and when salted soon becomes rancid. No doubt, more butter is produced by allowing the cream to remain upon the milk until it curdles, but the quality is inferior.

It is a well ascertained fact, that such are the niceties of the dairy, that great experience and close attention alone can insure a produce of superior quality, and this experience is more readily acquired and confirmed if the circumstances are accurately observ-

ed and noted down as they occur:—for instance, the temperature of the dairy, of the milk, and cream, in the different stages of the process. A few observations, carefully noted, repeated, and compared, would throw more light on the true causes which favour or oppose the production of good butter, than all the guesses that have hitherto been made. The quality of the butter depends also on the nature of the pastures. The best is made in England, from cows fed on rich natural pastures, or lands that have been long pastured. The produce of a good cow in butter during the year, is, in England, at a distance of 50 miles from London, estimated at ten pounds sterling, and the calf at a week old, fifteen shillings, and this they consider only sufficient to pay for her keep,—the butter-milk for fattening pigs, and manure, they have for the profit.

We forgot to observe that the sort of wood made use of in England for butter firkins is the wood of the lime-tree, which contains no acid; and next to this, the white oak, and ash are preferred. We have the two latter sorts here. Where the wood of casks contain acids, it acts powerfully upon the salt in the butter, converting it into brine. It is an excellent plan to boil the wood of casks for a few hours, and this removes all hurtful acids.

Our butter has a bad character in the English market, and there is no necessity that it should be so;—if we were to adopt the careful management that is observed in well conducted English dairies, we might have as good butter here as in any other country, but without suitable dairies and judicious management how could we expect to have good butter? They have another compound for saving butter:—one part refined sugar, one part nitre, and two parts of the best Spanish salt, finely powdered together, which is used in the proportion of one ounce of this mixture to the pound of butter. This is said to give a flavour to the butter, which it never acquires from any other preparation.

As we consider that the butter trade might be a most profitable one for the Canadian farmer, we shall constantly give any further information on the subject that we think may be useful. The following is the Devonshire method of managing cream and butter:—the milk, instead of being set for cream to rise, is placed in tin or earthen pans holding about eleven or twelve quarts each, twelve hours after milking. These tins are placed on a broad iron plate, heated by a small furnace. The milk is not allowed to boil, but a thick scum rises to the surface. As soon as small bubbles begin to appear, when a portion of this is removed with a spoon, the

milk is taken off the surface, and this is what is called clouted. It is a sweet, pleasant substance, more solid than cream, but not so solid as butter, and is considered a dainty by all those who have been early accustomed to it. A very slight agitation converts it into real butter, after which it may be salted and preserved as any other butter would be. We have made butter here on this plan, and have considered it superior, in flavour for present use, to any other butter.

We have always considered that barley might be made use of profitably for feeding cattle, not in its raw state however, but malted. We have seen in a late English paper, a sort of compound recommended which we think would answer well in our cold climate.—Bruised lintseed (flax-seed) one bushel, cracked beans or peas, two bushels; pour seventy gallons of boiling water upon these, and let it remain until it is reduced to 170 degrees of heat, then add four bushels of malt; cover all up to prevent loss by evaporation; when sufficiently cool, mix it with cut hay, and give it to the cattle in moderate quantities, increasing as the animals get accustomed to the feed. There is another article, recommending malt, by the Editor of the *Mark-Lane Express*. That gentleman says,—“A person having a quantity of damaged malt, gave it to some beasts to see if they would eat it in preference to oil-cake, and which they did most decidedly. He then tried it on a number of half-bred Southdown and Leicester Shearlings, which had been previously fed on cut hay and Swedish turnips, by adding one pint of malt each day for six weeks; and he stated, that never in the course of his experience during thirty years, had he seen anything to equal its fattening properties.” It is said that malt can be sold at the same price per bushel that is paid for the barley, the increase in quantity being sufficient to pay the expense of malting, when no duty is paid. We decidedly think that grain given in a small proportion, to stall-feeding cattle in Canada, will be more profitable than feeding with roots, unless they are boiled or steamed, and given warm, and in any case, a portion of grain should also be given. The price of beef is not at present very encouraging to the stall-feeding of cattle. We saw a few days ago, two fat cows, which the butcher who bought them said would weigh over ten hundred pounds, and which we thought would exceed eleven hundred pounds, sold for thirty-two dollars. Now, with all the protection that agriculture has here, we can safely say that this price is too low;

and we say further, that no class in Canada are so ill paid for their labour, skill, and capital, as the agriculturists. The fact is, that the value of their labour, and the reasonable profits of their capital, have gone from their hands to other classes, in consequence of the state of the laws for many years past, and other circumstances that were unfavourable to them, which we shall endeavour to explain from time to time, in order to point out their remedy. It is with a view of advancing *general* prosperity that we write now, and have done on all former occasions. We wish to see equal encouragement to industry and capital, however employed, and an equal chance of remuneration and reward.

Land, however well manured and cultivated, will not continue to yield, year after year, good and profitable crops of grain, particularly of the same species; abundant crops of straw may be produced, certainly, for many years in succession, provided manure is applied, but the grain will be deficient in quantity and inferior in quality. If land is to be kept in cultivation, a rotation should be observed, and by this means better crops may be obtained; but we would strongly recommend that all lands should be allowed to repose in pasture or under grass. A crop of grain may appear very good to the eye though the ear is not full, nor the grain in perfection when it is examined. No land will yield so good grain as that newly broken-up from grass, when properly cultivated. There is not any necessity for that scouring system of cropping here that may sometimes be excusable in Britain, where high rents are paid, and land and its products are high priced. We shall always have more healthy and productive crops here by resting our lands in grass, at proper intervals. Constant tillage will break down the staple of the best soil, and render it weak, and unable to give a due degree of strength and firmness to the straw, or fulness and weight to the grain that grows upon it.

The snow had nearly all disappeared from the land in the Island of Montreal, but we have had another fall of snow while we write, and it will be a considerable time before any work can be done in the fields; and there is no probability that the spring will be a very early one. We have sown wheat here on the 1st, the 4th, and the 7th April, and that which we sowed on the 7th was the best we ever had in Canada, but this was previous to the appearance of the fly. We cannot now safely sow wheat at such an early period of the spring, how-

ever favourable the weather, lest it should be destroyed by the fly. If wheat could be sown sufficiently early that it would come into ear previous to the 25th June, it might escape the fly, but there is a great risk, as the success of early sowing would depend upon the season being very favourable for bringing the crop forward rapidly into ear. We once had wheat sowed the 4th of April in ear the middle of June; but the land and season were both favourable to rapid growth. We confidently hope that a large quantity of wheat will be grown this year, as we have abundance of wheat that will answer well to sow the last week of May, and that will not rust. Farmers would do well to have their oats and barley sown in good time, so as to have that part of the work done before the wheat sowing commences; they might also have the potatoes nearly planted, and early planting we conceive to be the best. In our last number, we suggested the necessity of looking well to the state of the furrows and drains, and to remove every obstruction to the free discharge of water off the cultivated fields. The effect upon the soil by allowing the water to drain off gradually by the drains and furrows, will be much more beneficial than if dried up by the sun and winds. The ill effects of allowing water to stand upon or in the soil may readily be seen by observing low places in a cultivated field, what sort of crop they produce, though these low places have actually the best soil in the field, the crop may be scarcely worth harvesting. These low places may be dry when sown, but the ploughed soil has been broken down and melted into a soft mass previously, and when dry they are so excessively hard that no plant can thrive in them. We have seen whole fields of wheat scarcely worth gathering, from the soil being in the state we describe, from excessive moisture previously, and at the time of sowing, and excessive hardness subsequently when dry. It is impossible to describe in words the vast difference that a growing crop exhibits between that on the drained portion of a field and that which is not drained. To see this difference, should be sufficient to induce all farmers to drain their lands of superfluous water. In preparing land for potatoes, the more open and loose it is the better. Newly broken upland we have always found best for potatoes. We have seen so many reports of the beneficial influence of charcoal, lime, and gypsum, applied to the soil for the potatoe crop, as having a tendency to prevent the disease of rot, that we think it right to mention it. We cannot say we have made the experiment, though we believe that lime and charcoal would have a good

effect on any crop; but whether it would prevent the rot in potatoes, we have had no opportunity of ascertaining satisfactorily. The trial, however should be made, as neither substance can be applied to the soil without producing benefit to subsequent crops. We would recommend the cultivation of carrots here, as a useful and profitable crop. A large quantity of them may be raised to the acre, and they will keep better than turnips or beets. They are less expensive than potatoes, and double the number of bushels can be raised from an acre that there could of potatoes. There is a careful cultivation of the soil required; it should be pulverised, and supplied with short manure to a considerable depth. They should be sown in drills from 15 to 20 inches apart, and should be weeded out in the drills to about 6 or 8 inches apart. In England, about a fortnight or three weeks previous to sowing, they mix the carrot seed with sand, the seed necessary for one acre with two bushels of fine sand, on a barn floor, or under cover. The mixture is turned every day, made into a heap, and sprinkled with water each time of turning, that every part may be equally moist and the vegetation may take place alike throughout. By this means the seeds are in a forward state of vegetation, and lies but a short time in the soil when sown, and by appearing quickly over ground is better able to contend with the weeds that may appear, and whose seeds are of quicker vegetation. When the carrots once obtain the mastery over the weeds they will keep down all weeds by their larger tops. Carrots are excellent food for horses, cattle, sheep, and hogs. From 30 to 50 lbs. may be given to a horse in the day. They will keep well in the soil in winter, provided it be dry; and can be taken out in spring for stock when most required. When stored in the fall they should be perfectly dry.

We never can expect to have a respectable and prosperous agriculture in Canada until more attention is given to the rotation of crops, and the keeping of a due proportion of cattle and sheep. We must have good pastures before we can have good cattle, or good dairy produce. We might have excellent pasture if we would allow them to become so by giving them age. It is a great mistake to suppose that the pasturing of cattle on land would have anything like the same effect of impoverishing it that raising crops upon it would have. The manure of the cattle, and decay of portions of the grass and roots, would be constantly improving pasture land. It is also necessary that pasture land should be drained, as arable land. The pasture would be

much better for the cattle,—in fact, stock will not become fat, or produce much milk or butter if pastured on wet sour land. The grass which grows upon undrained land is not of much more value than the grain or vegetables that would be produced upon it; and yet farmers here scarcely ever think of draining pastures. There is much of the Canada land greatly inclined to produce, naturally, white clover the year after it has been in tillage; and if this land was allowed to remain unploughed for a few years it would become excellent pasture. Lands not so much disposed to grass naturally, should have clover and grass seed sown in them; indeed, all lands intended for pasture should have grass-seeds sown, and then the natural grasses would replace the artificial grasses, as the latter died out. We have it in our power to make vast improvements if we resolve to set about it. A very necessary part of the farmer's work should be to keep all weeds down in pastures, and along the sides of fences, roads, and waste places. These are matters which are too much neglected, and even by those who know the evil of weeds, and of allowing them to mature their seeds. The public works and turnpike roads should have the weeds upon them carefully cut every year, as an example, and to prevent injury to the farms that are near them, from the seed scattering over them. The agriculture of the country must be of small estimation indeed, or effective measures would have long since been put in active operation for promoting its improvement and securing its prosperity.

In the published proceedings of the last meeting of the Yorkshire Agricultural Society at Richmond, England, we observe the following information respecting the use of guano, and as it is probable that this new manure may come into use in Canada, any information of experiments made with guano, may be useful. The Yorkshire Agricultural Society is second only, we believe, to the Royal English Agricultural Society in its extensive usefulness in promoting agricultural improvement. Let our Agricultural Societies only follow the example of the English Societies, and we shall not have any cause to regret their want of success in promoting improvement in Canadian husbandry. The first requisite for us is, to improve our lands, and render them fit to raise and support fine cattle. If we devote our attention to the encouragement of the latter before the former, we shall not produce any improvement where it is most required. Those who have good cattle, and will get premiums at Cattle

Shows, have already got their farms into good order, and while our premiums are paid to those farmers only, our Agricultural Societies cannot produce much general improvement:—

In addition to the usual articles relative to the Yorkshire Society, the volume contains reports on draining, on prize farms, on experiments with guano, on dibbling, on the solution of bones in sulphuric acid, on grasses, on raising turnips, on rearing and feeding cattle, on draining clay land, and on other subjects of great importance to the cultivators of the soil. The prize essay on guano, which is from the pen of the able secretary of the society, M. M. Milburn, Esq., Thorpfield, Thirsk, ought to be in the hands of every farmer, as very great advantages are to be derived from a skilful use of that valuable auxiliary to our artificial manures, and much injury may be done to crops by an improper application of it. Mr. Milburn has, to some extent, derived his important information, relative to the application of guano, by obtaining the names of about 40 persons, who had used that manure, in different parts of the country, and by requesting answers from them to the following questions:—

1. For what crops have you used guano?
2. In what quantity per acre? Alone, or mixed with some other material?
3. By the drill, or otherwise? And did it come in immediate contact with the seed?
4. On what description of soil, and after what crop?
5. Of whom was it purchased, and at what price?
6. With what other manures have you used it in comparison?
7. What kind of season followed its application, wet or dry?
8. What were its effects, if possible, by weight or measure, and in comparison with other manures? with any remarks that may strike you as being useful.

To nearly all these queries prompt answers were returned, and Mr. Milburn gives reports in his essay of the different experiments which were made, drawing the following amongst other conclusions:—

1. The guano should never come into immediate contact with the seed; it should be mixed with ashes or earth, and deposited below the seed, or lightly incorporated with the soil, before sowing.
2. It appears to be more useful broadcast than sown in drill.
3. It appears most useful in a wet season, or during or immediately preceding rain.
4. It seems more adapted for strong lands than light.
5. It is peculiarly calculated to promote the growth of plants in their early stages, and consequently is a very valuable application for turnips, in conjunction with other manures.
6. It appears to answer well for green crops, which arrive at early maturity when used alone.
7. In ordinary crops it should be combined with other less rapidly decomposing manures.

8. It appears to be beneficial to all cultivated crops.

We copy the following articles from a late number of that excellent Agricultural publication "The Mark-Lane Express." We can recommend this mode of fattening cattle as the very best that could be adopted in Canada, with such a climate as we have—cold raw vegetables are not suitable for cattle in our very severe winters. We can refer to this useful article as a proof that the English system of Agriculture, and management, is preferable to all others, and may be adopted here with very little variation. However partial we may be to our skill and cleverness on this continent, we certainly may take our most useful lessons in husbandry from our Father-land. Perhaps we may improve occasionally upon the suggestions offered to us by our brother farmers of the British Isles, but, however this may be, we may be satisfied that it is from thence we shall obtain the best practical information on Agricultural improvement, and the latest discoveries that are made in the science and art of Agriculture.

COMPOUND FOR FATTENING CATTLE.

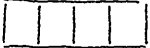
SIR,—I have much pleasure in forwarding you instructions for making the compounds now so much in use to fatten cattle, than which nothing can be more simple.

You have got a linseed crusher, and I believe an iron copper erected.

1st. Let a quantity of linseed be reduced to fine meal, that is to say, let every seed be thoroughly broken.

2nd. Put about 159 pounds of water into the copper, and let it boil.

3rd. Stir into the water quickly 21lbs. of the linseed meal, and let it boil for about five minutes.

4th. Let 65lbs. of barley or bean meal be sprinkled upon the boiling mucilage by the hand of one person, while another as rapidly as possible stirs and works it in. The whole will now have assumed the form of a thick mass or pudding. The fire should be put out, and in a short time the food may be given to the cattle. When cold the compound should be perfectly stiff. Many farmers put it into moulds like those used for bricks while hot. They are thus made:  and placed upon a flat piece of board, somewhat larger and wider.

The compound is put in with a trowel, and pressed down firmly; the moulds are then lifted up, and the cakes left to cool. In this way the food will keep longer; but I generally put it into a tub, and ram or press it down with an instrument made of wood,* in order to exclude the air.

The compound is generally given in small quantities at first, and increased at pleasure; for the first week, 5lbs. or 8lbs. per day, when according to the size of the animal add quality of the other food given, the quantity may be increased to 14lbs., 31lbs., or 28lbs. per day. Observe, the *inside* of the mould should be

*These rammers are square or club-ended, with a knob like a pestle at top, or a cross-stick stuck through, to give better hold.

a little wider at the bottom, in order to prevent the compound from sticking to the sides. This the carpenter will easily understand.

With respect to making beans into compound, no difference is to be observed, except that they will require 20lbs. or 30lbs., or even more of water than barley, as you will perceive in the course of your experience. But observe, the beans must be reduced to a fine meal, equal, if possible, to flour; otherwise, the unbroken pieces will pass through the bullocks undigested.

Peas are to be treated in the same manner for the same reasons.

After a little observation, you will be able to regulate the quantities by measure, without the trouble of weighing; for the extreme of exactness is by no means necessary. Of one thing you may rest assured, viz., that it is impossible to spoil the compound; for if made a little too thin or too thick, the cattle will devour it with avidity after they take to it—which they will not all readily do at first—as occurs with oil-cake also. Linseed can be incorporated with chopped hay or straw with great effect. I use it largely, and find it much cheaper than corn.

The proportions, according to the size of my copper, are nine pails of water, a pail and a half of linseed meal, and about nine bushels of cut hay, chaff, or straw.

The plan of mixing is—first to form the mucilage as you would for other compounds; next, place a large tub with a strong bottom, or trough, near the copper; then put a bushel of the cut hay into it, and pour two or three bowls of the boiling mucilage upon it, which is to be immediately stirred up with the hay. Then add a bushel of the hay with some more of the mucilage, which, after being intimately mixed, is to be pressed down as firmly as possible with the rammer. The first layer is then finished. Proceed as before till the copper is empty, smooth the top of the mess over with the trowel, and in the course of two or three hours it will be fit for use.

To make cattle compound with potatoes or white carrots, nothing more is required than, after having been well steamed or boiled, to remove them from the vessels, as hot as possible, into a trough, then sprinkle some linseed meal upon them, and knead the whole into a mass with the rammer. The compound may be put hot into the moulds, and made into cakes, or used from the trough.

Less labour will be required if the roots are removed from the cooking vessels in small quantities and incorporated with the meal.

The proportions must be left to circumstances and the cost at which cattle are intended to be fed.

The effect of giving only one pound of linseed meal per day to a bullock, when incorporated with potatoes or carrots, will soon become visible; but if a pound or two more were added, the animal would fatten at a rate which those alone who watched the proceedings would believe.

The price of linseed for crushing purposes appears to be about 1½d. per lb.

Remember that your copper being larger than mine, you must regulate the quantities accordingly, and observe that when the hay compound becomes cold, it turns sour, and the bullocks then reject it. Mine eat it smacking.

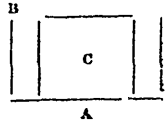
You will find this food extremely economical, efficacious, and, at this dry season, an excellent substitute for grass.

Should you require further information, I shall be happy to give it.

Yours, &c. JOHN WARES, JUN.
Trimingham, Norfolk, May 26.

P.S.—Do not forget, on all occasions to damp the fire, either by throwing wet cinders upon it, or by removing the greater part from the furnace.

The boxes may be made (by landowners) best of hard materials, and by tenants, at their own charge, of fir or other cheap posts and poles, either for the doors or sides of and backs of the boxes, so placed as to admit of furze or material being interlaced between the external parts of the boxes, of which A, the doorway for the cattle to enter; B, a passage way, to feed the animals in their feeding troughs; C, the pits, two feet deep and ten feet square, wherein the



beasts stand, separated from each other by partitions between each box; and the boiling-house should be handy at one end of the boxes, but which will not be absolutely necessary, if a fanner has in his house the means already of boiling and preparing the composition, which, when made, should be kept in a cool place and covered up from birds, flies, and wasps, &c., and of course making only in proportion to the consumption while sweet and palatable to the beasts or sheep. But this kind of food is not at all suitable for the fattening of either porkers or bacon hogs. If further information be desirable by personal inspection, it will be open to all agriculturists desirous of benefiting themselves by the adoption of the system, at Sir Charles Burrell's farm, at West Grimsted, near the brick and tile yard, adjoining the Horsham Road, where the feeders of the stock will generally be found in his business, and willing to afford answers to any inquiry on the spot. The Canadian climate would of course require that these boxes of cattle houses should be made sufficiently warm.

With reference to the burning of clay, for manure, we have repeatedly recommended this plan as one of the best and most easy modes of procuring manure, and we have also submitted a plan for burning clay, which we shall give again in the summer. It may not be proper to burn clay on light soils, but burned clay might be brought on them from other soils. When summer fallows are in progress, during the dry seasons, would be the most suitable time to burn clay, and weeds upon them for manure. We need not use coal here, as we may have small brush-wood, grass or weeds that will answer the purpose well. On every farm there is clay that may answer for burning on the banks of drains, and other places where it would be better away. With summer fallow, and burning clay as manure, there is not a farm in the country that might not be certainly and usefully improved, and if once brought into a state of fertility, it would by its increased produce, maintain its fertility under judicious management.

BURNING CLAY.

SIR,—In answer to "J. C. C.," of Exeter, who asks the best manner of burning clay, I beg to say that last summer I burned, with coal called the Blacksmiths' coal, which cost 3d. per cwt. at the pit, 213 square yards of heavy red dirt in a road, the cost of which

was 8d. per yard, I also burnt in a road several yards of clay with bean haulm, and two faggots to a heap, which, when burnt, produced two loads of ashes of the best description; and I am quite sure the burning of heaps of clay in this quantity is much better than burning it in heaps of 100 loads, which was the plan adopted with the first bank burnt. The fire is to be kindled on the ground; as soon as it burns briskly, throw on some fine earth; and as soon as the fire appears through the layer of dirt, which it will do in about an hour and a half, add a little more bean haulm or coal, and another layer of dirt. By following this plan, a man will burn five or six heaps per day. The heaps are to remain for two or three days before being cleared of the small portions of earth which remain unburnt on the outside of the heap. I also pursued this plan with some fallow, and found it to answer exceedingly well.

Somerton, Nov.

J. L.

TO THE EDITOR.

SIR,—Seeing last week that a correspondent wishes to be informed through your valuable paper how to burn clay, and no one having given the required information, I send you a method I have successfully practised for several years. The fuel used is the small or refuse coal from the pit hills. The man who is to burn the heap picks out some of the largest pieces of coal, with which he makes fires about two yards apart along the side of the heap. When they are sufficiently burnt, he covers them over with the clay, mixing a few shovels full of the small coal with it. As he proceeds, when he has dug a piece about a couple of yards in width, down to the bottom of the heap, and thrown it upon the fires, so as to make a solid bank, from a fire which he keeps for the purpose, he lights another row of fires in the trench that is formed, placing them opposite to the spaces between the first spaces; and scattering some of the coal amongst it until the heap is finished. It then remains until it is burnt out. If your correspondent chooses to follow this plan, he will find it to answer his purpose. The clay will be burned red, but not so hard as to prevent it breaking down easily, and becoming an excellent manure.

Nov. 15.

A DERBYSHIRE FARMER.

SOCIALITY.—We are but passengers of a day, whether it is in a stage coach or in the immense machine of the universe. In God's name, then, why should we not make the way as pleasant to each other as possible? Short as our journey is, it is long enough to be tedious to him who sulks in the corner, sits uneasy himself, and elbows his neighbour to make him uneasy also.

EARLY RISING.—There is a freshness and a purity in early morning which, to the physical and moral state of man, is vigour and delight. It is seldom that the sensualist, the idle or the vain, taste its ethereal joys. A mystical spirit lurks in the perfumed breath of awakened creation, which is undoubtedly gifted with supernatural power. Those who would live long and see good days, must habitually become early risers. The loss of the morning hour is never retrieved.

VIGNON'S CARPET TAPESTRY.—ANOTHER APPLICATION OF INDIA RUBBER.—This tapestry is made on the principle of the Ancient Mosaics, and without either painting or coloring, all the effect is produced by worsted thread, about one-eighth of an inch long; standing vertically one end is seen, the other is cemented by India rubber to a cloth. The London Magazine

of Science remarks that from the facility of reproduction this fabric is likely to come into general use for carpets, rugs, curtains, tables, and chair covers, &c.

A teacher is at present engaged under the auspices of Lord Lovat, in instructing the natives of Strathglass in the elements of Agricultural Chemistry. A few years ago, most of the people in this romantic highland district were chiefly engaged in illicit distillation.

MANNA—IMPORTANT TO DRUGGISTS.—It has been shown by one of the members of the Parisian Pharmaceutical Society that starch sugar has been employed for the preparation of a spurious manna, having some physical resemblance to the fragments of genuine manna in tears.

THE LARGEST POWER LOOM SHED IN THE WORLD.—Messrs. Ainsworth & Son, cotton-spinners, of this town, have now nearly completed their most extraordinary power loom shed. The building covers one and three-eighths of an acre of ground, and will hold 1,650 pairs of looms, which will require 825 hands to superintend them, and 75 horse-power to drive them. The shafting connected with this monstrous shed is now finished; its length is 6,500 feet. When the whole of the looms are in motion, they will require 28,000 feet of strapping. There are 3,000 feet of gas piping, and 825 lights will be required. The roof contains 340 windows, or sky-lights, and is supported by 325 pillars. When the whole of the looms are in motion, they will turn off fifty yards of cloth per minute.—*Preston Chronicle.*

THE TAVERN.—Learn to love home—avoid the tavern. It is in the tavern that the devil draws up his army, arrayed against the brains and good resolves of men. It is there that he reviews his legion of bottles, and prepares them for the attack upon weak humanity.

TRUTH IMMORTAL.—No fragment of truth ever dies. From time to time the body dies off it; but it rises in a more perfect form, leaving its grave clothes behind it to be, perchance, worshipped as living things by them who love to watch among the tombs.

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WILLIAM EVANS, EDITOR AND PROPRIETOR.

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