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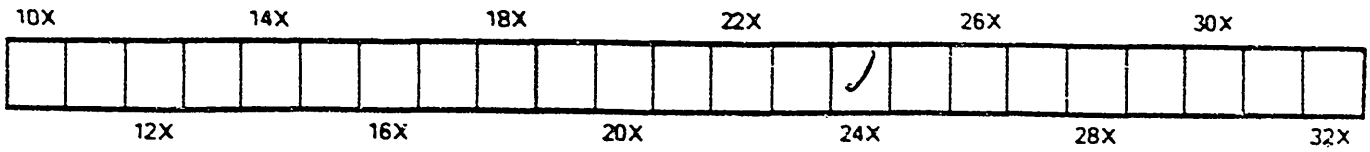

THE

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It is proper that it should be distinctly understood that there is not one in twenty of the population of Canada favorable to the late changes proposed by the British Ministry in the Corn Laws and Tariff, so far as regards agriculiural productions. These changes will do away altogether with any encouragement to production which this colony hitherto enjoyed, without granting any equivalent instead. It is absurd to pretend that any equivalent is granted to agriculturists for subjecting them to the competition of all the world, while they are still obliged to purchase almost every article they require, under the protection of heavy duties—no matter whether these duties are for revenue or not. If it is for general advantage that all should be allowed to buy where they can buy cheapest, why not do away at once with every restriction, and let taxes be raised directly upon the people? We will not admit the arbitrary principle, that one article is a more proper source of taxation or revenue than another, if free-trade is to be the established order of the day. There are countries that produce wine, and are not adapted to the production of corn and cattle. Wine forms the common drink of the working classes in these countries, and is sold at a very low rate. We make it a source of high taxation and revenue; indeed, to such an extent, that it can only be purchased by the wealthy, and is altogether prohibited to the working classes. The late changes in our laws will not be any encouragement to the wine-producing countries, or enable the people of Britain to exchange their products for this wine. If the principle of allowing countries freely to exchange their products with each other, be a good one, and we think it is,—if it is practicable, why not carry out the principle fully and fairly by the removal of all restrictions? Wine may not be considered a necessary of life for the poor, though it is by the rich. Tea and coffee are not actual necessaries but they are made so by cheapness and constant use. The wheel has been put in motion, and it will now be vain to attempt to stop it—a pressure from without will force on the principle of free trade in all other commodities as well as in the products of agriculture. Revenue may be necessary, but it can now only be fairly raised by direct taxation. Farmers will require no protection, but they will require that they shall be enabled to purchase what they may want in a market of open competition, as they have to sell their products in a market of competition that will be open to the whole world. It is arbitrary and most unjust to say that certain articles required for our use, are more proper sources to collect revenue upon, than other articles. Let all other articles be free to our purchase, that we may have the means and inclination to buy, and revenue be collected from every man directly according to his means of paying. This will be free trade in reality, and be making things cheap and accessible to the poor, which they could never procure under our former laws. It will be giving the poor an opportunity of obtaining other necessaries at a cheap rate as well as the productions of the farmer. Let us have all things cheap as well as bread and meat, and we can better afford to pay direct taxes. Farmers deny that other classes have even been taxed for their benefit, and they are now willing to go into an open and free market of competition with all other classes and professions of their fellow subjects and desire; no more protection than any other class or profession, but they will not accept of less. The farmers of Canada have been taunted with their want of skill and energy as the cause of their being unable to compete with the farmers of the United States. This is a most unjust charge. There are many causes not understood that make the competition between this country and the United States very unequal. The people of the United States are disposed to move from one State to another, (we refer to the agricultural population,) and when they have run out, and rendered barren one farm, they desert it, and go to the West, take up new land, and while this land is able to yield a crop of wheat by the most slovely cultivation, they cultivate wheat; but when this also becomes exhausted, they desert it and go West and take up new fertile land, that requires no manure or careful cultivation, but will grow wheat, with the least possible labour expended upon it. It is a well known fact that whole tracts of land have been exhausted

and made a perfect desert in the United States, in consequence of producing crops without proper cultivation or manure. Thus it is that wheat is produced on new and fertile lands, and can be sold at a low rate, because no labour or capital is bestowed upon the land to maintain its fertility. Land is in abundance, and when a field ceases to produce a large crop of wheat or Indian corn at the least possible expense of labour and manure, it is abandoned and new land taken up. These lands, so abandoned for tillage, become covered with a sort of wild grass, and thus large tracts of forest land are converted into pasture for cattle, and enable farmers to raise cattle as cheaply as wheat and India corn. The pastures may not be the best, but they are in such abundance, that if two acres will not keep an ox or cow ten or fifteen may. How are the Canadian farmers to compete with this sort of agriculture and production? We admit that a good system of agriculture is adopted in many parts of the Union, but not in the great wheat, corn, cattle, and hog producing States of the Far West With all the taunts to which Canadian farmers are subject by free-traders, we can state that we have never seen one farm in this Province reduced to that state of barrenness that would make it impossible to restore it to profitable fertility. The land, generally, is naturally of better quality than any we have ever seen in the United States, and more care is taken of its cultivation. On the very worst managed farms the land is not constantly cropped without rest or manure. It is at least allowed to lie fallow every second year and pastured by cattle, which prevents it being exhausted to a state of barrenness and wilderness. The system of raising wheat, corn, cattle, and hogs in the Far West, is very similar, as regards expenditure of labour and capital, to that of the flock farming in New South Wales, and it is therefore impossible for farmers who cannot adopt the same system to compete with the produce in the same market. As we before observed, they have a good system of agriculture in many parts of the United States, but this sort of wholesale rambling agriculture of the Western States must have a great influence upon the whole Union and its products and for our part we would give up in utter despair any hope of competing with the products of a system of husbandry, very similar, we would imagine, to that practised by Abraham and his sons and grand sons, about four thousand years ago. The farmers of Canada cannot adopt this sort of rambling agriculture, abandoning one farm and taking up a fresh one not, having vast prairies to resort to when they please to move westward. It only requires knowledge of the country and habits of the people to see clearly how unequal a competition must be between the products of the United States and of Canada. There is besides all this a high tariff established by the United States while we are about to remove all restrictions on the importation of the products of their agriculture. We have some knowledge of the vast amount of wealth that has been employed and lost in the trade of foreign flour, grain, and provisions, during our residence in Canada; and we hesitate not to say that this employment and loss of capital has been most injurious to this Province. Had it been employed in the improvement of our own country, and the increase of her productions, how different would be the state of the country this moment! If it has been considered for the good of the British Empire that the recent changes should be introduced, we cannot oppose it; but we can see clearly what will follow, that the changes cannot stop at this point, but must go on until all restrictions are abolished. Without this, justice cannot be done to all classes and interests. The Corn-law League, had their day until they effected their purpose, and it will now be the turn of the agriculturists until they effect the abolition of all restrictions, and the establishment of direct taxation. Then all classes and interests will have a fair field and no favour. If these changes are productive of evil consequences to the British Empire, the agriculturist will not be to blame. They are generally conservative in their opinions and habits, until changes are forced upon them as they are at present. It will now, however, be necessary to their very existence, that the changes commenced should go on until a perfect free-trade shall be fully established. If free-trade in provisions is good for those who buy provisions, so will free-trade be good for those who buy manufactures and other things of foreign production. The large amount required annually to pay the expenses, &c., of the British Government will be no trifling obstacle to the establishment of free-trade; but all these difficulties must have been fully understood and considered by those who consented to introduce such great changes in our laws. The free-trade system would be the best possible for all countries to adopt, if all countries were free from debt, and required only a moderate amount of revenue to

support the expenses of governments; but, in our humble judgment, to carry out honestly the principle of free-trade with perfect justice towards all interests in the British Empire, will be a more difficult matter to accomplish than most persons are aware of. A complicated system has grown with our growth, and strengthened with our strength, that it will be difficult to abrogate altogether, without producing much confusion. There is one fact certain, that Canadian agriculturists, if unable to sell their products at remunerating prices for the English market, will have to encourage customers for a home market, by manufacturing what they may require, instead of importing them.

LECTURE ON THE CHEMICAL COMPOSITION AND NATURE OF MANURES.

BY J. C. NESBIT, F. G. S., M. S. L., &c. OF THE AGRICULTURAL AND SCIENTIFIC SCHOOL, KENNINGTON, LONDON.

On Monday, 27th April, a general meeting of the Members of the Tring Agricultural Association was held at the Harcourt Arms, adjoining the Tring Station, for the purpose of auditing the accounts for the past year, and arranging the premiums to be offered for competition at the ensuing annual meeting.

After this business the members sat down to an excellent dinner. J. A. Gordon, Esq., the president of the Society, took the chair on the occasion.

In the evening Mr. J. C. Nesbit delivered a highly interesting lecture to the Society, "On the Chemical Composition and nature of manures." The cloth having been drawn, and Mr. Nesbit having arranged his apparatus, he proceeded as follows:—

Gentlemen: I have great pleasure in appearing before you this evening for the purpose of attempting to explain to you, as far as this can be done in one lecture a few of the facts and most interesting portions of chemistry which relate to the science of agriculture. Upon a subject of so much importance and of so widely extended a nature, it is not to be expected that I can, in a single lecture, do more than take a cursory view of the matter: but I will endeavour to seize upon the most prominent parts of my subject now, and perhaps on some future occasion I may have the honour of entering upon more minute and extended explanations. Chemistry is a science which teaches us how to detect different kinds of matter: all matter has certain common properties, such as weight, extension, &c. But, for all that, there are different kinds of matter. You know that iron differs from gold, gold from silver, and so on: all these are elementary kinds of matter. Now, chemists have discovered about sixty bodies which differ totally and wholly from each other, which have properties quite distinct, and can easily be detected; and which can, if necessary be separated, and handed round to be looked at. But although there are as many as sixty of these different bodies, and some of them are very scarce, and only to be found in certain localities, and others are very plentiful, and to be found almost every where, there are not more than twelve or fourteen with which the farmer has any thing to do, or which need to be considered in reference to the science and practice of agriculture. Out of the whole earth, I say that there are not more than ten or twelve chemical bodies with which the farmer has to do. Now the farmer soon knows the differences and distinction between any twelve or fourteen cows or bullocks, and I don't see any reason why he should not as readily comprehend and know the nature of those chemical bodies and their separate characteristics, as he does those of cows or bullocks *(Hear, hear.)* These twelve or fourteen chemical bodies go to make up all that is grown upon the farm, whether it be wheat, oats, barley, mangel-wurtzel, turnips or whatever else it may be, some of them are derived from the land, and others are obtained from the atmosphere: and you will perhaps be surprised to hear that by far the greater portion is derived from the latter. Of all the substances which you cultivate on your farms, about nine-tenths are derived from the air, and only one-tenth, or in some cases one twentieth, from the land. Now, I shall be able to prove this perfectly to your satisfaction. The matters in the air from which these organic substances are derived are, oxygen, hydrogen, nitrogen, and carbon or charcoal. These may appear to some of you hard and stubborn names, but by frequent repetition, and a little more familiarity with them, you will find that they are just as easy to be understood, as the words plough, harrow, or the name of any other farming implement. The first of these of which I shall treat is oxygen, which is a very singular kind of body and possesses a very powerful attraction for all other elements. It is this which rusts iron when left out in the open air: the rust which you see under these circumstances is nothing but the result of the action of oxygen upon that metal; and when you melt lead, you find it covered with what appears a kind of dross which is nothing more than the result of the action of oxygen on the surface of the hot metal. It is, indeed one of the most powerfully acting bodies with which we are acquainted. One-fifth part of the air we breathe is composed of oxygen; in every five bushels of air there is one of oxygen. Water likewise contains a great quantity of oxygen; for instance, in every nine tons of water you have eight tons of oxygen. All the earths—clay, sand, lime, and marl—contain from one-third, to one half of this oxygen. This very powerful substance exists in the air as a gas: in water as a liquid in combination with hydrogen; and in earth as a solid. From the generality of earths it is not separated; from water it is; and from the air also. Now I will endeavour to prepare a little of this oxygen: it can be prepared in various ways. I will take a substance called chlorate of potash a compound of potassium, chlorine, and oxygen. The mixture when heated will give out its oxygen. And I shall then be able to test its presence. It has a very powerful affinity for all combustible bodies. It is this that allows the candles before me to burn; deprive them of it and it would at once be destinguished. The light is produced by the union of the oxygen of the air, and the tallow or wax upon the hot wick. Deprive the air of its oxygen, and you will have no light, no heat. Now I shall heat this chlorate of potash in this tube; and when it has undergone fusion at a "red heat" an effervescence will take place, and oxygen will be given off. Now this oxygen is that which consumes all your vegetables; it consumes the coal in the fire, and the coke under the steam boiler; and when you make a mixen with straw, dung, &c., in your farm yards, it is this gas which causes it to diminish in bulk, and the combinations to fly off to help to produce vegetables all over the world;—as well in the wilds and deserts of Arabia, as in your own neighbourhood, or any other parts of England. The gas is now given off from the chlorate of potash in the tube. I will ignite a small

splint of wood, blow out the flame, and introduce the red hot end into the tube. You see the flame is immediately rekindled. (Experiment repeated several times) The increased power of combustion arises from there being pure oxygen ready to unite with the combustible body. If I drop the splint of wood into the tube, the combustion will be most intense, in consequence of the ease with which the oxygan of the chlorate of potash can then attack the wood. You now see how vivid is the light, and the wood is all consumed.

I shall next speak of hydrogan, which is contained in water and in all vegetable and ahimal matter. Water is composed of oxygen and hydrogen; every nine tons of water contain eight tons of oxygen and one of hydrogen. Now we can easily separate the hydrogen from the water. Thus we can put something in to take away the oxygen, and the hydrogen will be liberated. Potassium has a most powerful affinity for oxygen, and if we put it into the water it will combine with the oxygen, forming a substance called potash; and the hydrogen of the water will thus become liberated. Now, this operation is a regular and actual decomposition of water. The water is thus decomposed, the hydrogen is liberated, and the heat produced by the union of this piece of potassium with the oxygen is so great as to set fire to the hydrogen as soon as it is liberated on the surface of the water. This is a real combustion of one of the constituents of water; so that this operation of "setting the Thames on fire which we so often hear spoken of as an impossibility would be no difficult task if we had a sufficient quantity of potassium (Hear, and a laugh.) If we *had* this quantity, we could completely burn and dry up the Thames itself; for we have here seen water decomposed, dissipated and sent off into the air. Now the hydrogen which we have thus eliminated and set free can also be liberated by other means; we can decompose water in other ways. Let us take a piece of zinc this zinc has a powerful attraction for the oxygen of the water, but not so powerful an affinity as the potassium. You all know what oil of vitriol is; and if we put some sulphuric acid or oil of vitriol to the zinc and water in this bottle, we shall have the hydrogen of the water liberated very rapidly. I will apply a light to the issuing stream of gas. You now see it burning; and the hydrogen which is thus burning is the description of gas which formerly was used for the purpose of inflating and sending up air balloons. But now the burning gas of the streets is applied to that purpose; and the gas of the streets differs from this only in this respect-that it contains a portion of charcoal and is therefore heavier. When this gas burns it unites with oxygen, because it finds oxygen in the air on every side of it. This re-union of oxygen with hydrogen reproduces water; this is always shown by holding over the flame a cold glass jar, when the moisture produced is immediately deposited: for when the hydrogen unites with the oxygen, water is the result. Thus you have seen water decomposed, and the hydrogen liberated from the oxygen; and on the other hand, you have seen them united again, and water reformed, the glass vessel being covered with dew by the re-formation of the water.

You thus become aware that water is composed of these two awkwardly-named bodies, called hydrogen and oxygen; one part of the former, and eight of the latter. Water acts not only in carrying up certain substances to your plants, but also becomes decomposed by those plants, with this difference in the operation, from my experiment, that whereas I have retained the oxygen and liberated the hydrogen, the plants do exactly the reverse—they retain the hydrogen and liberate the oxygen. The next substance upon which I shall speak is nitrogen—so called from being contained in nitre and saltpetre. You have all heard of ammonia—that subtance which is put in the smelling bottles of ladies, to keep them from going to sleep at church, *(laughter)*. Now, ammonia is a matter of exceeding importance to the farmer; and it is a compound of nitrogen and hydrogen. It is composed of fourteen parts of nitrogen and three of hydrogen, and is very essential to vegetable growth, for, when I tell you that all those portions of vegetables capable of affording flesh, must contain nitrogen, you will readily see its great importance; for no animals could live upon vegetables which did not contain nitrogen. All animals contain a large quantity of this nitrogen, as do also the hair, hoofs, and horns. Now many experiments show that nitrogen is almost always taken up by the plants in the form of ammonia. Most manures contain ammonia. Guano of the better description contains 20 per cent of it. I will now separate the ammonia from a specimen of very fine Peruvian Guano which I have here; I will mix a little lime with it, and that will set the ammonia free; and you will then soon know what mean by ammonia. You smell the same thing when in a morning you go into a stable which has been closely shut up all night. In all stables where the ventilation is not well attended to you will discover the odour of ammonia. I mention nitrogen now, but I shall speak of it more particularly when I come to treat of the formation of mixens and farm yard manures. There is a great quantity of nitrogen in the form of ammonia brought down by the rain every year. There is as much, probably, brought down each year in this way as is taken up by any crop; but then it is not all brought down when the crop is growing, and the consequence is a certain portion of it passes away by the drains, and is lost. I will next treat of carbon, or charcoal. You all know what charcoal is, and how you make it by piling up wood, and burning it with just sufficient air to allow the combustion to go on. Now, this carbon or charcoal, is a remarkable substance. It is the very same substance as that of the diamond, and the most valuable gem is nothing else than pure chrystallised charcoal; a pound of diamonds is nothing else than a pound of charcoal. This has been proved by chemists the one has been shown to be identical with the other with this difference only—that the diamond requires a higher temperature to burn it than the other. Charcoal is the main constituent of vegetables; it forms what I may call the bony part and woody fibre of them And whence do they get this charcoal? It is not from the soil. Look at the volcanic ejectments of Etna and Vesuvius; you find that the lava in the course of a few years cools down and cracks, and the wild fig tree will send in its roots and flourish; and, although there was no charcoal there before, plenty of charcoal will be found in these trees. The same will take place with plants that grow on granite rocks; there was no charcoal in these rocks, but plenty will be found in the plants. Where then do they get it from? They must get it from the air; and they do get it from the air. The common air contains one two-thousandth part of carbonic acid gas (a compound of charcoal and oxygen), and the plants rake this gas from the air. I shall make you better acquainted with what I mean by carbonic acid when I tell you that it is the effervescing matter which you see in soda water, or which comes from bottled porter, or which sparkles up in the glass of champagne; which collects in brewers vats or wells, and which has killed hundreds of people who have gone down into vats and wells without taking the precaution of having resource to ventilation.

This gas is of great importance to plants, and they derive all their charcoal from it—from this carbonic acid gas, of which I have been speaking. Your oats wheat, turnips, &c. how they do get their charcoal? Why they spread their leaves out to the light of day, or to the sun when shining; the roots take up a certain degree of moisture and mineral substances from the land, which are carried up into the leaves, and when there (in the light of day, not otherwise) they give the leaves the power of acting upon the carbonic acid gas in the atmosphere; retaining its charcoal, and sending back the oxygen. This never takes place except in the diffused light of day, or a full sunshine. But the operation takes place more rapidly in the full sunshine than under any other circumstances, especially if there be a nice steady breeze blowing at the time; for, as the air contains only one two-thousandth part of charcoal, a portion of air will soon be robbed by the plants of all it contains; but as the breeze brings a fresh supply of air there will be a fresh supply of charcoal also, and consequently it must be evident that the operation which I have described will take place much more rapidly when there is a nice breeze blowing, with sunshine, than when there is not. *(Hear hear).* Now you will perhaps imagine that a large tree, like the oak, would never be able to take up all the charcoal it contains from the atmosphere; but, have you ever considered how many square yards of leaves it spreads out to the air? Why, it spreads out a surface of not less than 300 or 400 square yards of leaves, by which to seize and arrest the charcoal from every breath of air, *(Hear hear).* But you may say, if the plants are always carrying on this operation, won't the air, in time, lose all its charcoal? Why, yes, it would, were it not that the animals and decomposing vegetables are constantly returning it. This is done with vegetables by the act of the reaper or by the axe of the woodcutter, under the operation of that indefatigable agent of which I have already spoken, called oxygen. For, no sooner does matter become dead and inert than the oxygen immediately comes and claims its former partners (the charcoal and hydrogen), and off they go again together as carbonic acid gas, and water *(cheers).* The food which you eat, and the food which all animals eat, undergo precisely the same action. All the food we eat does not pass off in excrementitious matter, neither is it all expended to form the muscles of our bodies; a great part is expended by respiration—by the action of breathing. At every breath we draw we take a certain quantity of air, and give something back in return; we take in the oxygen of the air, and give back carbonic acid and moisture derived from the action of the oxygen on the charcoal and hydrogen of our food.

(To be continued.)

Cows for the Dairy.—In selecting cows for the dairy, the following indications should be attended to:—Wide horns, a thin head and neck, dew-lap large, full-breast, broad back, large deep belly, the udder capacious, but not too fleshy; the milch veins prominent, and the bag tending to fat behind; teats long and large, buttocks broad and fleshy; tail long, pliable and small in proportion to the size of the carcass, and the joints short. The keeping of cows in such a manner as to make them give the greatest quantity of milk and with the greatest clear profit, is an essential point of economy. Give a cow half a bushel of turnips, carrots or other good roots per day, during the six winter months, besides her hay, and if her summer food be such as it should be, she will give nearly double the quantity she would afford if only kept during the winter in the usual manner, and the milk will be richer and of better quality. Cows should be treated with great gentleness, and soothed by mild usage, especially when young and ticklish, or when the paps are tender. A cow never gives down her milk to a person she dreads or dislikes. Keep no more cows than you can keep well; one cow well fed will produce as much milk as two indifferently treated, and if the cow be wintered badly she will rarely recover during the succeeding summer, so as to become profitable to the feeder. Cows should by all means be housed in extreme weather, and particularly those which give milk, or a failure in the quantity of milk will be experienced. Wherefore instead of keeping twenty cows poorly fed and but half of them stabled, sell ten, and give the remaining ten food in amount equal to what the twenty originally had; procure constant stabling for them, and you will receive quite as much milk and butter in return, as was derived from the former mode of treating twenty.—*Belcher's Farmeres Almanack (American.)*

ON INSECTS DESTRUCTIVE TO GROWING CROPS.

The usual monthly meeting of the London Farmers' Club was held, on Monday last, in their room at the York Hotel, Bridge Street, Blackfriars. Mr. Baker, of Writtle, Essex, presided.

The Chairman, in opening the business of the evening, stated that the subject which stood on the card for discussion that night was, "On insects destructive to growing crops." He had himself undertaken to introduce the mater to the meeting, and he would now proceed to offer a few observations which had occurred to him in relation to this very interesting subject. "One of the insects highly destructive to growing plants is the cock-chafer. It frequents deciduous trees in May or late in April; its duration of life is about one week in the perfect state, at which it is a long period in arriving. The female deposits eggs in the earth to the number of from 80 to 90. In about fourteen days the embryo bursts forth in the from of a very minute worm; in twelve months the larvæ of the insect is half an inch in length, and about the thickness of a quill. In this stage of its existence it devours the roots of plants. In the second year it is an inch long, and as thick as a child's finger; in the third year an inch and a-half long, and as thick as a man's finger. In colour it is yellowish white on the fore part of the body, the abdomen violet, and the head and feet yellowish red. It changes its skin every spring, and at the approach of winter burrows deeply into the earth, to the depth in fact of six or eight feet. In the beginning of the fourth year it bursts into the pupa state, assuming the form of the perfect insect, and continues to approach its true development until the fifth year, when it is perfect. It leaves the pupa state a soft and write beetle, in ten or twelve days is perfect, gradually approaches the surface of the ground, and becomes an inhabitant of the air a perfect fly. The larvæ destroy every kind of culinary plant, as well as the grass of meadows and corn. The perfect insect is equally destructive. It attacks cherry, apple, pear, and nut trees, as well as the vine and the oak, beech, and chesnut; but it never injures the lime. All birds destroy them, and some other animals—moles and pigs, for instance—are fond of them. The *elater lineatus*, or lined click-beetle is another very destructive insect. I believe it is called the "ck-beetle, from a habit it has of turning itself over on its back, and making a slight clicking noise as it does so. In colour it is iron blackish, with grey hairs, the feelers and legs are a

brownish yellow, and the wing covers are striped with grey. It deposits it eggs in decayed vegetable matter and tufts of grass, about the latter end of May, at which period its is most prevalent. If at the end of May there should be a good deal of wet weather, there will, in all probability, be very few the next year; but if the weather should happen to be fine and warm, a large quantity of them may be expected to show themselves the following summer. The larvæ produced by it is a little long wiry worm, or grub, with legs. It is linear, slender, flat, shining, and smooth, slightly hairy, and of a brown colour. It is so exceeding wiry in its character that it is not easily crushed or broken, and consequently there is great difficulty in destroying or getting rid of it. All birds are, however, exceedingly fond of it, especially the rook. I examined a rook which was shot on a farm of mine, and no less than eighty of these wire-worms were found in his maw. The fact shows how destructive rooks are to this description of insect; and perhaps, therefore, by killing them they in part pay us for the destruction they themselves do among the corn crops. The injury done by these insects extends over two or three years. It seems quite uncertain when they enter into the perfect fly state; they may in the following season, or may not for a much longer period. They appear to have the faculty of prolonging their existence in the chrysalis state; as long as they are well fed they will remain so, and take an opportunity of emerging when they have no longer anything to eat. They do not pass at any certain and fixed period from the one stage of their existence to the other; they wait in fact, until the time arrives when it best answers their purpose to enter upon the pupa state. It would be quite useless to treat upon insects and their particular habits, unless practically prepared in some way to show how the evil consequences of their destructive propensities may be got rid of (*hear, hear*). I have not the slightest hesitation, however, in saying that the processes of farming may be so carried out that if the evil shall not be entirely got rid of, it shall at least be very little injurious. The plan which I have adopted is this—I have made it a point not to sow any rye-grass, and with the light qualities of soil to plough every second year. Now, since I have carried out this system, I have not had my land infected with the wire-worm. From having seen some badly farmed land, for a succession of years, overrun with wire-worms, I endeavoured to trace out the cause, and I observed that they were never produced except where there was decomposing vegetable matter. Upon this it occurred to me that if I ploughed the land before the grass accumulated, I should rid myself of these insects; and such has been the result of the adoption of this plan, that, during the last ten years, I have never seen any of the effects of the wire-worm on the land upon which it was carried out (*hear, hear*). Other lands upon which this plan was not adopted were very much infected with wire-worms. To my great mortification indeed, one crop of oats was almost destroyed by them. After the previous crop a large quantity of grass had been allowed to accumulate, and was then ploughed in; and to that cause entirely I attribute the presence of the wire-worms in large numbers. If this land had been kept free from grass as the other was, I have every reason to believe that this would not have been the case. Having traced the cause, and found that the grass was the inducement to the generation of the wire-worms, I got rid of the inducement, and have since been troubled with them to a very small extent. In ploughing up old cross layers the first crop is very apt to suffer from the same cause; in fact it is only rarely that we can succeed in such a case, except by paring and burning previously to sowing the land with oats. It seems probable that these have increased with the improved system of farming, and since the plan of summer fallows has exploded, especially as grass crops are introduced. It is pretty certain that the eggs are deposited near the surface, as by paring very thinly they are more effectually destroyed than they are by ploughing deeply; by raising a small quantity of the soil, and harrowing and rolling, a large quantity may also be destroyed. I can speak from my own experience in this matter, for wherever I have ploughed upon grass layers the land has been much infested by the wire-worms, but by a proper rotation of crops it can soon be got rid of. One very efficacious mode of getting rid of them is to sow the land with white mustard, which is so exceedingly offensive to them that you will find no more for several years. A gentleman of my acquintance did this in three succeding years, and in every instance he found it answer most perfectly. He found all those portions of the land where the mustard had been, free from the wire-worm, and producing excellent crops. Soot and lime and nitrate of soda are also very destructive of these insects. I have seen the effects of nitrate of soda; and although it did not kill them, all those which remained did very little damage after its application. I have observed that two stetches near the foot-path which crosses some fields of mine were infected with wire-worms; and if I had not known the cause, I should have been some time in searching it out. The fact is, there are two rows of grass which will grow up where the gravel path unites with the common soil; and as every time the field is ploughed the plough is brought as close up as possible, some of the eggs of the wire-worm, or click-beetle, which have been deposited in the grass, are thrown out, and the wire-worm thus perpetuated in these stetches; if we go further away into the field we don't find the land infected by them. This seems to be in accordance with what I have already stated, that if you get rid of the grass, you will ged rid of the wire-worm. There are several other things which destroy them besides those which I have mentioned; the liquor from gas tar is a very good thing, but then it cannot be employed to considerable extent. Spirits of turpentine applied to any description of insect will destroy it. You may immerse the eggs of these insects in spirits of wine, and they shall lose none of their vital principle; but if they be immersed in spirits of turpentine, they will be destroyed directly. The common moth is a very destructive insect, but his ravages may be entirely prevented by a little turpentine. You have nothing to do but to place shallow boxes in your drawers, with a little spirits of turpentine in them; and as the turpentine evaporates and penetrates the cloth, the larvæ will protrude, and be found dead on the surface. This is a point well worth knowing, for which I am indebted to that highly intelligent and scientific person, Dr. M'Lean, of Colchester. There is another kind of moth, of a very destructive character, which infests the corn in our granaries. It remains quiet during the day, but flies about at night. It deposits its egg upon the wheat; a little maggot is produced, which eats into the ear, and then spinsa little web over it; and when the purchaser thinks it is fully ripe, he discovers that all the inside has been eaten out. These are to be got rid of by the same process as that which I have described regarding the woollen moth. Nothing but spirits of turpentine will effect this, and there is no objection whatever to its use as it all evaporates: if you were to immerse your coat in it, it would all evaporate in a certain time; it may be applied without the slightest injury to the texture of the cloth. The

next object to which I shall direct your attention is the aphis, or plant louse, and perhaps this is as well known an insect to the agriculturist as any, with the exception of the wire-worm, which does so much injury to the growing crops. The manner in which they appear is quite startling. I have watched them very closely for a great number of years. I have been very attentive to their first appearance on the field crops; but notwithstanding all my watching, I never could discover one which was not full grown. The are always found in pairs. When I have first discovered them, I have seen them in pairs and full grown, and on the following day they will produce young ones in abundance, but all apparently full-grown insects. They are oviparous and viviparous; their production is amazingly rapid. Bonnet, a French naturalist, says they produce nine generations in seven days. I have seen fields of peas so covered with them as to be completely destroyed. My pea crops were entirely destroyed by them last year and are likely to share the same fate this year; in five or six fields they are visible on the plants, from those in full flower to those which have just emerged from the ground. I have never seen them so plentiful as they are this year upon the roses, and every other description of vegetable and leguminous plants, especially beans. When they infect beans they are sometimes black and sometimes green: when black they are commonly called 'colliers.' I think it is an erroneous opinion that they assume the colour of the particular plant upon which they feed, as stated by some naturalists. For I have seen them both green and black upon beans, at the same time; and green in some portions of the field, and black in others. It appears that there is only one male produced at the beginning of the season, and that all the succeeding classes are females, and go on producing without any further impregnation from the male. This is stated on the authority of Bonnet, who stands high as a naturalist, and Kirby confirms it. It is very astonishing how insects are produced; there are indeed some points connected with their production which we cannot at all fathom. They appear upon plants and under certain states of atmosphere in a manner so as to leave us in perfect ignorance of the manner in which they are first produced. The pea lice are so tender that they can hardly be touched without being destroyed, and that they carry their existence through the season is not reasonable to suppose. They never appear except when a north-east wind is blowing; after a warm north-east wind they appear in large numbers. They are destroyed in vast quantities by the sperrow, a bird which in other respects is itself very injurious. On one occasion, when I had observed a great number of sparrows, and at first thought they were taking the wheat, I found they were after the pea lice. The common wood pigeon is also very fond of them, and destroys them in considerable numbers; it will first eat the pea, then the stalk, and then the insect, making us a sort of compensation for eating the peas, by afterwards killing the insect (*a laugh*). The earth-flea beetle, or turip fly, is another description of insect which is very destructive. They differ considerably from other bettles, and are remarkable for the extraordinary leaps they make. In proportion to their size they jump as far as the kangaroo. Of the natural history of this little beetle, although one of the most destructive of insects, less perhaps is known than of almost any other. In winter they live under the leaves and stems of plants, or in the chinks of walls; but naturalists do not know even the precise shape of the larva, or when and how it is produced. It is rather remarkable that this point should not be settled. We farmers do not know where they come from, or how they are generated, although we have ample proof of their destructive propensities in the injury they do in extracting the juice of the turnip. The are very fond of all the brassica tribe, such as turnips, carrots, radishes, &c., which, as well as the cabbage tribe, and sainfoin, clover, flax, &c. they generally attack. They are very fond of warm and sunshiny weather; if the weather be showery, or the crops be in a shady situation, there is not much to fear from the attacks of these insects. But in situations exposed to the heat of the sun, like our fields, they at once proceed to attack the plant, and in a very few days it will be utterly destroyed. I have observed a smaller kind of beetle upon the hollyhock, which eats it away exactly as the turnip-fly beetle destroys the turnip It is not the same insect, although it resembles it very nearly. I have observed that they attack cabbages and cabbage plants, exactly as the turnip fly does turnips. The only mode of effectually combating the ravages of the turnip fly is to make the land so good that the turnips will grow so fast as to render it difficult for the flies to accomplish their purpose. It is with them as with us: If dinner were provided for twelve, and twenty-four came to partake of it, there would not be much left; but if, on the other hand, dinner were provided for twelve, and only six came, there would be plenty left. It is the wisest way to sow a large quantity of seed in alternate rows, at different times. For as these insects appear to like the youngest best, you may thus save one row at the expense of another. On this principle some people drill Swedish turnips in between the wheat, for the game to feed upon, although it is difficult to know what quantity will be required. The best mode of getting ride of these insects by a very simple process; I am quite satisfied that there is no method so good as the application of common road dust, which should be strewed with the hand upon the rows of plants, early in the morning, when the dew is upon them. It will be found that they will not touch any of those plants upon which the dust has fallen. The same object may be accomplished, to a great extent, by hoeing; if you hoe land upon which you are growing turnips, you will rerely find that the plant will be attacked by the fly, so repugnant to them is the dust which gets on the leaves (*hear, hear*). Those which are the most dirty will be the surest to escape. The plant may be saved by the application of common road dust when no other means can he resorted to. I have found it answer very well with early broccoli. Another method resorted to by gardeners is the application of an infusion of elder or wormwood; if the young plants be immersed in an infusion of this kind before being planted out, no insect will touch them, as they dislike both exceedingly. Therd is another insect which is exceedingly injurious to the farmer, and that is the wheat midge. Long before I ever had a thought of the establishment of Farmers' Clubs, I turned my attention to this subject; at that time I published some letters in the original *Farmers' Journal* upon it, giving the results of my investigations into the injury effected by this insect. It would be almost a work of supererogation to repeat those results; but there are one or two points which are not gone into in those particularly as to the particular time at which the injury is effected. The insect generally attacks the wheat just as is bursting into ear, by means of its ovipositor. The egg, which is placed just between the wheat and the chaff, is converted into a reddish yellow maggot and this maggot eats the pollen, and prevents the wheat from coming into blossom; and the time at which this is effected is generally between four o'clock in the afternoon and sunset a in summer evening. Windy or cold weather will pre-

vent this from taking place. The insect has an orange yellow body, the wings are perfectly clear and transparent and rather long, and the antennæ are hairy and articulated. The larvæ jump upon being touched, and they are converted into the pupa state at the beginning of harvest. I have known the early wheat affected by them, and the later escape, or *vice versâ*. This depends upon the particular period of the season at which the flies come into existence. I cannot say much—indeed I cannot say anything as to the means by which the injury sustained from this insect can be prevented. It seems almost impossible over a large extent of country to apply any means which would be efficacious. Sometimes burning weeds to windward of the field infected will be of advantage. The cause of their doing so much mischief at one time and not at another is, doubtless, dependent upon certain states and conditions of the atmosphere. It seems also that they cannot effect their object unless the wheat is in a still position, or almost motionless; if the weather be windy they cannot effect their object at all. To say that wheat is frequently injured to the extent of 40 per cent, by these insects is speaking quite within the mark. Wherever the maggot has destroyed the pollen the plant will not flower or fructify, and the consequence is that no wheat is produced. Notwithstanding, however, the fact that these insects are so difficult to get rid of by any means of our own, nature seems to have devised a means for checking their increase. For the ichneumon fly is severely destructive to them; and of the ichneumon fly there appears to be about 500 different species, which are very destructive to other insects, especially to the wheat midge and caterpillar. I have frequently observed these small black flies, or "midgets," as we call them in Essex, at their work of destruction. They will insert themeselves between the wheat and the chaff, and immediately attack the wheat midge. They are very voracious, and will strike maggot after maggot in rapid succession as fast as they can pass from one to another. In passing up a field one day, one my way to market, I saw a number of these black flies on an ear of corn which I plucked, and upon examination of it, by opening the chaff, I found they attacked the wheat midge most voraciously. I carried it to market, and examined it again when I got there; but their voracity continued just the same. In striking the maggots, they insert an egg in its body; and the maggot, then gets into a place of concealment, and dies, just as sheep seek concealment when suffering in a similar way. The little insect, which become the ichneumon, subsequently emerges from the dead insect: it is first formed into a chrysalis, and becomes a fly the following summer. I had a number of these insects which I had intended to bring with me; but they escaped my memory. They attack caterpillars by hundreds, and seem so determined in their endeavours to effect their object, that the more you attempt to frighten them away, the more bold they become. It is to this class of flies that we are so much indebted for ridding us of the pest—the wheat-midge. The next insect which kills other insects of a mischievous character, to which I shall direct your attention, is the *spix spirifex*. It frequently forms a hole in the path, resembling a small funnel, which it constructs of sand, and cements into a firm consistency. Having completed this excavation, it deposits its egg, and upon it drops a caterpillar, and so on until the end. As soon as the eggs come into existence, they find the caterpillar to live upon until they come into the pupa state. I state this on the authority of Kirby, the naturalist; and all his investigations are made with so much care and assiduity than there is no doubt whatever of the fact. The habits of all these little insects, as far as we are able to look into their economy, are far before those of large animals. They appear to have a peculiar character and peculiar senses, in which larger animals do not participate. I recollect an anecdote which is told by Franklin, of the American ants which he found when he first went to the United States, which destroyed all his sugar. He accordingly suspended the sugar-pot by three strings from a nail in the ceiling, and all went on very well for a short time. But he soon discovered a line of ants going up the wall, along the ceiling, and down the strings into the sugar-pot. It immediately occurred to him that he must have left an ant or two in the basin when he hung it up, and that communication had by these been made to the others. The next time he hung it up, he took great care that there were none, and all went on very well. He then intentionally, and for the sake of experiment, put two or three of the insects into the sugar, and hung it up as before. As soon as they had themselves had as much sugar as they could eat, a communication was again made, and the ants were seen in considerable numbers, running up the wall, along the ceiling, and down the strings into the sugar-pot, as before (*Hear and a laugh*). There could be no doubt that a communication had been made. I have myself observed a similar thing occur with a lime-tree in my garden, which was decaying, and partially covered with honey-dew; there the ants walked in a regular line to the tree. No mark was visible to the human eye, but there might be marks as intelligible and as plain to them as a turnpike-road is to us. The subject is one of such interest and vast variety that it would, if enlarged upon, not occupy one evening only, but a twelvemonth. The Hessian fly is an insect which is exceedingly destructive to the corn corps in Germany and North America, and is much less visible than the wheat midge. It is very small and slender, hardly so large as a common guat; the breast is yellow, the abdomen of a brownish colour, and the legs of a golden yellow. It deposits its eggs in the month of June in the sheaf of the leaf, nearest the root and stem, or at the crown of the root. They there forms into maggots, and proceed up the inside of the stem, and get at the wheat. The damage done afterwards becomes visible; the ear assumes a blighted appearance, and the head hangs down. Whenever you see the ears turn white and become empty, you may be sure that this fly has been at them by making its way up in the manner which I have described. And this very destructive insect is the common earwig; it is so well known that is hardly worth while to enter into any details respecting it; and I believe the only way of getting rid of them is to catch them and kill them. Indeed, that is the best mode in most cases: it is astonishing what may be done in this way by setting a few hanks to work, whereas you may make use of a variety of means, such as lime water, &c., without any effect. If you mean really to tackle them, set a few pairs of hands to work, pick them off the plants, and get rid of them by pouring boiling water upon them. I know of no other effectual method; and I have known some people spend a vast deal of money in endeavouring to get rid of the insects by a variety of other means. I shall now, gentlemen, conclude the few observations I had to made by stating that I think this a subject, the investigation of which is not only very useful, but also exceedingly delightful (*hear, hear*). The investigation of the natural history of insects is quite equal to any other science in point of interest, and in my opinion infinitely more so than botany, because the habits of insects are so exceedingly curious. Kirby thinks they possess certain senses which we do not; in fact, seven senses are attributed to them, whereas we

have but five. It is a very singular fact that, if you place a female moth in a room at night, in the morning you will find a male moth there too. It will come down the chimney, or get in by some means or other; how it should discover that the female moth is there we know not; but so it is. With regard to the glow-worm it is the female only that shines, and the light which she gives out guides the male to the spot where she is. One summer's evening as I and some friends were sitting regaling ourselves with a cigar in an arbour, an insect struck against a light which was placed there for the cigars, and fell to the ground; presently another struck in the same manner; and on examination we found they were two male glow-worms, which had, doubtlessly, been attracted by the light, evidently confirming the opinion that the light of the female glow-worm is given to guide the male to the spot where she is. There are many circumstances connected with the generation of insects which are not only exceedingly curious, but are altogether inexplicable. Some astonishing discoveries were made by Mr. Cross, who produced insects from certain poisonous substances, under circumstances which in other instances would have been destructive of the vital principle in living beings. That we should get insects from the decomposition of vegetable and animal substances is wonderful; if we take paste, and allow it to decompose, we shall find animalcules of a comparatively imperfect formation; examine them again, and we shall find them more perfect. So in the case of the grub changing to the chrysalis, and the latter to the perfect fly. The common cock-chafer is five years before it arrives at a perfect state, and is undergoing changes the whole time; and when it becomes perfect it only lives for a few weeks. The subject of the generation of life is one of the deepest interest, and I find it touched upon so ably by an author who endeavours to get rid of the opinion that no creation of life can take place which did not originally take place, that I do not think I can do better than conclude by reading a passage from his work. He says:—"A candid consideration of all these circumstances can scarcely fail to introduce into our minds a somewhat different idea of organic creation from what has hitherto been generally entertained. That God created animated beings, as well as the terraqueous theatre of their being, is a fact so powerfully evidenced, and so universally received, that I at once take it for granted. But in the particulars of this so highly supported idea we surely have cause for some re-consideration. In what way was the creation of animated beings effected? The ordinary notion may, I think, be not unjustly described as this—that the Almighty produces the progenitors of existing species by some sort of personal or immediate exertion. But how does this notion comport with what we have seen with the gradual advance of species from the humblest to the highest? How can we suppose an immediate exertion of this creative power at one time to produce zoophites, another time to add a few marine mollusks, another to bring in one or two conchises, again to produce crustaceous fishes, again perfect fishes, and so on to the end? This would surely be to take a very mean view of the creative power: to, in short, anthropomorphize it, or reduce it to some such character as that borne by the ordinary proceedings of mankind. And yet this would be unavoidable; for that the organic creation was thus progressive through a long space of time rests on evidence which nothing can overturn or gainsay. Some other idea must then be come to with regard to *the mode* in which the Divine Author proceeded in the organic creation. Let us seek in the history of the earth's formation for a new suggestion on this point. We have seen powerful evidence that the construction of this globe and its associates, and inferentially that of all the other globes of space, was the result not of any immediate or personal exertion on the part of the deity, but of natural laws which are expressions of his will. What is to hinder our supposing that the organic creation is also the result of natural laws, which are in like manner an expression of his will? More than this, the fact of the cosmical arrangements being an effect of natural law is a powerful argument for the organic arrangements being so likewise, for how can we suppose that the august Being who brought all these countless worlds into form by the simple establishment of a natural principle flowing from his mind, was to interfere personally and specially on every occasion when a new shell-fish or reptile was to be ushered into existence on one of these worlds? Surely this idea is too ridiculous to be for a moment entertained." (*Hear hear.*)

The Canadian Agricultural Journal.

MONTREAL, JUNE 1, 1846.

Circumstances over which we had no control, prevented this number of our Journal being published in due time; and we hope our paying subscribers will excuse us when we assure them it is our earnest desire to give them satisfaction. As to those to whom we send the Journal, and who do not pay the small subscription of one dollar a-year for it, we need not apologise to them, as they cannot set much value upon the publication, or they would pay for it. It must be well understood that we cannot publish without incurring considerable expense, and unless we obtain subscriptions, all this expense will fall upon ourselves. It is hardly credible that the only one Agricultural Journal published in Eastern Canada should lack support, but such is the fact nevertheless. Every individual who will talk to you of the circumstances of the Province will admit the importance of agriculture; but though we have a thousand copies of this Journal printed and circulated, we have difficulty in collecting subscriptions to the amount of one hundred dollars. Our Journal may not be so interesting as to be considered worth a dollar subscription to those who receive it; but even this circumstance we should think would not prevent support to a publication that has no other earthly object but to promote the prosperity of our country. We trust all who have taken the trouble to read what we have published, for many years past on this subject, will admit that we have honestly endeavoured to forward the improvement and prosperity of Agriculture, and if we have not been successful, it is not our fault. We have devoted our time and money to this object, of our own

free will, it is true, but it is equally true that we have not been supported. To those who have kindly paid their subscription, we offer our best thanks for this unequivocal mark of their approval of our humble exertions—and we regret that we cannot mention their names; but it is not difficult to know who are the true and honest friends of our country, and who would give encouragement and support to anything that was likely to be useful, or even intended to be so. Our Journal has nothing to do with parties, and only advocates the necessity of the improvement of our lands and the augmenting her productions, and if we meddle with the subject of free-trade, it is only so far as it may influence the improvement of those productions.

AGRICULTURAL REPORT FOR JUNE.

During our residence in Canada we have never seen a more favorable time for vegetation than the month of June. Indeed, up to this period, the past spring has been most propitious, and the crops in consequence look healthy and promising, generally, so far as we have had opportunity of seeing. A large quantity of the soil cultivated is in wheat this year, some sown early, but the greater portion sown the latter end of May, which we think the safest time for Black-Sea wheat, as we have the wheat-fly still in the country, though perhaps not so numerous as heretofore. This destructive insect made its appearance this season at the usual time, about the 25th of June. Some farmers say that the Black-Sea wheat, however early sown, is not much injured by the fly, and this would be a most fortunate circumstance if it proved to be so generally, as early sowing is very desirable, if it could be done with safety; but this should be ascertained before farmers would incur the risk of losing the crop by sowing too soon. All the wheat we have seen this year has a healthy appearance, and should the season continue as favorable as it has been up to this time, it will produce abundantly. The barley is equally promising; in fact, all our crops are as promising as we could desire. The potato crops are now healthy, but we cannot form any opinion as to how they will ultimately turn out. They were equally promising last year at this period, but they were a failure after all. We are not advocates for growing potatoes to a very great extent for the food of man; and we do not think that farmers will sustain any great loss by not planting them to the same extent as heretofore, provided other crops are substituted. The loss to the farmer is—when he cultivates the crop, and the produce is destroyed by rot. The quantity of potatoes cultivated this year is much less than usual, but sufficient for the use of our people, should they escape the disease. The meadows are excellent on fertile lands, but not extraordinary on old meadows, and we have seen as poor crops of hay this year as last year; but this certainly is the fault of the farmer. New meadows are excellent, where the seed took well last year, but there are many new meadows that the seed did not take well last year, and the crop in consequence is thin and deficient. The pastures are generally good, and the cattle in fine condition. The produce of the dairy is abundant, and at moderate prices, with the exception of cheese, which is not plentiful or cheap in the market, and we regret it. We have seen as fine cheese in the Montreal market, of Canadian manufacture, as could be desired, but it is not generally so. It is proof, however, that nothing in the climate or soil would prevent our having cheese here of the very best quality. The farmers of Canada are much to blame that they do not give more attention to this manufacture. If one farmer can make good cheese, so can other farmers, by the same care and attention. There is no excuse for them. The enemies of agriculture bring this charge against Canadian farmers, that they do not produce good cheese, and wish to prevent the importation of foreign cheese. It is discreditable to farmers to be subject to this charge, and we hope it will be no longer the case. Fruit trees have sustained great damage by caterpillars, and we believe the crop of apples will be very deficient in consequence. We have seen some promising patches of field carrots, but the extent cultivated in the neighborhood of Montreal is not large, and we regret it. Upon the whole, there is nothing discouraging in the present prospects of the farmer, unless the apprehension of extremely low prices for produce, and this is no trifling discouragement, seeing that there must be a large expenditure for labor before there is a return of one shilling for this produce. It may be very agreeable to those who buy agricultural produce to purchase it at half the cost of production and of ten less, but it must be ruinous to the farmer who hires labor to raise this produce. As we have often stated, no class of this community are so wretchedly paid for their labor and expenditure as agriculturists. We do not

wish to have high prices established by law, but we know that agriculturists are entitled to the same amount of fair protection from foreign competition that every other business and profession have secured to them in this Province.

Cote St. Paul, June 30, 1846.

We have much pleasure in acknowledging a report of the proceedings of the annual "Market-hill Agricultural Dinner," which took place about the 1st of February last, and at which that most excellent nobleman and landlord the Earl of Gosferd, once Governor of Canada presided. It appears his Lordship has given a clock and silver cup to be competed for by the owners of the best cultivated farms, but subject to annual challenge, until some farmer is able to keep it for three successive years, which none have yet been able to do.

The whole proceedings at this dinner are most interesting to any who would wish the advancement of Agricultural Improvement. We do not think there is one other nobleman or landlord in the British Isles who has done anything like so much to promote this improvement, and the real comfort and happiness of his tenants, as Earl Gosford. Even the example of such a good landlord is of infinite importance in a country like Ireland. There is not much danger of murders or other crimes being committed by any of his Lordship's tenants; and if all landlords were to act as he does Ireland would be as peaceable and happy a country as any in the world. We wish that the size of our Journal would admit of publishing the whole proceedings as reported. Several gentlemen delivered addresses on practical farming that would be highly interesting and useful, as well here as in Ireland. Every subject connected with agricultural improvement was ably discussed. Lord Gosford has an Agricultural School established at Market-hill, where pupils are instructed in the science and practice of agriculture, boarded and lodged on moderate terms, and some out poor pupils instructed without any charge. Earl Gosford exhibits to the world, what a truly good resident landlord should be, and the results prove what Ireland might be, were every landed proprietor to follow his example, according to his means. There is a table given in the report, of the stock, &c. on ten small farms of Lord Gosford's estate, amounting altogether to about 99 acres. these farms vary in size from 8 to 12 acres each, There are sixty persons supported on these farms. The stock when viewed was four horses, 34 cows 2 sheep and 26 pigs, and the whole rent paid for the land £121 12s. 8d. The one half of this land is said to be under flax and grain crops. If the land of Canada, which on an average we believe to be superior to the land of Ireland, were managed in the same way that these farms are managed, what state would this country be in, compared with what it is! The ten farms above referred to, do not contain much over an ordinary sized Canadian farm,—and see the difference!—sixty souls supported, and a rent of £121 12s. 8d. and local taxes paid in one case. We will not pretend to describe what is produced from the same extent of land here.

For our own part, it affords us great satisfaction to show to the Canadian people the patriotic and amiable conduct of Earl Gosford, in his own country, and amongst his own tenantry. It is in such a situation, and in a country like Ireland, that the real character and principles of a man can be best known. A man like him is better in a country than a million of politicians whose only aim is their own aggrandisement. Have we one individual in Canada who would take any trouble to promote the general improvement of Agriculture, either by giving their time or their money to such an object? No, not one have we heard of acting in this way. We have had a good opportunity of knowing the disposition of the wealthy and educated classes in Canada, towards the improvement of agriculture, and with few exceptions, we regret to say, we believe them to regard it with the greatest indifference, if not contempt. This is our firm conviction, whatever may be their assertions to the contrary. No doubt we have not here, as in the old country, great landed proprietors who are greatly interested in the improvement and prosperity of their tenants, but we might hope that for the sake of the country, of their home, and of their business and prospects, some men might be found who would take a real and disinterested part in promoting agricultural improvement where it is so much required. Earl Gosford does not appear to let his lands at high and exorbitant rents, but he appears to delight in making his tenants comfortable and happy and shewing an example to others; Is there any thing to prevent men from following this example in Canada? Would it afford no satisfaction to any of our Canadian community, that they had devoted a little of their time, and means to improve the circumstances and condition of the Canadian people? Who amongst us as

has done this from motives of pure patriotism? Alas! not one!!!—And we may as well write no more about the noble example of the generous Earl Gosford, whom we pray may long be spared to his country, and tenantry, to be an example to the one, and a benefactor to the other. Before we conclude, however, we should observe that Lord Gosford encourages and rewards his tenants in many ways. Besides the prizes of the clock and silver cup, he distributes money, seeds, and foreign manure as prizes for various improvements, and all these prizes are given for excellent farm management, and not for cattle at shows. This mode of encouragement we have constantly recommended as the most necessary here,—the improvement of general farm management, before all other things,—because improved stock are sure to result from improved land and crops, and can never become general, unless the land and stock are first improved.

From the South of Europe the most important news is the intimation that a disorder had attacked the Potatoes, similar to that so prevalent last year. A letter from Leghorn, dated 3rd June, states that of the new Potatoes scarcely two out of a hundred were found sound; and that the Government, fearing the health of the population might suffer if the infected roots were allowed to be consumed, had ordered the produce to be thrown into the sea, or otherwise destroyed. The disease was said to be general all over Tuscany, Naples, Piedmont, and Switzerland.

THE DISEASES OF LIVE STOCK, AND THEIR REMEDIES.

CALVES.

Navel Ill.—The best treatment for this dangerous disease is, 1st, to administer two or three doses (about a wine-glass full) of castor oil (linseed oil does just as well and is much cheaper); and secondly, cordials, which can be made of two drachms of carraway seeds, two do. of coriander seeds, two do. powdered gentian; bruise the seeds and simmer them in beer or gruel for a quarter of an hour; give these once or twice a day.

Constipation of the Bowels,—For this doses of castor oil (or linseed oil), of two or three oz., are the best remedy.

Scouring.—The farmer may RELY on the following mixture. Let him keep it always by him; it will do for all sucking animals :—

Prepared chalk	4 ounces.
Canella bark, powdered	1 "
Laudanum	1 "
Water	1 pint.

Give two or two three table spoonfulls, according to the size of the animal, two or three times a day.

Hoose or Catarrh.—Good nursing, bleeding, and then a dose of Epsom salts, with half an ounce of ginger in it.

cows.

Cleansing drink.—One ounce of bayberry powdered, one ounce of brimstone powdered, one oz. of cummin-seed powdered, one oz. of diapente. Boil these together for ten minutes; give when cold in a little gruel.

Colic.—The best remedy is one pint of linseed oil mixed with ½oz. laudanum.

Calving.—The treatment before calving is to keep the cow moderately well, neither too fat nor too lean; remember that she commonly has the double duty of giving milk and nourishing the fœtus: dry her some weeks before calving; let her bowels be kept moderately open; put her in a warm, sheltered place, or house her; rather reduce her food; do not disturb her when in labour, but be ready to assist her in case of need; let her have warm gruel; avoid cold drinks. A pint of sound good ale in a little gruel is an excellent cordial drink.

A Cordial is easily made by one oz. of carraway seeds, 1 oz. of aniseeds, ½oz. of ginger powdered, 2oz. of fenugreek seeds. Boil these in a pint and a half of beer for ten minutes, and administer when cold.

Fever.—Bleed; and then give one ounce. of powdered nitre and two oz. of sulphur in a little gruel. If the bowels are constipated, give ½ lb. of Epsom salts in three pints of water daily, in need. HOOSE.—See CALVES, DISEASES OF—only double the doses.

Hoove, or Hoven.—Use the elastic tube, but as a prevention, let them be well supplied with common salt, and restrained from rapid feeding, when first feeding upon rank grass, or clover.

Mange.—½ lb. of black brimstone, ½ pint of turpentine, one pint of train oil. Mix them together, and rub the mixture well in over the affected parts.

Milk Fever, or Garget.—Two oz. of brimstone, one oz. of diapente, one oz. of cummin-seed powdered, one oz of powdered nitre. Give this daily in a little gruel, and well rub the udder with a little goose grease.

Murrain,—½lb of salts, two oz. of bruised coriander seeds, one oz. of gentian powder. Give these in a little water;

Pleura Pneumonia.—The only chances in this disease are the adoption of very prompt measures: Bleed early, and repeat it if necessary. Then give a drench, composed of 1 lb. Epsom salts, 1 oz. powdered saltpetre, ½ a drachm of tartar emetic. Give it in two pints of gruel, and repeat in six or eight hours. POISONS swallowed by oxen, are commonly the yew, the water dropwort, and the common and the water hemlock. 1½ pints of linseed oil is the best remedy.

Purge, in poisoning.—Either one lb. of salts in a quart of water or gruel, or 1 pint to 1½ pint of linseed oil.

Redwater.—Bleeding, says Youatt, first, and then a dose of 1 lb. of Epsom salts, and ½lb. doses repeated every eight hours, until the bowels are acted upon. In Hampshire they give four ounces of bole AMMONIAC, and two ounces of spirits of turpentine in a pint of gruel.

Scouring.—Give ½ ounce of powdered catechu, and ten grains of powdered opium in a little gruel.

Sprains.—Embrocation: eight ounces of sweet oil, four oz. of Spirits of hartshorn, ½ ounce of oil of thyme. *Sting of the Adder or Slow-worm.*—Apply immediately to the part strong spirits of hartshorn; for sting of bees apply chalk or whitening mixed with vinegar. *Worms.*—Botts: give ½lb. of Epsom Salts with two oz of coriander seeds bruised in a quart of water. *Wounds.*— Flesh tincture. Socotorine or Barbadoes aloes in powder 4 oz., myrrh coarsely powdered 1 oz., rec spirit of wine 1 pint, water 2 pints. Let them stand 4 days, occasionally shaking, then fit for use: wounds are best without sewing: cleanse from dirt and gravel. If much inflamed apply a poultice. If unhealthy granulation arises wash the part with the following mild caustic wash previous to applying the tincture. Blue vitriol (sulphate of copper) 1oz., water one pint, dissolve. *Yellows.*—Two oz. of diapente, two oz. of cummin-seed powdered, two ounces of fenugreek powdered. Boil these for ten minutes in a quart of water and give daily in a little gruel.

SHEEP.

Apoplexy.—Bleed copiously; then give two ox. of Epsom salts in a pint of water.

Blackwater.—Keep the bowels open with Epsom salts; and give a tea spoonful of *elixir of vitriol*, or sulphuric acid diluted with seven parts of water, in an infusion of oak bark.

Blackmuzzle — Mix an ounce of verdigrease (acetate of copper), four oz. of honey, ½ pint of vinegar; simmer them together over the fire for ten minutes in an earthen pipkin. Apply it to the mouth on a piece of rag. *Cough or Cold.*—Bleed; give a salution of Epsom salts.

Fly.—Fly powder; two pounds of black sulphur, half a pound of *hellebore*; *mix them together*, and sprinkle the sheep from the head to the tail with a dredging box.

Sheep-Wash. The farmer will find this an excellent recipe: half a pound of powdered white arsenic (arsenious acid) four pounds and a half of soft soap. Boil these for a quarter of *an hour*, or until the arsenic is dissolved, in five gallons of water. Add this to the water sufficient to dip fifty sheep. The quantity of arsenic usually recommended is too large.

Foot Rot.—One drachm of verdigrease (acetate of copper), one drachm of blue vitriol (sulphate of copper), one drachm of white vitriol (sulphate of zinc), two ounces of water, two drachms of nitric acid, two drachms of butter of antimony; pare away the horn, and apply the lotion upon a feather to the part affected.

Rot.—To prevent, let the sheep have always a lump of salt to lick in their troughs.

Scab, or Schab.—Apply a lotion formed of one ounce of corrosive sublimate, four ounces of sal ammoniac, dissolved in four *quarts of rain water*. This is a powerful stimulent, and must be used with caution. *Mercurial Ointment for Schab.*—Quicksilver 1 lb. rancid lard 7 lbs.; rub the quicksilver with *a small quantity* of the lard, until the globules entirely disappear, afterwards add the remainder of the lard; some persons add a little powdered charcoal, to make it darker.—*Scouring.*—See diseases of Calf.

Ticks.—See Fly.

Wounds.—Wash the part and apply a lotion formed of vinegar one pint, spirits af wine one ounce, spirits of turpentine one ounce, Goulard's extract one ounce. If the wound be a recent one, it is better to stitch it up with separate legatures, which can be easily withdrawn, and dress with cold water.

PIGS.

For the common disease of pigs, the following receipe may be employed: ¼lb. of sulphur, ½lb. of madder, ¼lb. of saltpetre, 2 ozs. of black antimony; mix these together, and give a table spoonful night and morning in its food.

HORSES.

Cough, or Colds, are the best treated by cold bran mashes, with ½lb. of linseed, and 1 oz. of saltpetre each mash.

Gripes, or Colic.—In the absence of a veterinary surgeon in this dangerous complaint, the following is the best remedy for a horse:—1½ pint of linseed oil, 1½ oz. of laudanum, given in a little warm gruel. Some persons assist the operation of the above with a glyster, composed of ½lb. of Epsom salts, ½lb. of treacle, dissolved in three quarts of warm water.—*Mange.*—See Cows, for which the remedy is the same.

Powder Alterative for diseased skin or surfeit; mix together ½lb. of *sulphur*, ½lb. of saltpetre, ½lb. of black antimony; give a large table-spoonful night and morning in their corn.

Strains and Wounds.—Mix 1oz. of Goulard's extract, 1 oz. of spirits of turpentine, 1 oz. of spirits of wine, 1 pint of the strongest vinegar; rub this by the hand, or a piece of tow, gently on the part affected.—*Farmer's Encyclopedia.*

THE POTATO DISEASE.

(FROM THE GARDENERS' CHRONICLE.)

We were among the first to suggest that the potato disease was owing to atmospheric causes; recently, however, we have seen reason to doubt the soundness of *that* opinion, as our readers know; and we now lay before them the following statement by Count Gasparin, who, with others, regards the murrain as a sort of vegetable cholera.

M. de Gasparin states that, in the south of Europe, two crops of potatoes are obtained every year. The first crop is planted in March, and harvested in June; the second is planted in July, after the wheat is cut, and taken up in October. The first of these crops was absolutely sound; the second was diseased. In the following table he gives the state of the weather during the two periods:—

	First crop.		Second crop.	
	1845	Usual Mean.	1845	Usual Mean.
Mean temperature,	13°,5	14°,4	19°,0	10°,6
Mean of minima,	6°,1	7°,2	11°,0	12°,1
Mean solar heat, at 2 P.M.,	31°,7	32°,2	40°,0	40°,5
Temperature of the earth, 1 yard deep,	10°,6	11°,6	17°,6	18°,4
Number of showers,	47,0	32,0	33,0	30,0
	mm.	mm.	mm.	mm.
Quantity of rain,	200,5	215,1	319,2	287,6
	mm.	mm.	mm.	mm.
Evaporation,	781,7	918,5	329,0	978,4
Cloudiness, (100 parts represent the heavens completely covered with opaque clouds, intercepting light,)	12,4	12,1	6,9	10,6
North winds; number of days,	75,5	76,6	6°,0	74,3
Force of north wind per second, and	m.	m.	m.	m.
mean of each day,	6,0	4,8	3,2	4,4

From this appears that the south of Europe second crop suffered, although it was grown under the highest temperature, when there was no greater difference from the average quantity of rain than occurred in the first crop which was sound, while evaporation was most active, and when the sky was clearest. In short, M. de Gasparin concludes that no customary meteorological phenomena can have been the cause, and that therefore those who continue to rely upon such an explanation must have recourse to conjectures which there is no possibility of verifying; in short, that in this case, as in that of the Asiatic cholera, meteorology is incapable of explaining the cause of the potato disease.

We are afraid that Count Gasparin is right; and this very circumstance, this absolute impossibility of assigning a satisfactory reason for the appearance of the murrain, must, we think, add seriously to the fears of those whose full knowledge of the facts of this terrible visitation prevents their placing any confidence in the safety of the crop of 1846 in the United Kingdom.

His opinion is confirmed by the wholly unexpected intelligence, to be found in another column, that the potato disease has broken out in the *dry, warm* colony of the Cape of Good Hope.

POTATO DISEASE AT THE CAPE OF GOOD HOPE.—A friend has sent us the following interesting account of the appearance of this formidable disease in the Cape Colony. It is an extract from a letter published in the "Graham's Town Journal," of January 31st:—"On the 18th of September last, I planted one bushel of the kind of potatoes known in London, as 'Shaws,' one bushel of early Americans, one bushel of reds (procured in Cape Town under the name of Berwick reds,) and one bushel of Ash-leaf kidneys. All these, excepting the kidneys, were imported from England, not long before they were planted; the manure applied to them was stable dung. Up to the end of October, they were strong and vigorous. All at once, the Americans began to yellow in the leaf, and upon examination, I found the stems close to the ground had shrivelled up. In fact, they had all the appearance of having been hardly pressed between the finger and thumb. For two or three weeks they went on in this state, being anything but pleasant to look at. At last I determined to uproot them. Fancy my astonishment to find at least

a fourth of the full-grown tubers completely rotten, and at least a half more all but covered with dark blue spots. I caused them to be spread out on the surface, under the influence of an African sun, which so completely dried or roasted them, that in the evening the diseased parts fell off in little hard scales, leaving the tubers sound beneath; and to this day they are so, now nearly a month since. That the disease was brought to this colony by the seed I have no doubt; at least the causes ascribed in England cannot be ascribed here. In the month of September, we had only two showers after the potatoes were planted, in October two, and November only one. As for sunshine, enough of that to cause an Englishman at times to feel queerish. Then again for electrical currents; two rows of reds next to the Americans were surrounded with a copper wire (about 6 inches under ground,) connecting a plate of zinc at one end of the drill with a plate of copper appended about 4 feet from the ground, and attached to the plates just mentioned. And if the electricity in the atmosphere has any power over potatoes, it ought to have it here, as in the centre of one of the drills of Shaws, and within 7 yards of the Americans, stands a stone pine all but killed by a shock of lightning, the bark being torn off on one side, 5 feet in length, and thrown 30 or 40 yards away. The 'reds,' which were placed near the wires, were free from disease, and so were indeed all the other potatoes in the same break, except the Americans. The Americans are an early sort, and the disease seems to have appeared in Europe chiefly among the early kinds. The soil is of a light gravelly nature, and the crop fine, averaging sixteen bushels for one of sets planted whole. I must state that the potato here is, properly speaking, an evergreen. At the end of three months they must be lifted, as the tubers have by that time reached their full size, and they invariably commence to grow, while the old plant still keeps growing also.—*R. S. Smith, the 'Oaks' near Caledon, Cape of Good Hope, January*, 1846.—P. S. Our seasons in this country, come at opposite times to those in Europe, which some of your readers may not remember.

Kilkenny Fair was held on the 28th ult. So early as half past five o'clock, the purchase of sheep commenced, and was kept up with great spirit for three hours, during which period, several thousand sheep were sold at the annexed prices:—Hoggets, from 35s. to 42s.; two year old wethers, from 45s. to 55s.; three year old ditto, from 55s. to 65s., each. About eight o'clock, the black cattle fair opened, at sporting prices, viz.:—Three year old heifers, from 8*l.* to 15*l.* each; two years old ditto, from 6*l.* to 14*l.* each; yearlings, from 4*l.* to 7*l.* each; strippers, 5*l.* to 10*l.*; new milch cows, 8*l.* to 16*l.*; and fat cows, from 12*l.* to 27*l.* each. The following are some of the prices obtained at this fair:—The steward belonging to the Rev. S. C. Foot, of Vicarsfield, sold a fat cow, the primest in the fair, for 27*l.*, purchased by W. Kerwick, victualler, who also gave 25*l.* to Mr. Thomas Proctor, of Wells, for a four year old bullock. Mr. W. M. Smith, steward to W. F. Tighe, Esq., obtained 52*l.* for two fine three year old heifers, fed at Woodstock, solely on straw and turnips; and he also sold a lot of very prime yearlings, at 7*l.* 17s. 6d. each; a beautiful fat cow and two heifers, belonging to Mr. Ryan, of Kilfera, were purchased for 61*l.* 10s.; and two fat bullocks, for 40*l.*; Mr. R. Smith, of Gowran, steward to Lady Dover, obtained from M. Neary, victualler, 38*l.* for two remarkably fine bullocks, one only two years old, and the other not quite two years. This was an extraordinary price for such animals, and they were fed solely on straw and turnips; two year old heifers, belonging to M. T. Bradley, were sold at 14*l.* 5s. each; Mr. H. Semple, of Dunmore Cottage, sold a fine year and a half old heifer for 14*l.*; Mr. R. Goslin, of Ayresfield, got 5*l.* 10s. each, for a lot of yearlings; a lot of ten three years old heifers, belonging to the Bishop of Ossory, were sold by the steward, J. Worrell, for 145*l.* Our horse fair this year partook of the animation of our sheep and black cattle fair, and horses (both draught and saddle) sold from 30 to 50 per cent. higher than they were two or three years since. On the contrary, our pig fair suffered a serious fall, particularly in store pigs and bonams; these latter sold for half the price they realized three months ago, which has been caused by the very high price of potatoes. Fat pigs sold from 28s. to 33s. per cwt.; stores from 25s. to 35s. each; and bonams from 8s. to 12s. per pair. On the whole, we consider this the best fair that has been held here for many years.—*Kilkenny Moderator.*

Mode of illustrating the Injury done to Manure by Exposure to Drenching Rains.—Mr. Blacker, in a speech at one of the English Farmers' Clubs, used the following illustration: "Suppose that any of the married men in this company, was to get hold of *his wife's tea-pot*, after she had done with it, and dry up the spent leaves carefully, and bring them to her for tea the next morning: I would just ask you whether she would be likely to find out the trick or not? I imagine she would not be long in discovering the cheat; and I might venture to guess he would find out to his cost, that if that was the way he was to keep *her in tea*, she would soon find a way to keep *him in hot water*. Now, if the wife would feel so indignant at being supplied with tea that had been wet and steeped two or three times, how ought the land to feel that was supplied with manure that had been wet and drenched an hundred times? It is true the land cannot fight its own battles as well as the mistress; but there is such thing as passive resistance, and you may depend on it, that in the harvest, the farmer will be made to feel, that in cheating his land, by giving it manure which has lost all its strength, he has been in fact, cheating himself, and that this may have a worse result even than cheating his wife."

THE VETERINARIAN FOR APRIL.

We refer with pleasure to this well edited magazine. Information of the most useful kind is always to be found in its pages alike instructive to the farmer as the V. S. In this month's number we have "An Essay on the Sanguinous Apoplectic Congestion in Sheep, known under the names of 'Blood,' 'Blood in the Spleen,' &c.," by M. P. Charlier, V.S., Rheims. After giving the predisposing causes and several cases which came not only under his observation but also that of other veterinary surgeons, he proceeds with the treatment of the disease. We quote his "Precautions to prevent the disease," as we think that "prevention is always better than cure."

"1. Diet the animals regularly and carefuly throughout every season.

"2 During winter add refreshing roots to heating fodder and grain.

"3. Never pass suddenly from dry to green, or from green to dry feeding, but let the change be gradual.

"4. Take into account the nutritive qualities of the food, qualities which are more or less marked according to their nature, and the state of the weather during the vegetation of the crop.

"5. Drive the flock out as early in the day as possible, in order that they may not be shut up in the fold too long.

"6. During fine weather at the end of March and April May and June, let them eat the grass which grows in meadows, lanes, avenues, at the skirts of woods, and on the fallows. These plants contain a considerable quantity of the water of vegetation, and are admirably suited for the animals whenever they are submitted to a succulent diet, whether green or dry; they diminish the too great proportion of organic principles in the blood, and augment the aqueous part.

"7. Shear as early as possible, in order to allow the wool time to grow again before the very hot weather comes on; for if a long fleece weighs down the sheep, and prevents their air from refreshing him, too short a fleece does not sufficiently shield him from the fatal effects produced by the rays of a burning sun, and from the sting of insects which torment and fatigue such animals.

"8. Never suffer the pastures to be lavishly consumed, or pasture the sheep on fields before they have been gleaned, unless it has rained, and the grain has begun to ferment.

"9. During very hot weather, when the fodder plants approach maturity and are very heating, especially in dry seasons, the sheep should be pastured morning and evening on tender grass containing a great proportion of the water of vegetation Vetches mixed with oats, eaten until the formation of the seed, are then very proper. The sheep should be got into the fold by nine or ten o'clock in the morning, and not turned out again until four in the afternoon; or they should be sheltered from the sun in shady places, folded, and if it is thought proper littered in order not to lose the manure. In the middle of the day sheep exposed and isolated will gather themselves into a corner of the fold and dung the ground unevenly; breathe a hot air loaded with electricity, and with the impure gas which escapes from their excrements, and seriously injure themselves.

"In all weathers take care that the sheep have pure water to drink. During the great heats of July and August, it will be well as has been recommended by Mr. Delafond, to render the water in the troughs temperate and refreshing, by adding eight ounces of sulphuric acid, or four pounds of good vinigar, to every twenty-five gallons of water, for then the sheep are heated by the dryness of of the air, by the grain they have gleaned, by the succulent herbage, &c., This drink, which is sufficient for about one hundred and thirty sheep, is not expensive and can be easily prepared any where.

"11. During the stormy summer nights, and the cool autumnal nights, cause the sheep to be kept in the fold.

"12. Lastly, all sheep owners and shepherds should make a point of examining the skin of the natural openings, and of the eyes of the animals, to secure themselves that they have not too much blood; and should practise bleeding from the jugular and the subcutaneous facial veins, in order to be able to perform this operation at once in case of necessity. This may easily be done when a sheep is killed."

Husbandry—its Dignity and Importance.—The following is extracted from an old work, entitled "The First Booke of Husbandry," published in England two hundred years ago:

"In the judgement of the holiest and wisest men, there is nothing more honest nor better, nor any trade of life more meet for a Gentleman, nor more acceptable to God, than the tilling of the earth. The most mightie Lord himself did first ordaine it. For Adam and his sons were all husbandmen, Noe was a planter of vines, Abraham, Isaac and Jacob were shepherds; Saul from his Asses, and David from his sheep, were called to the Crown; Elizeus and Amos of shepherds were made prophets. Jesus the sonne of Syrach, commending husbandry above the rest, saith, hee customably used himselfe to hold the plow, to drive the cart, and to keepe catteil: but what need we more? Our Saviour Christ himselfe, glorieth to be the sonne of a husbandman, and frameth his parables of planting vines, of sheep and sheep-herds: moreover, as it is in Luke, our Lord seemeth to be a teacher of husbandry, where he sheweth that trees are to be digged about and dunged, that they may prosper the better. For sith this Arte is of all others most innocent, and without which it is most plaine we are not able to live: the best men have alwayes imbraced it, and the old fathers have ever counted it very Cosen-German to wisedome. Cicero calleth it the Mistris of Justice, diligence, and thriftiness; some others call it the mother and nurse of all the other arts. For whereas we may live without the other, without this we are not able to sustaine our life: besides, the gaine that hereof ariseth is most godly, and least subject to envy, for it hath to deale with the earthe, that restoreth with gaine such thing as is committed unto her, specially if it be furthered with the blessing of God. The onely gentlemanly way of encreasing the house, is trade of husbandry; and for this cause they were alwayes accounted the perfectest Gentlemen, who, content with the living their Ancestors left them, lived in the Countrie on their lands, not seeking their living by bargaining nor handicrafts. The Governours of Rome so devided the yeere, as they assigned onely the ninth day for businesse of the Cittie, and the rest of the time for the tillage of the Countrie, whereby, being hardened by labor in peace, they might be better able to abide the travaile of war. Which countrie people were always preferred before the people of the Citie, and more Nobility thought to be in them that till the ground, than in those that live idly within the walles of the Citie, or make gaine in merchandize. By husbandry were made rich the godly Fathers, Abraham, Lot, Jacob, and Joab; and most certaine it is, that this profession and this gaine is most acceptable to God, for hee commanded Adam to till the ground and to get his living with the sweat of his brow. Thus is husbandry of such authority, as God with his open witnesse hath allowed it, and afterwards by his servant Moses hath added his blessing unto it, I will give the ground my blessing the first yeere, and it shall bring forth the fruite of three yeeres. And againe, If you will keepe my commandments, I will send you raine in due season, and the earth shall yeeld her increase, and your trees shall be loaden with fruite, the threshing time shall last till the vintage, and the vintage shall endure till the sowing time, and you shall eat your bread with plenteousness. What can there be now more pleasant to a Christian man, than to get his living by such meanes as he knoweth doth please God, and to play the Philosopher in the most sweet contemplation of the works of God, and to acknowledge and reverence the wisdome and power of the divine Majestie, and his bounteousness to mankind? the very herbes and creatures of the field in the meane time preaching unto him.

On the Sowing of Linseed.—The following directions will, I am sure, be acceptable to many of your readers:—1. It is indispensable that good and clean seed be obtained. This the Messrs. Gibbs, Half-moon-street Piccadilly, will supply. 2. The surface of the land must be reduced to a garden like fineness, by repeated harrowing and rolling. 3. The seed should be sown broad cast, either by hand, or by a drill used for small seeds, and covered over with very light harrows. Previous to sowing, however, the land should be rolled. 4. Amateur growers I advise to sow eight pecks of linseed per acre. Six pecks will produce more seed than eight; ten and twelve less seed but a far more valuable description of fibre. 5. In case the land is not considered rich enough for wheat, manure must be applied. I think it right to inform you that arrangements are now being made, by influential parties to bring the subject of flax prominently before the country, and that a public meeting will be held in London during the first week in June, for the purpose of carrying into operation the National Flax Association. By this means flax-growers throughout the kingdom will be assisted in the harvesting and preparation of their crops for market and instructed in the use of the seed for cattle.—*Correspondent of the Morning Herald.*

NUMBER OF HORNED CATTLE IN EUROPE.

Russia,	19,000,000
Great Britain,	10,500,000
Austria,	9,941,000
France,	6,684,950
Prussia,	4,275,700
Italian States,	3,500,000
Spain,	2,500,000
Netherlands,	2,500,000
Sweden,	2,647,000
Bavaria,	1,895,000
Denmark,	1,607,000
All other States,	5,258,000
Total,	70,270,974

The number of horned cattle in the United States in 1840, was 14,971,586.—*Amer. Agricult.*

It is a fair step towards happiness and virtue to delight in the company and conversation of good men; and where these cannot be had, it is better to keep no company at all.

THE OLD ENGLISH FARMER.

BY G. LINNÆUS BANKS.

The old English farmer—Oh! where is the theme,
Of *all that* hath lit the enthusiast's dream,
Inspired at love's altar affection's warm vow,
Or planted fair Poesy's wreath round the brow,
Can bring to the bosom one touch of delight.
Like that which now hallows our meeting to-night,
When, together in friendship's strong sympathies bound,
The toast of the farmer goes joyously round?
Then fill up your glass and the toast it shall be—
"The old English farmer, so honest and free."

He's king of the soil as he's lord of the fields,
Nor treads he a clod but allegiance it yields;
And dearer to him is his own native sward
Than all that the city's grand pomp can afford.
With content for his motto, and virtue his guide,
Though the world all around him be warring beside,
Still he labours in peace, which is nature's best creed,
And trusts to his Maker in trouble or need.
Then fill up your glass, &c.

Go watch him at sunrise, bestriding the ground
When beauty and plenty are beaming around.
The young cattle grazing—the flowers on the plain,
Begemmed with the dew or refreshed by the rain—
While the lark and the linnet go forth with their song,
As sweet as the first lisp from infancy's tongue,
And creation looks up with an eloquent eye,
To greet him with smiles as he passes her by.
Then fill up your glass, &c.

His roof may be humble, and homely his fare,
The rich and the noble no frequenters there—
Yet open alike are his heart and his hand,
And truer than those who have place in the land.
He mocks not at fortune, nor wrangles with fate,
But feedeth the beggar who comes to his gate.
Leaves others in climes of the stranger to roam,
And clings with delight to the blessings of home.
Then fill up your glass, &c.

Then here's to the farmer, in whose rosy face
A frank honest heart, and good-nature we trace;
With smiles ever cheerful he stands at his door,
To welcome the weary, and shelter the poor.
He cares not for party, or faction's loud rant,
When God has so kindly considered each want;
But to Queen and to country still faithful and true,
He lives and he dies as a Briton should do.
Then fill up your glass, &c.

EARLY RISING ON A FINE MORNING.—We will here add that life never perhaps feels with a return of fresh and young feeling upon it, as in early rising on a fine morning, whether in country or town. The healthiness of it, the quiet, the consciousness of having done a sort of young action (not to add a wise one), and the sense of power it gives you over the coming day, produce a mixture of lightness and self-possession in one's feelings, which a sick man must not despair of because he does not feel it the first morning.—*Leigh Hunt.*

The surface of the earth is 196,863,166 square miles, and its solidity 257,726,934,416 miles. Not more than one fifth of the whole earth is inhabited by man.

ECCENTRICITIES OF A DOG.—My attention was recently taken up by reading in that excellent work, "Chamber's Miscellany," a very interesting article, entitled "Anecdotes of dogs; and the instances adduced by the writer, of the personal attachment, fidelity, educability, sagacity, benevolence, and eccentricities of dogs are highly amusing and surprising. I was particularly struck with an account given of a dog which a few years ago attended all the fires that occurred in London, as forming a very close resemblance to a dog which I knew a few years ago, belonging to Mr. Henderson, late Postmaster, Fort William, which attended every funeral that took place in that village and neighbourhood. There was nothing remarkable in his appearance. He was a rough, thick-set, stout little animal, a cross between a cocker, and a terrier. His master taught *him nothing*, nor seemed to take much notice of him. Gilliemor was his name; and a sulky, surly little fellow he was, as all the little urchins that used to play about the Post Office could testify; for he had a mortal hatred to their noise, as he had also to beggars, at whom he would snap and bark furiously. He did not seem to be particularly attached to any person, nor did he care much about being caressed, neither did he associate with other dogs. The only remarkable feature in his character, was his predilection for attending funerals. Whenever a funeral happened, although it were ten miles distant; and although he had to cross ferries, rivers, and often arms of the sea, the moment the coffin appeared Gilliemor appeared also, and never left its side until it reached the burying ground. There he would look anxiously on, while the body was being interred; and that melancholy duty over, he would immediately trot away home, or set off to attend another funeral. He has been known to attend many funerals in different parts of the country in one day. When any person died near his master's residence, on the day of the funeral, Gilliemor employed himself in driving the noisy children and beggars, till within a few minutes of the time specified in the funeral letters, when he would shake himself as if dressing, and trudge away to join in the funeral procession. This was so well known in the place, and people became so much accustomed to it, that it excited very little surprise, and scarcely any notice was taken of Gilliemor unless among the ignorant and superstitious, who looked upon him as an indespensable chief mourner, and always wished the favour of his company to the place of interment.—*Courant.*

Silver may be beaten into plates, 110,000 of which make one inch in thickness.

A silver wire, the thirteenth of an inch in diameter, will sustain 137 lbs. A wire of lead, of the same size, sustains 28 lbs., and tin 36lbs.

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