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OLD SERIES]

Nec aranearum sane textus ideo melior, quia ex se fila pignunt, nec noster vilior quia ex alienis libamus ut apes.

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From the London Farmers' Magazine.

PROF. JOHNSTON'S LECTURE.

(Concluded.)

Now, gentlemen, I come to the other division—to another question which here arises. If these be the ways in which manures act, and if their action be of so great consequence to the crops, you will naturally ask in what way the manuring can be more generally secured throughout the country? In what way can it be more generally adopted, introduced, and practised? In the first place, many of you are aware, as was remarked by a gentleman who came in the railway with me yesterday, that a great and unnecessary waste takes place in the farm-yard, and in the management of the farm generally. We find a ready method by which a high manuring can be secured, is the adoption of means for husbanding what is now allowed to run to waste. I know there are persons here who understand this part of the subject much better than I do, and will be better able than I am to direct your attention to it; but if you refer to the table exhibited you will see the composition of the liquid part which runs away in the first place from the byers in which the cattle are kept, and secondly from the manure heap itself. You will see that whilst the liquid manure contains phosphoric acid, and the liquid that runs away from the dung heap contains phosphoric acid; therefore, there is not only a loss of the liquid, but also of the phosphoric in that liquid, which is allowed to run from the dung heap and go to waste. This is a point, however, to which I hope some other person will draw your attention. Then there is another method by which high manuring may be secured, and that is by saving the waste of our large towns. You all know what the waste of large towns consists of, and that the waste of large towns such as Newcastle and London can be collected and applied to the land, and you know that a much larger amount of corn would be produced from the land to which that manure is so applied. That is a point to which I will but briefly allude. It is one surrounded by great difficulties. There is, first, the difficulty of collecting this; and then there is another difficulty to which scientific men have not turned their attention, namely, how is it to be disposed of? You must not only collect the substance, but you must find a market for it. You know very well that the manure of London is purchased at the mouth of the Tyne for a shilling a ton; and the waste of Newcastle may be bought for a shilling a ton. So that there must be a very small demand when so small a price is given for it. In towns like Newcastle and Durham, the revenue from this source by no means pays the expense of collecting it from the street; but there is no reason why the demand should not be greatly extended, and the revenue from that source be applied to defray the expenses of police. In a large town like this, where extensive manufactories exist, there must be many substances which, if collected and applied to the land, would make it more productive, such as the refuse of gas works, soda manufactories and soap works; and these could be supplied to the farmers for little or nothing. Another means by which a higher manuring can be secured, is, by the extended use of imported manures. The importation of bones has almost revolutionized agriculture, and the introduction of guano has produced a still further revolution. There are two ways in which these manures act in producing these results. The latter kind is extremely portable; and by carrying it to high places where the ordinary manure could not be large crops have been produced where before all was sterile and unproductive. The portability of guano has caused it to be much more generally applied than bones. If we take the town of Berwick, for instance, before guano was introduced; the amount of bones sold in Berwick was three or four thousand tons in the year, amounting to about 20,000*l.*; last year not

more than six or eight hundred tons were sold, amounting to not more than about 4,000*l.*; but instead of the 16,000*l.* worth of bones formerly sold, there have been 5,000 tons of guano imported and sold, which at 6*l.* a ton, amounts to 30,000*l.*; and, therefore we have 30,000*l.* of guano, taking the place of 16,000*l.* worth of bones. Farmers do not apply manure for the mere sake of applying it, but for the purpose of rendering their land more productive and getting more corn from it; and such has been the result of the application of guano, which besides being more portable than bones, can be applied where bones cannot; for example, as a top dressing for land. Another means by which a higher manuring can be secured, is, by the preparation and extended use of manufactured manures. I have already explained the composition of plants and the general principles on which we apply manures to land to increase its fertility. Suppose we have a soil composed of sea sand, from which the plant can derive none of the substances which go to form its constituent elements. In order to render it productive you must add those substances which the plant requires. And if the soil contain some things which the plant requires and be deficient in others, then you must supply those substances of which the soil is deficient, and which the plant requires, in order to render the soil productive. You must adapt the manure also to the peculiar description of the crop you require to grow—wheat, barley, oats; or according as the land is deficient, the substance which they require must supply the deficiency, in order to render it capable of yielding a good crop. Of course the practical farmer will take care not to add to soils the things they already naturally possess. Gentlemen, before concluding, I must say that there is one point of very great importance to which all must ultimately come; it is one which, when we have arrived at it, will have created an entirely new era in the practice of agriculture. I believe the time will very soon come when you will no longer purchase manures ready compounded to your hand—when you will no longer purchase this man's guano—this man's manufactured substance and that man's manufactured manure—under whatever name it may pass. The time will come, I say, when every man will know what his plants require, what his soils contain, and consequently what substances his manure ought to contain; and having this knowledge, no man will buy manure, the analysis of the composition of which has not been published. Not only will he not buy substances with the composition of which he is not acquainted, but the qualities of which he cannot understand. He will be able to prepare his own recipes, and send them to the manufacturer to be prepared. In the north of the island—where I am better acquainted with agriculturists than I am in more southern parts—I have ventured to predict that this state of things will come round in about five years hence, I say, I believe the farms of Scotland will make up their recipes, and send them to the druggist to prepare for use. I don't know how soon this may be the case in this part of the island, but I do know that this is the legitimate end to which we as scientific men, and you as practical men, are bound to look. I think it is one which you ought to regard as deserving of your striving to attain to it. But, gentlemen, I am quite sure that you will agree with me in this. If we are to arrive at this point, knowledge must be diffused more widely amongst the agricultural body than it has ever hitherto been. You will see the importance of diffusing elementary scientific knowledge more generally among the agricultural body—of enabling them to know what potash and soda, and magnesia, and all similar substances are. He cannot know the value of them on his farm unless he knows what the things are themselves. Therefore you will see how important it is that this knowledge should be generally diffused throughout the community. It is important to the country at large because the consumption of the country is continually increasing. And further, you

will see how important it is to attain this knowledge when every class is vying with every other class in the attainment of knowledge, and when it is particularly desirable that the agricultural community should not lag behind their fellow countrymen. The manufacturers of corn ought not to allow their intellect to be less developed than the intellect of the manufacturers of cotton. Not only is it desirable that he should be elevated in the standard among his fellow citizens; but how important it is that you should enable your sons to obtain this knowledge! Because it is quite certain that the next generation of farmers must know more than the present and past generations have done. If, gentlemen, your sons—who shall live when you and I are gone—do not attain this knowledge; if they are not better instructed than their grandfathers were, your sons will vanish from the land. They will not occupy their fathers' places, but will give way to other men. It is a consideration of very great consequence, and one that ought to have much weight with you, that in all our large towns—in Liverpool, Manchester, Birmingham, Edinburgh, Glasgow, and Dundee—in every large town, in fact, the heads of manufacturing establishments are bringing up one or more of their sons to farming. And how are these manufacturers to bring up their sons to be farmers? Not merely by sending them to work and drudge with this or that practical farmer, but by sending them to the fountains of knowledge, and giving them the best kinds of information thus arming them to the utmost of their power, and enabling them to overcome and vanquish the stubbornness of the soil, and other disadvantages which they may have to encounter. Manufacturers' sons, then, are learning to take the place of farmer's sons. Hitherto the tide has set the other way. From the country to the towns has been the order of things until now; but by and by the tide will begin to turn, and the sons of the manufacturers will begin to turn your sons from the cultivation of the land. There are many curious facts which, I can tell you, do not speak very well for the agricultural body. It is said very often that the agricultural body does not want knowledge. For example, I have been told that, in the college at Cirencester, among forty men entered, there were only six or eight who were the sons of farmers. I have seen too much of farmers to believe that they are averse to the acquisition of knowledge, and have mixed with a majority, I may say, of the farmers on the other side of the Tweed, and I know that no men are more anxious for knowledge than they are. No men are more anxious that their sons should be made intelligent than they are. But such things as I have stated to you (though the particular statement, I hope, is not true) do seem to imply that the agricultural body are not so alive to the acquisition of knowledge as they ought to be. I believe that if you only put this knowledge within the reach of farmers—show them, what they ought to learn, and how they may learn it—the agricultural body of England, like every other body of the community, will make such intellectual advances as will enable them to compete with all the world, as the manufacturers have already done.

From the Albany Cultivator.

PROTECTION AGAINST INSECTS.

If you would have your cucumbers and cabbage plants against the attacks of bugs and worms, go early in the morning, while the worms are sluggish from satiety, and dampness prevents the bugs from flying, and kill them all. Some say "kill them between the thumb and finger;" but we don't see that this mode of inflicting "capital punishment" has any special advantages, and it seems to us that the office of executioner would be a very disagreeable one, especially when the subjects were the big, black, pumpkin bugs, which omit a worse smell than a skunk. A couple of pieces of shingle, one of which may be three inches wide, and the other an inch and a half, the latter brought to a point at the bottom, are the best "instruments of

death" in this case. Crush the insects between the pieces of shingles.

It is easy to see in the morning where a plant has been cut off by a worm the night before, and he will generally be found in at that time in his burrow near the stump of the cut plant. He will be buried generally not more than half an inch, and is readily dug out with the narrow pointed shingle. The bugs of all kinds, while the plants are young, will invariably be found in the morning huddled together around the stems. If you are "on hand" soon after sun-rise, they will be "dosed," and are easily killed.

Do not rely on the unparalleled agency of salt in destroying insects, nor of keeping them away by the smell of onion-stalks "stuck round the hill;" but hunt them out as you would wild beasts. As an auxiliary to this hunting, and to make the plants grow rapidly and get out of the way of the insects, the writer has sometimes used hen dung water that has stood till it has become fetid; turning a half pint or so, on each hill every day. Guano water would doubtless be similar; but it must not be too strong—four pounds of guano to twelve gallons of water is thought to be sufficient.

From the British Farmers' Magazine.
GENERAL REPORT FOR JULY.

The weather of this month, taken as a whole, has been extremely propitious for the wheat crop, is nearly every portion of the United Kingdom; though, from the absence of that quantity of moisture almost indispensably necessary for barley, oats, beans, and peas, we regret to state that spring corn in general has not progressed very satisfactory. In the forward districts, as well as in some of the midland and northern districts the cutting of wheat has been commenced under favourable auspices; yet as might be expected, only a very small quantity has been secured. However, new wheat was on sale in some markets prior to the 25th, in, comparatively speaking, good condition. It would be somewhat premature for us to offer a decided opinion as to the actual produce of this year's wheats; but we may observe that, from what we have seen, a full average crop is likely to be obtained in almost every county. So far, this is very gratifying; would that prices could induce us to offer the same remark! The influence of the new Corn Law—which we were told would have very little effect upon value—is now beginning to be severely felt. The immense quantities of foreign wheats lately pressing upon our markets have caused unusual heaviness to prevail in the demand for home produce, which, since the beginning of the present year, have fallen in Mark Lane not less than *eighteen shillings per quarter!* Where this downward tendency is to stop we are at a loss to determine; but this we may say, that so long as our markets continue inundated with foreign produce, and should the weather prove fine for the ingathering of the crops, even lower prices—looking to the important fact that most of our large millers have lately purchased immense quantities of United States and Canadian flour (which have sold at much lower prices than that of home-made), at extremely low figures, and thereby supplied their actual wants—may be looked forward to. As to the crop of barley, we conceive it will be barely an average one; and the same remarks may be applied to the beans. Peas will, undoubtedly, be a short crop, though their quality may prove equal to that of former years.

In all quarters, the crop of hay—which is now nearly all secured—has turned out exceedingly good. Our markets have consequently been well supplied with both meadow and clover, which have sold at low rates. Taken as a whole, the weather has been favourable both for cutting and stacking. The stacks of old hay on most farms are large.

From most quarters, the accounts which have come to hand, relative to the potato crop, are somewhat unfavourable. As was the case last season, they are, we conceive, greatly exaggerated; yet it is almost placed beyond doubt, from