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OLD SERIES]

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

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DRAINING.

The following remarks on the best mode of Draining, &c. were delivered by Mr. MECHI, at a recent meeting of the Wickham Club.

Mr. MECHI, after some prefatory observations, said: Gentlemen, so long as I see the liquid manure pouring—the strong tea pouring into the ponds, and so long as I see you satisfied with keeping merely the tea leaves, I consider that a great defect. (Hear, and laughter.) Another great defect is the use of those lumbering, antiquated, barbarous affairs—I would call them waggons. (Hear, hear.) Another point in which you are deficient, is deep cultivation by sub-soiling; and one more, which I am happy to say is being remedied is deep drainage. Gentlemen, I am quite aware that this country was the first country that introduced drainage into this kingdom, or rather practised drainage in this kingdom; but that is no reason, having been tolerably well done, why it should not be perfectly done. We will come to this point, however, by and by. In the speech which your Chairman has made, he has been kind enough to pronounce the meed of praise on myself, hoping that I may not lose my property. Gentlemen, I am happy to inform you that I have already succeeded in doubling the returns on my farm, and I hope now that the expenses are over—expenses of improvements—I hope that I shall be able to derive a return for my capital—a small return as a landlord, a better return as a tenant. I hold it to be a prominent feature in the improvement of agriculture that the landlords should cut down timber trees, except those that are ornamental and pleasant to the eye, and I am sure the tenant would not object to pay on the average an increased rental of two shillings per acre, or more or less, varying with the number of trees on the estate. No doubt the landlord would ultimately derive as great benefit as the tenant, because the tenant, deriving more profit, would become a man of better capital, and more able to pay his rent regularly, and the estate or farm, when it changes hands, would be decidedly at a premium. (Hear, hear.) Another great defect, as it appears to me, in your district, in common with many others, is the wretched form and state of the buildings. We have a barn, a queer shaped barn here, and a cart lodge there, and a granary in another place, and generally so arranged that every wind that blows in winter can have a passage through the whole. The result is that the cattle is much longer fattening, and of course much less profitable to the tenant. Temporary buildings in agriculture must no longer be the order of the day. Now, what is that but prejudice? I hope to see the time when intelligent agriculturists will have sufficient ingenuity to allow to your country the merit it deserves—that they will have the merit of being able to discern their weak points and of avoiding them, and also to discover their strong points and appropriate them to their own use (Hear, hear.) I do not think Gentlemen, that the farmers of this country apply sufficient capital to their land—that is to say, I think they take too much land in proportion to their capital (Hear, hear.) The consequence is, the best use is not made of that capital. I do not believe that any man can farm to the utmost extent of profit in these days without purchasing artificial manures—guano, for instance for his distant fields, thus avoiding cartage; and a larger quantity for his near fields, with deep cultivation and better agricultural implements. Gentlemen there are several other points I must come to in rotation. But, before I leave this subject, allow me to say this: Mr. Hutley, a great authority of our country, who farms 2000 acres in a most profitable manner said, at our Wickham meeting, that he considered guano paid itself in the straw alone besides the crop, and

that he has now 100 acres of wheat dressed with 2 cwt. per acre of guano. (He sells his straw.) No, he does not. And I can tell you farther, he never feeds off a piece of clover, or a piece of long rye grass or tares, without giving his sheep a pound of oil cake per day. It appears to be a great expense. But what is the result? Enormous crops both of roots and of wheat (Hear, hear.) And his system is profitable, because every two or three years he hires an additional farm. Gentlemen, the question of deep cultivation is so important that I must not leave it. I know that the majority of agriculturists consider that subsoiling is not a profitable thing or a proper thing. Now that is one of the greatest mistakes that ever was made in agriculture. If you find a farmer ploughing his ground five inches or six inches, you will find him digging his garden to fifteen or twenty inches depth. If you ask him why, he says, "I can grow better crops in my garden by deep cultivation." How inconsistent then!—if the one operation be right the other is wrong. Besides, if increased depth of cultivation be injurious you must carry out the principle and say that two inches are better than three inches, and that one inch is better than two inches; and thus you must go backward, and in course of time there will be no cultivation at all. I say you must carry out the principle of deep cultivation. I have had gentlemen, who, upon seeing me cut the drains, and upon observing the opposite drains running, have said, "You will never make me believe the water can get through this strong soil." That is a very curious remark, but it has been made more than once. I don't think that you here would do so. (Applause.) I am sure you would not; but, gentlemen, deep draining must be the basis of agricultural improvement. If earth be the food of plants, the more you give them of it the better they will grow (Applause.) It is a mistaken notion to suppose that the roots go down but a short distance; we have constant evidence that they will go down many feet, but not into undrained, heavy, cold subsoil. When roots come to stagnant water, or if heavy rains come, they are absolutely turned up like fish-hooks to avoid it. They have instinct if they have not common sense. (Laughter.) I drained my clays actually 33 feet apart, five feet deep, with one inch pipes. The cost of this was 3l. 2s. 6d. per acre. I have reason to believe that the interest this will pay will amount at least from 50 to 60 per cent. on the investment annually. I am prepared to prove—and it is well known by chemists—that water is the richest manure we have. We know practically that irrigation is coveted by everybody for their meadows, and that it is exceedingly beneficial. What are the rains from heaven but the best of irrigation, providing we allow them to perforate the soil. They come down charged with ammonia, carbonic acid, and other gases, and disuniting the subsoil descend and form new chemical combinations. And there is another most particular use in the descent of water through the soil, and that is, that it is the only carrier of heat downwards. Nothing you can get to carry the heat downwards excepting water. Therefore it robs the air of its heat, the top soil of its heat, and warms the subsoil. That is one of the most important operations of water. In summer the surface of the ground is often 136 deg.; the subsoil at the depth of four feet is about 48 deg. But the water falling on well drained land passes down to the drains, leaving behind it the heat it contained. That is a well known scientific fact, and we all know the warmer our subsoil is the better our crops grow. (Applause.) Well then, gentlemen, what a sin and what a folly it is to make water furrows open furrows on the top to carry it away instead of making drains below—furrows which not only carry away the heavies rains, but a great deal of the soluble parts of our manure that lie near the top. I know perfectly well that, on undrained land, if you put a top dressing of soot, and there happens to come in the course

of the day a very heavy "shot" of rain, as it is called, you have the mortification to find next morning that soot travelling down your ditches rather faster than you like to see it. Is not that a fact? (Applause.) But if the land be thoroughly drained and porous like a sponge, the particles of manure find their way down; the roots go in search of this manure, and up they bring it by capillary power. We know it by the great trees. You observe a dry season; wherever you see a large tree in a field he drains the moisture around from the roots of his weaker neighbours, the corn. The consequence is that your returns in the present season are not near so large as they proved to be the year before. (Hear, hear.) But you will very often find that in cutting five feet drains for top waters you will bleed many springs that have been your enemies unknown for years. While speaking of draining, we will now allude to bog draining. I have had some experience in that, and I will communicate it, because it may be useful to many gentlemen here who, I can say, in passing by, have land of a boggy nature—rushes growing on the top of a rich soil but wet. Now the only way to get rid of that water is generally to cut into the hill above that sort of land. But mind! five feet are not enough here; you must go down at least eight or nine feet. You must make a hole first nine feet deep; and the chance is when you have made it, in the course of that or the following day, you will find the waters rise in it until it stands within one or two feet of the surface. You will then have to make three or four such holes at various points, where it is proved, from the appearance of vegetation that there is water. These holes will also most likely fill. Well gentlemen, now we want to get rid of that water. To do this you must cut a drain in the hill above these holes and below their level; and when you find that the water flows into your drains, and that the holes do not hold any more water, you may then conclude safely that you have done the business as it ought to be. (Applause.) Gentleman, there is some difficulty in laying pipes in these boggy sands, which they very often are. The only way to do it in difficult cases, is to have a skeleton arch with iron ribs, or some such sort of protection, then lay a yard of pipes and load them; put some straw in first and some hay, and then load them with earth to keep them from being forced out of their position by the boiling water; then put fresh pipes down of similar length; go on making them secure, and thus at the successive stages, placing hay or straw underneath and earth above, I think you will render your work so durable that you need not trouble yourself about it for many years to come. (Hear.) Boggy soil is like sponge—it has an extraordinary tendency to draw up and to hold water. You will find that shallow drainage in boggy ground, is like shallow drainage in sponge—the water will not leave the sponge to pass into the drain, but will remain in the sponge, by capillary attraction. You find it you put a drain in a bog at 10 or 11 feet depth, when the water has left that bog and you have covered it, as you ought to do, with heavy earth—you will find that the drain instead of being 10 feet from the surface, will probably be only six. The bog dries as a sponge dries. A dry sponge is always more shrunken and smaller than a wet one. That takes place in boggy ground and in strong clays but only in a smaller degree, because it is the expansion of particles of stagnant water which gives that tenacity to clay which we so often see. When you remove the water from the clay by a deep five feet drain, you will find not only that the roots take possession of the soil, but that the worms will go down and bore ten thousand little holes, which will serve as pipes for the water to the top.

PRACTICAL HINTS ON AGRICULTURE.

MANAGEMENT OF MANURES.

This important subject is thus handled in a letter written by Mr. Harrison to the Agriculturists of Great Britain.

"Nothing in agricultural pursuits has been so grossly neglected as the management of manure in farm yards. From a calculation lately made, it is proved that for want of manure, a loss to the United Kingdom is sustained to the amount of from eleven to twelve millions of pounds annually! The surface of the farm yard should be of a concave shape, with a round brick tank in the centre, surrounded by a low dwarf wall and bounded by a drain for carrying off the surface water which may fall from the surrounding buildings. To this tank, a pump should be fixed, elevated five or six feet for the accommodation of the water cart, a most valuable appendage to every farm. To this tank bring the draining of your stables, pig-sties, cattle-sheds, wash-house, water-closet, &c. Bear in mind, that that which is despised is often the most useful. This liquid you will find invaluable in the manufacturing of manure, which is at present suffered to pass off in draining. Instead of allowing the great mass of manure to remain on the surface of the yard, which robs it of many of its valuable properties, have it formed into ricks round your tank, in the inside of your dwarf wall, so that they may be supplied with the liquid during the time of making, and that the tank may receive the drainage. The exposure of manure to the atmosphere, as is the present custom, is a most ruinous practice, and may be truly called one of the agricultural evils. Do away with the detestable practice of burning your couch grass, &c. Remember that what will produce a cart load of manure decomposed will only produce a wheelbarrow of ashes; bring it home to your bartons, also the cuttings and parings from roads, deposit in ditches, which are principally vegetable matter, rubbish from your gardens, &c., and let all be deposited in your manure ricks, according to the following directions, viz:—a layer of stable dung one foot thick, a layer of vegetable matter six inches thick, a layer of prepared lime grist, and salt two inches thick on the top of this laying; saturate with the liquid from the tank in a sufficient quantity to pass through the whole. Begin again and repeat the course as before with the dressings, and make your rick to any size you may think proper, the larger the better: a layer or two of soot, charcoal, wood ashes, or gypsum, near the top of the rick will be desirable. After you have made them to the size you may wish, and thoroughly saturated with the liquid from the tank, cover them up closely with long dung, or straw, to keep in the ammonia and prevent the rain from penetrating. The covering should be removed from the centre, and the liquid applied once a week and remain three or four months before used. In making your manure ricks, introduce a wicker coned shaped tube in the centre, to receive the supply; a few layers of draining tiles will also be desirable at the bottom, to give the information that the liquid has passed through the whole body, and to convey the waste to the tank. A large supply of this liquid will give unbounded scope to the farmer in the manufacture of manure. Manure should never be suffered to heat beyond 80 deg. or 90 deg., otherwise you deteriorate its value considerably. This is one of the most important points in the management of manure: the loss sustained by inattention to this subject is incalculable."

RECIPE FOR BARM.—The annexed receipt to make barm appears in the last number of the Irish Farmers' Gazette:—

"One-half ounce of the best hops for five quarts of soft water, boil slowly for two or three hours, then strain through a colander or fine sieve, and when cool enough, squeeze the hops well that none of the juice may remain. Add a full pint of finest flour, and a quarter of a pound of good brown sugar, blend these with some of the liquor before mixing it with the whole. When cooled down to blood heat, add about six ounces of leaven (sour dough), more or less as it may be very sour or not, blending this well also with a little of the liquor before