

Although urine contains some phosphates, the most valuable source of these very important manures, is perhaps bone dust. Bones consist of an animal part called gelatin, and an earthy part, which is phosphate of lime. Bone dust, burnt bones, and bones dissolved in sulphuric acid, are all employed as sources of the phosphates. Guano is similarly used; this latter substance likewise contains very valuable amounts of ammonia. It may be remarked that guano is the droppings of sea birds. These probably fed upon sea weed, which again was nourished by the excrementitious matters carried into the sea, so that a part (probably, however, a very small part) of the matters which are lost, by being conveyed away as noxious substances, into rivers and seas, may thus be brought back again, and the very substances he has thrown away, purchased by the farmer at a high rate, as being a valuable manure. There are a considerable number of substances which possess great value as manures, many of which are allowed to run to waste. Thus all animal matters, from the ammonia and phosphates which they contain, form most valuable manures. The waste products of many manufactures, as the glue manufacture, the sugar refiners' waste, animal charcoal, all are valuable manures; but time forbids us to enter upon these subjects. There are many special substances used as fertilizers, to supply special needs, as nitrate of soda, gypsum, sulphate of soda, &c. From what has been said, you will see that we consider these, as valuable only when rightly, that is to say, judiciously used. Analysis being the main method of ascertaining the deficiencies that exist, and the best means of supplying them. Finally, our general conclusion is this, that the Agriculturist should regard his field as a purse, containing some money to start with, but if he takes all out, and puts none in, he will soon see the bottom of his purse. We have pointed out one or two ways in which a saving may be effected; a thorough knowledge of Agricultural Chemistry would indicate many more, so that we may recommend farmers who desire successfully to compete with others, in these advanced times, to regard farming as a science as well as an art, and not resting satisfied with mere rule of thumb knowledge, which may at any time leave them in a difficulty, and does cause much heedless waste; to be scientifically acquainted with the reasons for their varied operations, and with the general principles on which Nature works, so that they may assist her, and not impede her; resting assured that even if this knowledge does not render them money advantages, it can do no harm, and will at any rate yield enough pleasure in its possession, to repay the labour bestowed in its acquirement.

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