

sand its peculiar value. By the process of grinding and triturating inert substances, such as oyster shells, charcoal, quicksilver, we develop medicinal and other virtues, which these substances do not possess in their crude form. And so it is supposed to be with road sand. By the constant grinding and triturating of the iron-bound wheels and horse-shoes, the comminuted granite becomes prepared for the use of plants; and when this road sand is mixed with the compost heap and saturated with liquid manure, it is found to help the efficacy of the compost in a remarkable manner. Under the influence of road sand of this kind alone, it is said that when applied to lawns, white clover is sure to spring up in the greatest abundance and luxuriance where it had never been seen before.

Malt Dust.

In the preparation of malt for the use of brewers, at what are called malt houses, there is produced an article called malt dust, consisting of minute fibres or roots, which start out from the barley when it is partially germinated in the lofts. This material is much employed in England to absorb liquid manure, and to form a mulching for potted plants, in the green-house and in the orchard house. It is a very neat material for this purpose. It does not readily ferment; it is a good absorbent of liquid manure, and, when decayed or decomposed, is somewhat more valuable than common leaf mould. In this city it is much fed to cattle, and the price is too high for ordinary use in the garden. It sells for about \$20 per ton, and I am told it requires more than one hundred bushels to weigh a ton.

Cocoa Nut Fibre or Refuse.

In England, cocoa nut fibre is much employed in green-houses, especially in striking cuttings. It is said to be valuable, because it never generates fungus. I am not aware that it can be obtained in any quantity in America.

Wool Waste.

The waste and sweepings of woollen mills, when free from dye-stuffs, may be considered a valuable manure, though rather unpleasant to handle. The waste is generally bulky, but rich in fertilizing properties when well rotted. As a mulching for fruit trees and grape vines in pots, I have found it very useful, as it decays very slowly.

Sulphated Marble Dust.

In the manufacture of what is known as mineral water and sarsaparilla, sulphuric acid is poured over ground marble, in order to liberate from the marble the gas with which the bottles are charged, and the result is a semi-fluid mass of sulphate of lime, having all the essential qualities of plaster-of-paris, or land plaster. In the making of the so-called aerated bread, the same process is performed, and sulphate of lime of the same character is produced. This sulphated marble dust has generally been treated by the manufacturers as a waste or worthless substance, and hundreds of tons have been thrown out upon the public commons. Manufacturers of artificial manures have of late years used some of this waste, and other persons who knew its value have collected it. Its precise manurial value I cannot state, but it is evidently worth handling when it can be had for a small sum per ton. The real action of plaster-of-paris, which it closely resembles, is not fully understood by even

the most intelligent farmers and chemists. As an absorbent of ammonia, it is not now held in so much estimation as formerly. Still it is a very useful addition to the compost heap. The usual rate of applying plaster, say one or two bushels per acre, is too small to be of any perceptible effect, one way or the other. A ton per acre would not prove injurious to clover or any other crop.

Iron Filings.

Iron filings and iron turnings, from the machine shops and blacksmith shops, are probably useful, in very small quantities, applied to grass lands, gardens and orchards. They may also be introduced into the compost heap with advantage.

Old Chip Rubbish.

I mention this to warn gardeners against it. Many persons think decayed chips and decayed wood or sticks useful as an application to the garden and to the orchard. This is probably a great mistake. Even if well decomposed, this material would be too poor in fertilizing qualities to be worthy of any consideration; but in the half-rotted state, in which it is usually seen, it is a prolific source of the most dangerous fungus growths, which assail the roots of nearly all plants, but especially bushes, shrubs and trees. Old chip rubbish should never be admitted into the orchard or garden. Even brush drains, which are sometimes made in gardens and orchards, I look upon as exceedingly dangerous. Thousands of shade and fruit trees have been destroyed by the fungus generated by decaying chips, brush and old roots.

Glue Waste, Wood Ashes, Animal Charcoal from the Sugar Refiners, Bones, &c.,

Are now so well known, and so much economized, that they can scarcely be considered as waste or refuse substances; nor can they be obtained, as a general thing at reasonable prices.

To the eye of the scientific gardener there is no object of greater or more varied interest than the well managed *compost heap*. Stockhardt, in his Chemical Field Lectures, very elegantly and forcibly says—"From the disgusting substances of decay spring again the living wonders of the Vegetable World."

But it is not as a mere mass of decaying substances of an offensive character, that the scientific gardener views his manurial compost. He sees, in the compost heap, not decay, but chemical change. He sees, within that heap, not vile garbage and offensive waste, but sweet and animating ammonia, pure lime, potash, soda, phosphoric acid, the rare and useful elements of vegetable life and vegetable fibre.

He looks beyond the immediate decay into the very heart of Nature, and sees the genial gases, and the indestructible mineral agents now, by the act of decomposition, being set free from the organic forms which they have assisted to create, and stand marshalled, as it were, on the verge of a new creation, which it is his noble office to inaugurate. In the presence of the compost heap the olfactory nerves of the scientific gardener may be exposed as much as other men's, but "their sense is shut." The influence of habit, in this respect, is wonderful. I have read of a band of distinguished Esquimaux who, upon being shown all the delights and splendours of Paris, its