

1852, and hope now that expeditions of this sort will be undertaken, instead of the long, expensive and useless one to the Pacific ocean.

Specimens of the guano found on this island were sent to the Patent Office for distribution. It was analyzed at my office, and only there, and found to contain but a very small amount of ammonia. It was a phosphatic guano like the Mexican.

These are the principal manures which afford nitrogen to plants, they are expensive, liable to loss by improper or careless management, and are most efficient in the production of crops, this should teach us the most cautious behaviour in relation to their purchase, and, when purchased, their most careful subsequent treatment and application. On these several points I have given all requisite information to the Planter and Farmer.

The rules which I have laid down for each and the directions given, are educed from the observations and experience of a large number of our most reliable practical agriculturalists, from scientific deductions, from the nature and composition of the articles spoken of, and it is advice necessary for the protection of all tillers of the soil, which they should follow.

PHOSPHATIC MANURES.

The manures which supply Phosphoric acid to plants, are Bone Dust, Superphosphate of Lime, and various guanos under various names, brought to our markets from islands in the Gulf of Mexico and the Caribbean Sea.

We shall in the first place speak of Bone Dust and the manures made from it.

Bone Dust—Phosphate of Lime—Superphosphate—Biphosphate or Dissolved Bones.—The necessity of the chief elements of bones, phosphoric acid and lime, to the production of crops needs no proof, whether we examine the constituents of fertile soils, the crops cultivated for the support of men and animals, or the composition of men and animals themselves, which is derived from food furnished by crops. In the present article I shall confine myself to the preparation and best mode of application of the phosphates, uniting as much brevity as possible, with explanations full enough for the good understanding of the subject.

The bones of all animals are composed mainly of phosphoric acid and lime, forming what is called bone phosphate of lime; besides these they contain a small proportion of phosphoric acid, in union with magnesia, (phosphate of magnesia,) carbonate of lime, soda and potash; the two last, and several other substances in very small proportions, of no practical value here—these are the mine a