

3.—AMMONIA—PHOSPHATIC GUANO.

CALIFORNIA,

Containing from $3\frac{1}{2}$ to 10 per cent. ammonia with equally varying proportions of phosphate of lime, or its equivalent in phosphoric acid.

AFRICAN,

Containing variable quantities of ammonia and phosphate of lime.

Before further considering these guanoes, I beg leave to present a number of results of analysis by different eminent chemists.

The first series are selected from a large number of analysis by my friend, Dr. Piggot, and are contained in the following communication with which he has favored me. There is also one included from my friend Dr. C. Morfit, formerly of Baltimore, but now residing in New York:

BALTIMORE, DEC. 16th, 1859.

P. T. Tyson, Esq., State Agricultural Chemist:

DEAR SIR:—In reply to your inquiries concerning the results of my examination of the different guanoes brought to this market, I submit the following statement:

1.—BROWN MEXICAN GUANO.

These guanoes have evidently been formed from the excrements of birds which have lost their ammoniacal salts by evaporation in the hot sun, and by solution in the heavy rains that fall in the region from which they are obtained. The small islands called "Keys," upon which they are found, have often an indistinct basin shape, inclining in every direction towards the centre. In consequence of this form, much of the guano is washed during the rain into hollows where it is gathered.

The color of this guano varies from a pale fawn-yellow to a deep chocolate brown, the difference appearing to be due to the varying quantities of humus present in the different varieties. All the genuine lime guanoes, no matter how dark they may be, leave a pure white ash if thoroughly burned, which sufficiently establishes the organic nature of the coloring matter. I have been told by sea captains who have brought in this dark guano, that it was collected among the thickets of bay cedars which are found upon many of the islands of the Caribbean sea. Most of these brown guanoes also contain notable quantities of fibrous roots, another evi-