duced ammonia, because of the mutual decomposition of the carbonate of ammonia, the state in which ammonia exists in manures, and of the sulphate of lime, which is plaster of Paris. The results of this mutual decomposition is the production of the carbonate of lime and sulphate of ammonia, thereby producing a fixed, instead of a volatile form of ammonia. In this process the gypsum gives its sulphuric acid to the ammonia, and takes in return the carbonic acid from the ammonia. These changes take place by the laws of affinity, that is, by the sulphuric acid having a greater degree of affinity for ammonia than for lime under particular circumstances. Baron Liebig, many years since, attributed the good effects of plaster on land to its fixing the ammonia of the atmosphere; since then it has been advised by him and many others following him to apply this substance to manures which contained ammonia. His views of the above changes have been denied by very high authority in England,* and the utility of the advice questioned in this country.

The high authority of Baron Liebig with the experiments detailed by him satisfied me of the correctness of his views, and I have always advised for many years past, long before the office which I now hold was created, that plaster should be mixed with guano, scattered on stable and barn-yards, manure-heaps, and whatever excrementitious matter was placed in any quantity; and this I always followed myself with success equal to my expectations.

The confident tone of Mr. Pusey's contradiction led me to the following experiment: it was made with the greatest care, every possible contingency of error being strictly guarded against.

One thousand grains of a sample of guano, containing 15 per cent. of ammonia, was carefully mixed in a mortar with one thousand grains of sulphate of lime (gypsum)—this was then placed in a large flat dish and exposed in a window, being first moistened with five hundred drops of water. This we will call specimen No. 1. One thousand grains of the same guano without any mixture of plaster was moistened with the same quantity of water and placed in a dish by the side of No. 1. This specimen without the plaster or sulphate of lime, we will call No. 2. At the end of three weeks the ammonia in both was estimated.

No. 1 contained of ammonia - - -	142 grains.
No. 2 contained of ammonia - - -	34 grains.

Showing most clearly that the specimen with the plaster had lost only eight grains of ammonia in the 150, whilst that without the plaster had lost 116 grains in the 150. Here were two specimens of the same guano, treated exactly in the same manner with the exception of plaster being added to No. 1—and here

* Hon. Th. Pusey, M. P. Jour. Royal Agr. Soc. Vol. 11, Part II.