If we calculate the money value of this manure upon the principles adopted in my first report (page 629) we find it to be worth about sixteen dollars. There can be no doubt of its value to the extent of its nitrogen and phosphoric acid, and I am informed that parties who have applied it in Maryland find it to be effective as a manure. The proportions of nitrogen and phosphoric acid are almost identical with those contained in the residue of linseed or flaxseed, from which the oil has been expressed. The value of this for manuring is well known, but it is so extensively applied to fattening stock in England that it brings too high a price to be economically used for manure. The presence of an acrid purgative matter in the skin of the castor bean prevents it from being used for feeding stock, so that it is available as a manure at one-fourth the cost of the ground linseed cake.

We must bear in mind, however, that its nitrogen or ammonia producing elements are in too large proportion for its phosphoric acid. This may be easily corrected by mixing it with about half its weight of Sombrero or Mexican guano, or the ground *bone ash* from South America. Either of these mixtures would constitute a manure approximating bones in effective value.

It is more than probable that a mixture of this kind would prove a good and cheap manure if drilled in with wheat at the rate of 100 lbs. of the pummace and 50 lbs. of the phosphatic guano (*thoroughly mixed*) to the acre, but I am not aware that it has been tried in this manner.

The addition of phosphatic guano to the pummace would be altogether unnecessary in its application to lands properly supplied with shell marl, because of the large proportion of phosphate of lime they contain.

ACTION OF MANURES AND MODES OF APPLYING THEM.

The first report (on page 141 to 144) contained remarks which were believed useful in reference to the best modes of applying manures, deduced from their chemical composition, as well as experience in using them. Whilst there appears no reason for recalling anything said in those pages, the progress of agricultural chemistry requires some additional observations at this time in reference to several of the manures.

1.—Lime.

In the former report I took occasion to give the views then held in reference to the manner in which lime acts upon the