state of oxydation again to aid in furnishing ammonia to a hoed crop.

Iron in this case plays a part analogous to what takes place in the circulation of all red-blooded animals; and so important is it, that man or any other red blooded animal would cease to exist in a very short time but for the iron in the blood.

CHAPTER III.

MANURES OR FERTILIZING MATERIALS, AND THEIR APPLICATIONS.

Eight chapters in my first report were devoted to an examination of all those substances, useful for enriching soils, which, to my knowledge, were then accessible to the Maryland farmer. Each substance treated of was so fully described as to require little to be added at this time.

The opinions given in reference to the relative utility of each kind of manure were based upon a careful consideration of their chemical properties and the experience of those who had used them, as well as my own. Subsequent investigations have tended to increase my confidence in the views expressed in the chapters above referred to.

I have now to make the following addition to the list of manures noticed in the first report:

Castor Pummace.

The manure introduced into the market under this name consists of the residue from the seed of the Palma Christi or castor oil plant, after being deprived of most of its oil for medical purposes. Its composition, according to the analysis of Prof. S. W. Johnson, of Yale College, is as follows:

Water,	9.24 per cent.
Oil,	18.02 " "
Woody fibre and mucilage	38.29 " "
Nitrogenous bodies, alumina, &c.,	28.31 " "
Ashes, containing 2.04 per cent. of phosphoric acid,	6.14 " "
The nitrogenous bodies contain, of nitrogen,	4.32 per cent.
Yielding by decay ammonia,	5.48 " "