

themselves to the important occupation of bringing science to the aid of agriculture, and a flood of light is being shed upon the subject of rendering the soil more productive. In England we find them fully alive to the subject; her nobles and gentry, who were in times past disposed to rest their claims for honorable distinction upon their success in making war upon their enemies or upon one another, are now found entering the lists to compete with each other, in the less chivalric, but certainly more useful occupation of raising turnips. The princely fortunes of many of her land holders, enable such as require it, to get efficient aid from the investigations of scientific men. The works of Professor James F. W. Johnston, who is exclusively devoted to agricultural chemistry, are republished in this country as fast as they issue from the press in England. They are of inestimable value to the farmer.

A few years since, there would have been little use in making the inquiries now proposed to the committee, for the reason that there were too few data to start with; the subject was so much veiled in mystery, that we could have said little more to the farmer than "that as experience proves, that lands cannot for a long period be profitably cultivated without the application of lime in some form or other, it is expedient to use it." Now, however, such a wide field of research is opened to us, that we find it difficult to confine ourselves to those branches of the investigation that we can complete within the time we have allotted for making this report. Whilst we regret that the lateness of the period when the subjects were committed to our charge has prevented a more full examination, and a more systematic arrangement of the matter; we hope, however, our exertions will be found to throw some light on this most interesting subject, and be of some little practical use at least, to our agricultural community—and make still more manifest the importance of further pursuing the subject of the application of science to agriculture, so that we may keep pace with the improvements of the age.

SECTION 1.—*Of the properties of lime and some of its compounds the most important to agriculture.*

Lime is not, as was formerly supposed, a simple substance; it is composed of a metallic substance called calcium united to oxygen. When pure it is a white brittle earthy solid, having alkaline properties, whose specific gravity is to that of water as $2\frac{2}{3}$ to 1. It is *per se* one of the most infusible of known bodies, having a strong affinity for water, and when combining rapidly therewith a considerable degree of heat is developed, as may be observed when it is slacking. The heat is often sufficient to ignite wood and other combustibles. The compound of lime and water, constitutes what is called *hydrate of lime*, or water slacked lime, its constitution is

Lime,	-	-	-	-	76 parts.
Water,	24 " (