new era will begin in our State. These young gentlemen will return to their homes with such a training as will make them really practical farmers, knowing well what they are doing, and their light will spread around them.

There is no profession which is intimately connected with so many branches of science as that of the farmer or planter. In his every day pursuits he is bringing into play the principles of geology, chemistry, botany, entomology, physiology, natural philosophy and mechanics.

Can it be possible that these ought to be ignored by those so deeply interested in their daily application?

The authorities of the State of New York, aware of the importance of the sciences in their industrial applications, caused to be executed a survey of that State, embracing not only its geology, but every branch of its natural history. Nineteen quarto volumes of the final report have been issued, to be followed by at least two more.

It is to be hoped that the day is not distant when Maryland will institute a similar work. My duties are necessarily limited to the application of Chemistry and Geology to Agriculture.

In the present day there are perhaps few who will refuse their assent to the proposition, that the character of the industrial operations of every country, depends for the most part upon its geological constitution, modified of course by climate.

It is equally certain that, in connection with climate, the geological structure and mineral components of any region, determine the character and the fertility of its soils.

The mineral masses which constitute our planet, consists of many different kinds of rocks, clays, sands, and other matters, containing certain substances essential to the growth of plants. Among these are silica, alumina, lime, magnesia, potash, soda, oxide of iron, phosphoric and sulphuric acids, chlorine and other matters.

These substances, or portions of them, exist in much larger proportions in certain kinds of rocks than in others; whilst there are rocks in which matters essential to plants are so firmly united together, and to other substances, that they are very slowly liberated for the wants of vegetation.

At and near the surface of the earth, atmospheric agencies are incessantly disintegrating and decomposing the rocks and other mineral matters. The resulting products remain in part and form an earthy covering. Portions, however, are dissolved and assist in furnishing the mineral matters in spring water, whilst others are washed off during heavy falls of rain and deposited in lower places, or carried into streams and to the ocean.

What we term soil is that portion of this earthy covering,