

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.

From what is now known of the origin and characters of soils, we must conclude that the very foundation of any intelligent and practical application of science to agriculture in any region, must consist of a thorough investigation of its geological and mineral constitution.

A survey of this kind for our state should have for its object the determination of the chemical, physical and other characters of each kind of rock, bed of clay, sand, marl, or other mineral deposit within our borders.

They should be minutely described, and their position and extent be accurately shown on a map, and sections upon a large scale. We should make ourselves acquainted with the properties of every mineral that can be usefully applied to the soil, and also, with those that may promote industrial operations within our limits. These last should by no means be overlooked, because of their importance in adding to the demand for the products of the farm.

These views led Mr. Tyson to the preparation of a geological map "to aid in forming a correct idea of the agricultural and other industrial capabilities of our state." The base map for the geology was executed by Mr. August Faul upon data secured from various sources, chiefly from that of the manuscript map of Mr. J. H. Alexander, which has been described in a previous chapter.

"The First Report of Philip T. Tyson, State Agricultural Chemist, to the House of Delegates of Maryland, January, 1860," contains several chapters dealing with the general principles of mineralogy and geology, including a classification of rocks and their geographical distribution in Maryland. Much attention is given to the limestones and marls, and their value for agricultural purposes. Much of the report deals with the soils and the various natural and artificial fertilizers which may be used for their improvement. This report closes with an appendix in which the mineral resources of Maryland are briefly described.

"The Second Report of Philip T. Tyson, State Agricultural Chemist, to the House of Delegates of Maryland, January, 1862," again dwells upon the importance of geological work in connection with an agricultural survey. In this second report much more attention is devoted to the mineral resources of the state, their local occurrences being more fully described.