SOME SOIL CHARACTERISTICS THAT QUESTION CERTAIN PEDOLOGIC INTERPRETATIONS

By E. A. Norton

The prediction (2) made only five years ago that the birth of an essentially new concept of the soil, a concept which was gained following the release of Russian literature, would lead to the rapid accumulation of soil knowledge has already come true. Records of the description and measurement of soil profiles and their characteristics are now voluminous. The interpretation of the facts recorded has closely followed their accumulation. One of the most outstanding impressions formed from recent soil observations is that soil is composed of a series of horizontal, superimposed layers constituting what is called the soil profile (1). The conception that horizons are separated from each other by distinct and sharp parallel lines is readily gained from the literature describing soil profiles. The soil scientist in field work has been prone to establish in his mind arbitrary horizons and proceed to choose a certain point in the profile and place the material above that point in one horizon and that below in another. Many laborious hours have been spent in the laboratory working on samples collected in this manner. No one will deny that great progress has been made and that considerable soil knowledge has been accumulated in this way. Yet many field efforts have not been crowned with success and certain laboratory results have proven disappointing because they were not conclusive. Perhaps the interpretation of horizontal development in soils has been carried too far.

The action of the weathering forces which are responsible for soil development is considered to be vertical, proceeding from the surface downward. It is natural to expect that the material with which the forces first came into contact would be first attacked. This would be the material surrounding the voids in the soil. Action of the forces would then advance in all directions away from the voids. If this concept is true, it follows that the material immediately adjacent to the voids is farther advanced in its stage of weathering than the material not so located. During the time any particular area is being developed toward maturity, the deeper lying material is progressively attacked by the weathering forces and passes through a cycle similar to

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1 Contribution from the Illinois Agricultural Experiment Station, University of Illinois, Urbana, Illinois. Published with approval of the Director.