PEAT INVESTIGATIONS
in the U. S. Bureau of Chemistry and Soils

A. P. DACHNOWSKI-STOKES
Bureau of Chemistry and Soils

Perhaps no other item of information about organic soils finds its way into so many different aspects of scientific research as does the knowledge of the structural characteristics of peat deposits. In problems of geographic distribution and classification, in the correlation of morphology and chemical composition with environmental influences, or in the more practical needs demanded by a national policy of peat land utilization and conservation, the profile structure of a peat deposit plays a revealing role. Much of the present information owes its existence to data accumulated during the past two decades over a wide range of environmental conditions in this country. Various relationships have been examined in previous publications. Today, perhaps more than at any other time, the practical importance of peat deposits to a nation-wide program of land-use demands contributions from several points of view and from fields of contact with which the Soil Survey Association has familiarity. There are three major phases in peat investigation that well deserve greater emphasis and these I wish to state here as follows:

I.

It is known, of course, that departmental peat investigation has assembled one of the best collections of typical peat soils. No claim is made to completeness. Nevertheless the student of soils may find here material and perhaps also a viewpoint with which he was previously unacquainted. The differentiation of peat soils is based on characteristics due to distinctive units of natural vegetation and on features corresponding with certain kinds of environments in the region in which they occurred. When it became possible to establish in terms of these characteristics different kinds of parent material and various degrees of decomposition, (Department Bulletin 802) it became possible also to record the different modes of profile development (Department Bulletin 1419) and the conditions under which the products were made. It was necessary to know what kinds of peat soils there are and upon which the present vegetation exists, in order to interpret ancient organic soils and past environmental conditions. Many of the facts relating to morphological and structural differences between peat deposits will, no doubt, receive different interpretations. Groups of peatland with abnormal, intermediate, and complex profiles now explained as arising from changes in environmental conditions that operated in the past. (Reports on Cycles, Carnegie Inst. Washington, pp 55-64, 1929) may be given a somewhat

II.

Peat investigations need much assistance for soil conditions which favored their growth, thickness of the layers of plant remains with environmental conditions that permitted preservation after death. It is obvious that relationships obtain between units of vegetation one another in space, and layers of peat exposed upon one another in time. As generations of plant communities occupied higher levels from the mineral substratum more and more affected by varying edaphic conditions of moistures, oxygen, salinity, and the dissolved substances needed as plant nutrients of plant successions in forming a sequence of peat soils may be looked upon, therefore, as a phenomenon of universal importance. This is exhibited among peatlands found and probably in the World. It is the way of a natural system of classifying, interpreting their origin and development, defining them on the basis of their own characteristics. (Journ. Wash. Acad. Sci., 22:50-59, 1932). It is gratifying to note the increased interest shown by a number of investigators not only in the study of remains such as pollen and other fossils, of value to geology and paleobotany, but also in active survey work and in the quality of the investigations relating to inventories of peat resources for commercial purposes to which they are best adapted. It is to be published shortly on American Peat: characteristic profiles, and classification. These facilitate the identification of peat land use and aid in the systematic grouping of peat soils.

III.

Peat investigations have scarcely been touched and for the most part there are still no adequate provisions. Much work needs to be done to determine the number of peat profiles and the characteristics of peat soils in Coastal and Gulf States, in the Mississippi River area, in the intermontane plateaus, in Alaska, and in local possessions.

There is need also for a greater degree of field methods for determining physical characteristics, it would be advantageous to study more carefully the natural system of classification. From some of these it would be better to have the aid of more and without discrimination.