

The use of key letters, indicated in Plate 1, with numbers corresponding to the thickness of each layer, would serve a similar purpose.

Attention also needs to be given to rainfall and general climatic conditions. Weather and climate influence not only the growth of crops and a variety of plant diseases common to peat lands, but they affect also the air-drying of layers of peat, the control of the water level, and the length of a practical working season for peat products. With the necessary information concerning peat profiles and environmental conditions and requisite economic data as a basis, it is possible to make certain reasonable assumptions as to the availability of different materials, the appropriate method of production, and the probable cost or profit per acre or per ton.

#### SELECTION OF PEAT LANDS FOR ECONOMIC USES

For agricultural as for other industrial uses, the selection of desirable peat land should be based on accurate and definite information as to the structure of the peat area and the relationships involving the water supply and the mineral substratum. The outstanding features of these principal conditions are covered more fully in the following pages. Attention must be focused on them because they are of fundamental significance, and they interfere more or less with each other. They form the principal task of modern peat investigations, and they exercise a limiting influence upon necessary and ordinary operations, such as methods of drainage, tillage, crop rotation, fertilizing, and all other forms of utilization of peat deposits. With these characteristic conditions identified and understood, the various peat-using interests will have competent data on which to work, with a measure of control that previously has been impossible. Presently, no doubt, regional land planning, as well as colonization projects and the like, will be based upon dependable information of the sort indicated.

#### CHIEF DIFFERENCES BETWEEN LAYERS OF PEAT

Layers of peat are the basis and the units of peat-land classification. They are identified by reason of the differences in kind and quantity of plant remains from which they are formed. Microscopic examination indicates clearly the plant remains of which the three primary divisions of peat—the sedimentary precipitate (more or less gelatinous), the fibrous, and the woody layers—are composed. This is true also of the less clearly defined mixed layers of peat. The transformation of the surface vegetation to peat, and even to lignite and coal, seemingly is accomplished without any great change in the botanical structure of the buried plant tissue. In most instances the network of roots or of moss plants, the different proportions of spores, pollen grains, and finely divided bits of plant tissue, as well as the cuticular, resinous, and woody fragments of varying sizes, are found well preserved in the respective layers of peat. The evidence of European investigators as to the development of forests in postglacial times is based on the method of quantitatively analyzing the pollen grains identified in different peat materials.

According to their origin, layers of peat represent the plant remains of social units of vegetation. They are distinctive products from