

of fibrous, or of woody layers of peat; the units of the second group represent different forms of combinations from these chief layers.

Areas of peat land with a profile showing the same composition of sedimentary peat materials throughout, as in cross section 1 of Plate 1, were formed in deep water. The areas undoubtedly represent the precipitation of organic material which previously floated or was suspended in the water. Together with mineral matter the fine-textured plant and animal remains settled as a dark-brown to blackish plastic peat material more or less gelatinous. It contains occasionally an admixture of less disintegrated fibrous or woody components which tend to give an open texture to the layer. The presence of large quantities of diatoms and sponge spicules may cause a burning and itching sensation in men and animals when this type of peat layer is plowed and cultivated. The sharp-pointed, siliceous material has a polishing and abrading effect on tools and implements. Peat lands of the sedimentary group are water-logged, often having excessive slopes and unfavorable adjacent topography. They lack firmness and stability under loads, increase the expense of drainage, and so decrease the profit of operation. Areas of a depth greater than 5 feet are relatively nonagricultural land; they may be set aside as reserves, for water-storage basins, or for wild life. Shallow deposits and those with a more favorable combination of layers, indicated, for example, by cross sections 1-2-1 and 2-1 in Plate 1, might serve as wild hay or as wiregrass marshes. If they can be drained moderately and furnish merchantable timber, as illustrated by profiles 1-3 and 1-2-3 of Plate 1, the growth of forest trees may possibly be more remunerative. It is of the greatest importance to retain the forests already on peat land for natural reproduction and gradually to clear away the poor growth by successive thinnings or improvement cuttings.

Peat lands with a cross section as at 2 in Plate 1 consist of brown or yellow-brown, raw, coarsely fibrous to felty peat material, only slightly disintegrated and more or less acid. Areas of this kind were developed under marshy conditions; the level of the ground water became elevated with the accumulation of plant remains or fluctuated moderately during wet and dry periods. This type of peat land can withstand considerable pressure where conditions require a cover of sand for cranberry growing or a roadbed for highway traffic. To be profitable, the areas of uniformly loose, fibrous composition demand deep fall plowing, freezing, and moderate drainage with a well-controlled water level. The resistance of the peat material to bacterial decomposition may give rise to an unfavorable action on plant growth for a long period of time. For that reason seeding and artificial planting of seedlings should not begin too soon following drainage; it should be delayed one to two years until the surface layer has begun to decompose and the peat soil has reached the tilth or ripened stage.

The differing fertility in this type of peat land may be due also to the mineral substratum or to other little-known factors confined to the area. Partly disintegrated and more carbonized, dark-colored phases of these type units, as well as areas with the cross sections 2-1-2, 1-3-2, and 3-1-2 in Plate 1, are preferred for the growth of the principal root and forage-producing crops, for temporary pasture, and in some cases for small grains. Regardless of the special