It is the aim of all men in the plant production field to secure as rapid a growth or as big a seed crop as possible with the minimum of time and expense. This is assuredly true in forest production if forestry is to be economically practiced — and it must be!

The biggest problem of land use in northern Michigan lies not in the adequately stocked hardwood land, but rather in the barren pine land that is and has been for many years reverting to the State for the non-payment of taxes. The future use of this land centers in forest production.

The problem at hand is the use of the soil types as mapped by the soil surveyor in the choice of land for forestry in the pine lands of northern Michigan. I will attempt to show how these soil types can be quite accurately evaluated and ranked for forest production, the classification being based upon field observations of tree growth in relation to the various features of the soil profile.

At the outset, allow me to say that in order to study a soil type and to understand how it might influence tree growth, it is absolutely necessary to make use of a shovel, a soil auger, or a pick, and to observe deep road cuts as often as possible. Tree roots may sometimes penetrate a soil over 20 feet and a study of the entire 20 foot profile in some soil types will surely help to explain tree responses. I do not contend that a soil type, even though mapped in great detail, is the equivalent to a forester's "site". I do say, however, that if the profession of forestry understood more of the science of soil classification and mapping, more progress could be made in forestry. Likewise, if the soil surveyor took a keener interest in forest trees, he would be better able to understand and explain soil profile development.

According to Veatch there are eight soils in northern Michigan whose dominant virgin cover was pine and whose area total over 3½ million acres. A ranking, then, of these eight soils into

1. First class pine land
   (a) Ogemaw sandy loam
   (b) Roselawn sandy loam

2. Second class pine land
   (a) Roselawn sand
   (b) Rubicon sand
   (c) Bridgman fine sand

3. Third class pine land
   (a) Saugatuck sand
   (b) Wallace fine sand
   (c) Grayling sand

**FIRST CLASS PINE LAND**

Ogemaw sandy loam

Ogemaw sandy loam exists as a low lying, smooth, moist sandy loam surface soil underlain at 2-4 feet with red limy clay. In this soil type, moisture is abundant, aeration is fair, and plant food is plentiful, as evidenced by a high clay content and luxurious forest growth. Under good forest management a valuable stand of white pine could be successfully grown with a short rotation on Ogemaw sandy loam.

Roselawn sandy loam

The Roselawn series occupies morainic deposits that originally supported almost pure pine. Roselawn sandy loam is characterized by a loamy fine sandy loam, or sandy loam surficial soil that is noted for its variable clay content and luxurious forest development. In the B horizon and also existing as lenses or layers in the parent material is found "hit and miss" sandy clayey sand. It is these clay lenses that, although they exist discontinuously, make Roselawn sandy loam a first class pine soil. Uniformly good growth of white pine, jack pine, or Norway pine cannot be expected over any single acre of this soil because of the heterogeneous existence of clay pockets, but average growth on a large tract will be excellent.