3. THE KENTUCKY MARL BEDS AS A SOURCE OF LIME MATERIAL

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The discovery five years ago of the value of calcareous clay or marl deposits found so widely distributed in association with the limestone formations in Kentucky and in old lake beds in Union, Henderson, and adjacent counties along the Ohio River, has resulted in supplying many farmers in the state with a cheap and easily accessible source of lime for use on their soils. To date, marl has been found in greater or smaller quantities in some 70 counties in Kentucky. Of this number, more than half contain deposits of considerable extent.

Although marls were observed in Kentucky by early geologists and their use for improving the soil was suggested, the importance of lime for correcting acid soils was not then fully recognized. Moreover, the geologists of those days were looking for a clay free from lime, suitable for brick, tile, pottery, etc., and therefore gave little attention to clay materials rich in lime.

Kentucky marls are, for the most part, soft, calcareous or calcareous-magnesian shales or soft, calcium limestone or magnesian limestone which, when exposed to the action of weathering agencies, quickly break down into a finely divided condition. These shales and limestones usually are interbedded between more or less massive beds of hard limestone and weather into marl beds varying in thickness from 3 to 60 feet. The old lake marls, however, have apparently never been consolidated into hard material.

The main constituents of marls are calcium and magnesium carbonates, some being more highly magnesian than others. In fact, very few pure calcium marls are found in Kentucky. They also contain small proportions of various other constituents such as sulfur, phosphate, and potash compounds, with considerable proportions of aluminum silicate or clay as a basic material. Much of the marl of the various formations contains lime concretions or fragments of lime rock of varying size.

MARL FORMATIONS IN KENTUCKY

Marl beds have been found in Kentucky in the following formations named in descending order: The coal-measures, the

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