

## MISSISSIPPI MINERALS SURVEY DISCLOSES HIDDEN WEALTH

Enormous deposits of industrially valuable minerals disclosed by a survey in a single Mississippi County have resulted in an awakening of Mississippians to the potential wealth lying beneath their soil. Projected studies of 11 additional counties in the state consequently are attracting wide interest.

The original survey was undertaken in Winston County by the Works Progress Administration, under the sponsorship of the Mississippi Geological Survey, to determine the mineral resources of the area and to make chemical, physical and ceramic tests of the minerals discovered.

Obviously, a complete mineral analysis of the State would be of tremendous importance in any effort to develop industries to process such resources as the State's clays, its limestone, its aluminum ores, pigments and other minerals.

While inhabitants of Winston County, since the days of the Choctaw Indians, have relied largely upon the soil for support, the wealth of minerals lying beneath the soil long has lain neglected; the use of the county's clays and lignite beds has been of the most elementary nature. Neither has the full extent of the deposits ever been determined, nor their commercial value determined. Previous investigations have been in the nature of preliminary studies, but these, while disclosing no spectacular resources in metals or precious stones, have shown enormous deposits of non-metallic minerals.

It was known that the dark "Porters Creek" clay of the Flatwoods in the northeastern corner of the county could be burned to form excellent brick; that the central part of the county contained deposits of clay suitable for brick and pottery, as well as of lignite, bauxite and possibly iron ores; and that there were possible valuable beds of sand and pottery clay in the western section. But little was known as to their actual commercial worth.

When the WPA survey project was launched, Frederic F. Mellen, a young Mississippi geologist who has studied the earth strata of the county, foot by foot, through the successive layers, was put in charge. Under his direction, WPA workers have sunk trenches into the bluffs and dug pits into the plains, from which are taken samples of the various minerals to be found.

Entries have been driven into hillsides to determine the exact under-cover thickness of lignite beds, and in more level stretches the workers have bored holes to measure, to the nearest tenth of a foot, the thickness of clay and lignite beds. Sample men have taken clean samples of the mineral deposits, recording their exact geographic and geologic position,

as well as information regarding the amount of over-burden, tonnage of the mineral available and the accessibility of the deposit.

Clay samples in 200-pound units from the Winston County survey are being tested at the University of Mississippi where ceramic tests of the clays are being made under a companion WPA project. These tests are directed by T. E. McCutcheon, a ceramic engineer, using equipment purchased in 1929 by the State Geologic Survey.

These samples, after being ground, quartered, screened and wedged, are formed by WPA workers into bars one inch square which then are cut into one-inch, two-inch and six-inch lengths. In the unfired state some of the bars are tested as to their volume and linear percentage of shrinkage on drying, and as to their transverse breaking strength, while others, fired to various temperatures, are tested as to porosity, absorption, specific gravity, volume shrinkage, linear shrinkage and the transverse breaking strength.

These tests determine the firing for color range of the clays if put to ceramic uses. Combined with information concerning the chemical composition of the minerals, the tests supply all the data necessary for industrial use of the clays.

Mr. Mellen is preparing a geologic report of the county, based on the detailed field survey of the county's minerals, while a companion report is also being prepared on the detailed reports of the tests, especially the ceramic tests, being made at the State University, with the probability that both will be published by the State Geological Survey.

Because of federal restrictions, and the limited capacity of the testing equipment at the University laboratory, only three county surveys can operate concurrently. Tippah and Lauderdale are the two chosen for surveys pending the completion of the Winston County studies; other counties from the 12 selected will be studied as the surveys already under way are completed.

The ultimate effect of these surveys upon the industrial development of the State remains to be seen, but it is the hope of Dr. William Clifford Morse, state geologist and director of the State Geological Survey, that they will prove of sufficient value to warrant mineral studies in all the other counties of the State.

*Works Progress Administration*