

MISSISSIPPI STATE GEOLOGICAL SURVEY

WILLIAM CLIFFORD MORSE, Ph. D.
Director



BULLETIN 59

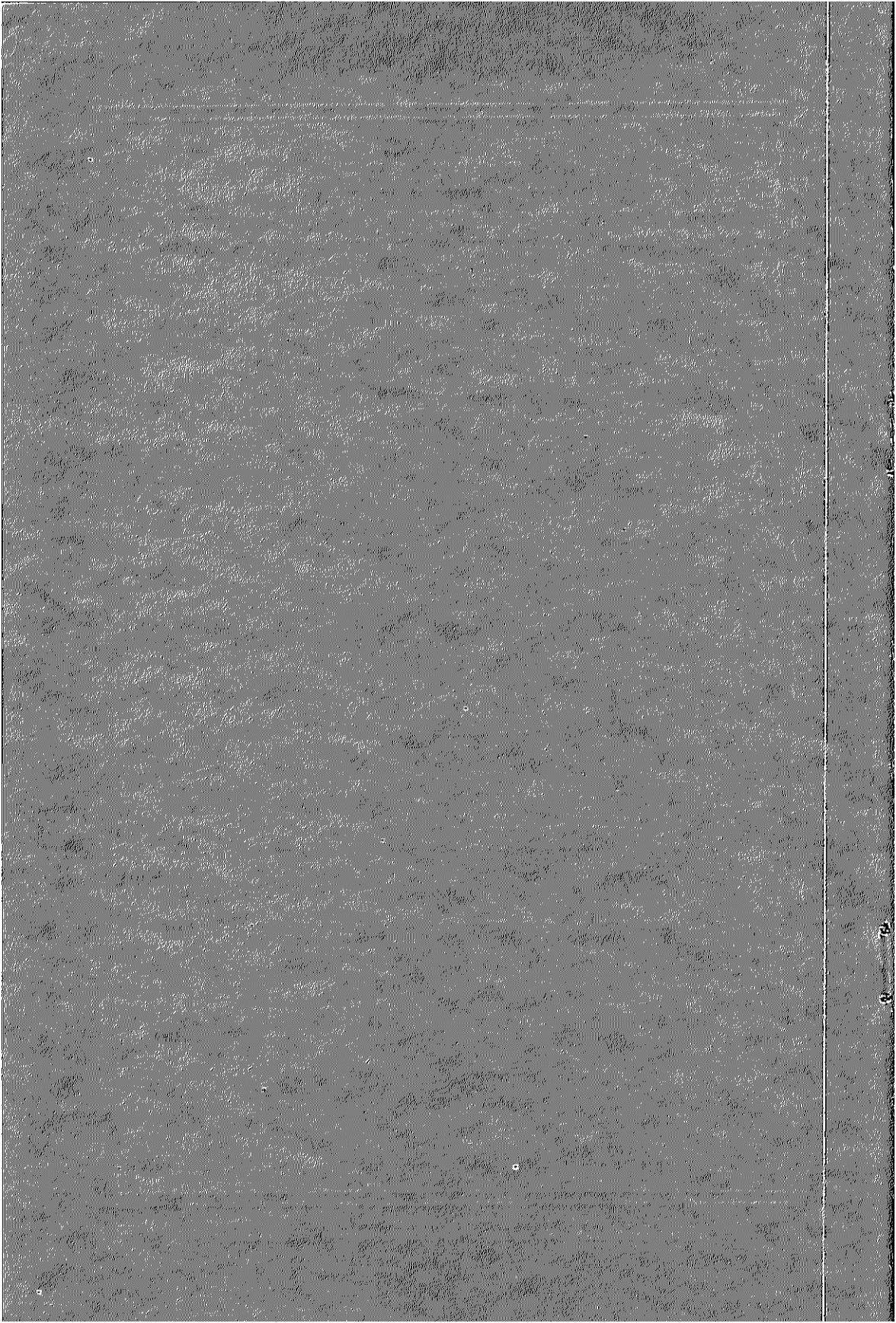
MISSISSIPPI MINERALS

By

WILLIAM CLIFFORD MORSE, Ph. D.
State Geologist

UNIVERSITY, MISSISSIPPI

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MISSISSIPPI GEOLOGICAL SURVEY

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LETTER OF TRANSMITTAL

Office of the Mississippi Geological Survey
University, Mississippi
September 11, 1944

To His Excellency,
Governor Thomas L. Bailey, Chairman, and
Members of the Geological Commission

Gentlemen:

Herewith is Bulletin 59, Mississippi Minerals. It is a summation of the results of mineral investigations that have been in progress for 10 years. It is issued in response to demands for a publication that briefly mentions the potential mineral products of the State.

Very sincerely yours,
William Clifford Morse,
State Geologist and Director

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MISSISSIPPI MINERALS

WILLIAM CLIFFORD MORSE
STATE GEOLOGIST

INTRODUCTION

Mississippi Minerals are coming into their own. They are being recognized and utilized today as never before. A decade of field investigations in more than 20 counties of the State and of laboratory tests of the sampled minerals both by competent men respectively in geology and in ceramics and chemistry enables the Mississippi State Geological Survey to publish some 15 to 20 authoritative bulletins—to summarize the results in this brief bulletin.

PRODUCTION VALUE

Mississippi mineral production rose to an all time high of \$17,750,000 in 1941, probably to \$30,000,000 in 1942. From 1939 to 1941 Mississippi mineral production more than trebled and raised the State from the 44th position to the 36th position among the sister states—mainly because of the discovery of the Tinsley Dome by the State Geological Survey in 1939.

The Tinsley Oil Field was followed by the discovery of the Pickens, the Cary, the Brookhaven, the Cranfield, the Eucutta, the Flora, the Heidelberg, the Mallalieu, the Gwinville, and the Baxterville oil fields—and 22 salt domes, some of which will no doubt yield oil or gas. When these oil fields reach full development, production values will greatly exceed the values of 1941 and 1942. But oil and gas are not the only minerals produced in Mississippi. Clay production and sand and gravel production each exceeds \$1,000,000.

POTENTIAL VALUE

Nor do these production figures give but the slightest idea of the potential value of Mississippi minerals, of the clays for example. Perhaps every citizen is familiar with the brick production, especially the excellent brick at Corinth and Brookhaven, not to mention the brick at Columbus, Louisville, and elsewhere. Some are acquainted with the Bentonite production in Pontotoc, Itawamba, and Smith

Counties, where these volcanic clays are won for filter products and for foundry sand bond.

But few know that the Mississippi State Geological Survey mineral surveys of some 15 to 18 counties and its actual laboratory tests of the minerals showed valuable clays in practically all of them—clays that, by actual tests, will make brick of an improved quality; clays that will make excellent tile, roofing tile, structural tile, and fire proofing; clays that will make pottery and stoneware; clays that will make crucibles, spark plugs, insulators, porcelain ware, oven ware, and cream dinner ware; clays that will serve as filler in rubber, paper, oil cloth, and linoleum; clays that will serve as bond clays and drilling mud. Perhaps of more importance still are clays that will make light-weight aggregate for concrete—concrete that will possess insulating and moisture resisting properties; concrete that will produce fire-proof, vermin-proof, tornado-proof, and earthquake-proof buildings and homes.

In addition is agricultural limestone, which is being produced in Rankin County, but which may be produced in Tishomingo, Lee, Chickasaw, Clay, Lowndes, Hinds, Smith, Wayne, Oktibbeha, Noxubee, Kemper, Warren, Madison, and Jasper Counties.

In addition, too, are minerals that will make mineral wool for insulating purposes, lignite that can be processed for fuel and chemical products, medium to low grade bauxite that will make aluminum, sandstone that will make excellent houses and public buildings that will endure through the ages.

A Mississippi mineral of first rank value has been greatly wasted. By clearing the forest from the slopes, the soil has been allowed to wash away—to denude the slopes, to bury the bottoms, to increase the floods which can be only temporarily controlled by dammed reservoirs. Fortunately this mineral, this soil, can be replenished by reforesting the slopes, or by seeding them to grass pastures after the corn rows and the cotton rows have been disked in alternate strips for two years, so that noxious weeds can be cut with a mowing machine.

One of the Mississippi minerals of great value has been taken for granted; naturally so in a state where the precipitation exceeds the average. The water of the State has been wasted, is being wasted and contaminated. Fortunately it can be conserved and replenished.

The ground water of the Mississippi plain is being lowered, that of the coastal plain is being threatened with salt-water encroachment if excessive wasteful practices continue. The development of a ground water supply at three Army Camps was not a simple drilling process. But the Federal and State cooperative geological surveys and the U. S. Engineers obtained adequate supplies for the camps and for certain doubtful sections of the State.

Despite its great productive value, oil, as well as gas, is still a potential mineral in Mississippi—for much of it is still undiscovered. In the various Mississippi State Geological Survey bulletins, in addition to a general discussion on structure, some 16 specific structures are described, some of which may prove productive. Other structures were discovered by the ground-water investigations. Others in areas where surface geologic work is impossible are being discovered by corporations by seismographic methods with the aid of the stratigraphic and areal determinations of the State Geological Survey.

DETAIL

Mississippi minerals that were fully investigated in the field and thoroughly tested in the laboratory will form the products described in detail in the respective county reports—the products named after each county bulletin in the following list.

COUNTY PRODUCTS LIST

- 19—Pontotoc, Union, Tippah—Bauxite
- 26—Tishomingo—Building stone
- 34—Tishomingo—Refractory clays, Porcelain, Paint pigment, Tripoli
- 38—Winston—Refractory baukite, Pottery, Brick, and Tile clays, Sand, Lignite
- 39—Yazoo—Oil, Loess and Alluvia for brick, Sand, Gravel, Bentonite, Marl, Drilling mud, Mineral wool
- 41—Lauderdale—Pottery, Brick, and Tile clays, Sand and Gravel, Kaolinitic and Bond clays
- 42—Tippah—Kaolinitic and Bauxitic clays, Pottery, Brick, and Tile clays, Light-weight aggregate, Bauxite, Ochre, Marl

- 43—Warren—Limestone for rock-wool and cement, Loess for brick, Alluvia for brick, Light-weight aggregate, Agricultural lime
- 44—Forrest—Brick and Tile clays, Sand and Gravel
- 45—Union—Kaolinitic and Bauxitic clays, Brick and Tile clays, Bauxite
- 46—Agricultural Limestone—Tishomingo, Lee, Chickasaw, Clay, Lowndes, Hinds, Smith, Wayne, Oktibbeha, Noxubee, Kemper, Warren, Madison, Rankin, Jasper
- 47—Adams—Bond clays, Drilling mud, Brick and Tile clays, Oil, Sand and Gravel
- 49—Scott—Brick and Tile clays, Light-weight products clays, Bond clay, Drilling mud, Sand and Gravel
- 50—Tallahatchie—Bond clays for crucibles and refractories and pottery, Brick and Tile clays, Glauconitic sand
- 51—Montgomery—Clays for pottery, brick, tile, Light-weight insulation products, Glauconitic sand
- 52—Choctaw—Pottery, Brick, and Tile clays, Lignite
- 53—Clay—Brick, Structural tile, Roofing tile, Fire-proofing, Flower pots, Drain tile, Natural cement, Mineral wool, Agricultural lime
- 54—Pontotoc—Brick, Tile, Pottery, Fire-proofing, Spark plugs, Insulators, Porcelain, Crucibles, Oven ware, Cream dinner ware, Roofing, Stone ware, Filler in rubber, paper, oilcloth, and linoleum, Alumina and Aluminum salts, Bonding clay for molding sand
- 55—Camp McCain—Water
- 56—Camp Van Dorn—Water
- 57—Monroe—Stone ware, Pottery, Brick, Tile, Bentonite
- 58—Camp Shelby—Water

Mississippi minerals will form the products, especially the clay products, that are listed in more detail in the following table.

MISSISSIPPI STATE GEOLOGICAL SURVEY

	Adams Bull. 47	Choctaw Bull. 52	Clay Bull. 53	Forest Bull. 44	Lauderdale Bull. 41	Monroe Bull. 57	Montgomery Bull. 51	Pontotoc Bull. 54	Scott Bull. 49	Tallahatchie Bull. 50	Tipah Bull. 42	Union Bull. 45	Warren Bull. 43	Winston Bull. 38	Yazoo Bull. 39
Art ware.....	x				x										
Bond.....		x													
Flower pots.....															
Garden pottery.....															
Kitchen ware.....															
Oven ware.....															
Sanitary ware.....															
Statuary.....															
Stone ware.....															
Table ware.....															
Chemical porcelain.....															
Dinner ware.....															
Electrical porcelain.....															
Hotel china.....															
Chemicals—Aluminum.....															
Drilling.....															
Enamels.....															
Foundry bond.....															
Glazes.....															
Linoleum.....															
Mineral wool.....															
Oilcloth.....															
Paper.....															
Pigment.....															
Rubber.....															
Slip.....	x														
Bauxite.....															
Bentonite.....															
Gravel.....															
Lignite.....															
Lime.....															
Marl.....															
Natural cement.....															
Ocher.....															
Road material.....															
Sand.....															

POTTERY

WHITE WARE

MISCELLANEOUS

MINERALS

Oil, as well as gas, the Mississippi mineral of greatest present interest, may be found in some of the structures in the following list.

COUNTY STRUCTURES LIST

- 38—Winston—General discussion
- 39—Yazoo—General discussion; Tinsley Dome, Satartia Structure, Midway Area
- 41—Lauderdale—General discussion; Alamucha Structure, Lauderdale and Lizelia Structural Areas
- 42—Tippah—General discussion
- 43—Warren—General discussion; Glass Dome, Blakely Structure, Newman Salt Dome, Structures in Warren County north of Vicksburg
- 44—Forrest—General discussion; Maxie
- 45—Union—General discussion
- 47—Adams—General discussion; Natchez Anticline, Cranfield Structure
- 49—Scott—General discussion; Forest Anticlinal Nose, Fault Area, Terrace Area, Coffee Bogue Anticlinal Nose
- 50—Tallahatchie—General discussion; Paynes and Enid Structural Prospects
- 51—Montgomery—General discussion; Duck Hill Nose, Eskridge Nose, Fox Nose, Sawyer Nose, Structures 5 and 6, Hays Creek, Kilmi-chael Structural Area
- 52—Choctaw—General discussion; Blanton Gap—Reform Area
- 53—Clay—General discussion; Pheba Structure; Northern Clay County Structure
- 54—Pontotoc—General discussion; Pontotoc Structure
- 55—Camp McCain—General discussion; Plates 1, 3, 10
- 56—Camp Van Dorn—General discussion; Plates 5, 6, 7
- 57—Monroe—General discussion
- 58—Camp Shelby—Plates 2 and 3

CONCLUSION

In conclusion then Mississippi minerals are receiving nation-wide attention—in fact international attention. As in the beginning so in the ending of this summation, it may be stated that Mississippi minerals are coming into their own.



