

MISSISSIPPI STATE GEOLOGICAL SURVEY

WILLIAM CLIFFORD MORSE, Ph. D.

Director



BULLETIN 37

THE GEOLOGIC HISTORY OF MAGNOLIA STATE PARK

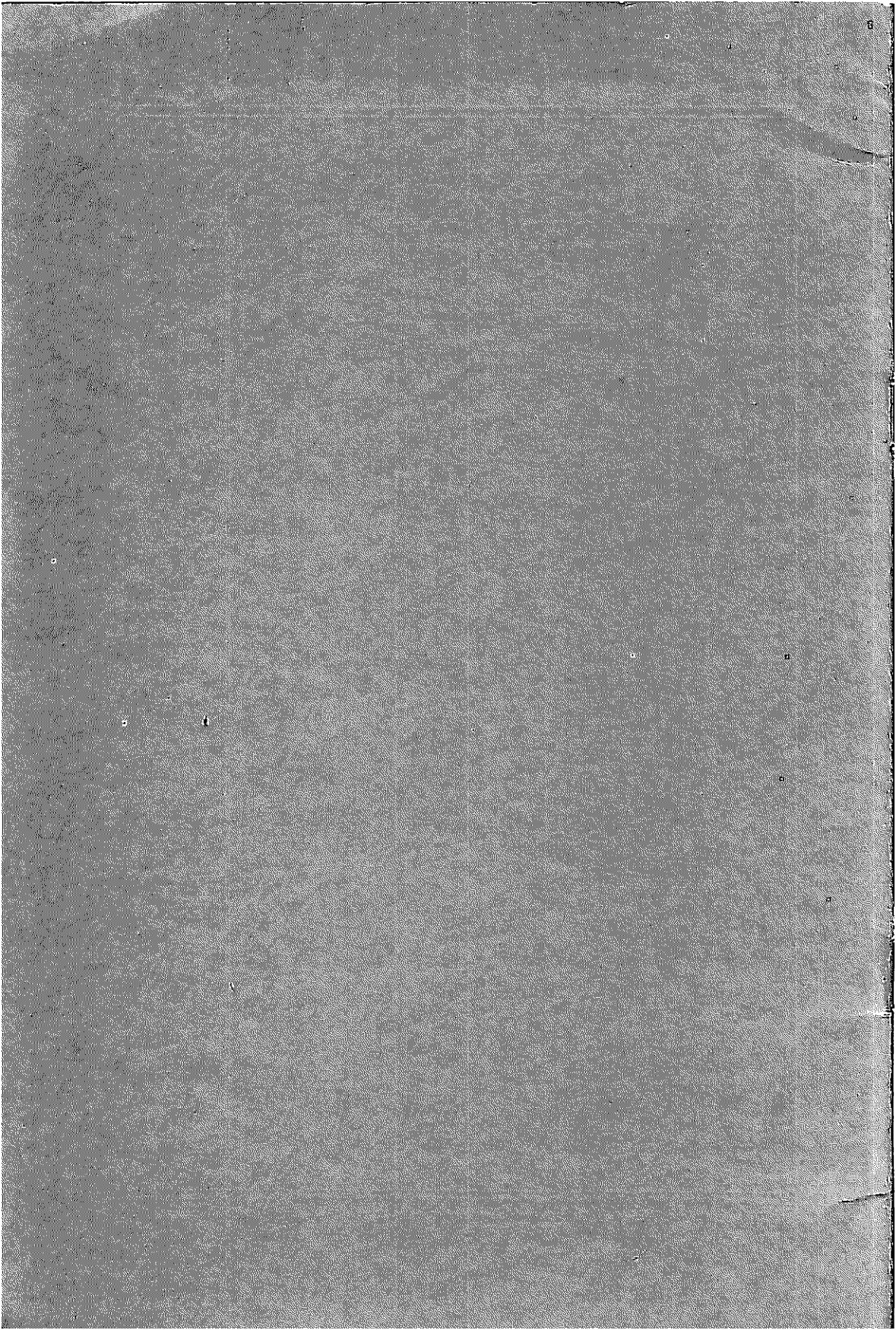
By

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LETTER OF TRANSMITTAL

Office of the State Geological Survey,
University, Mississippi, April 18, 1938

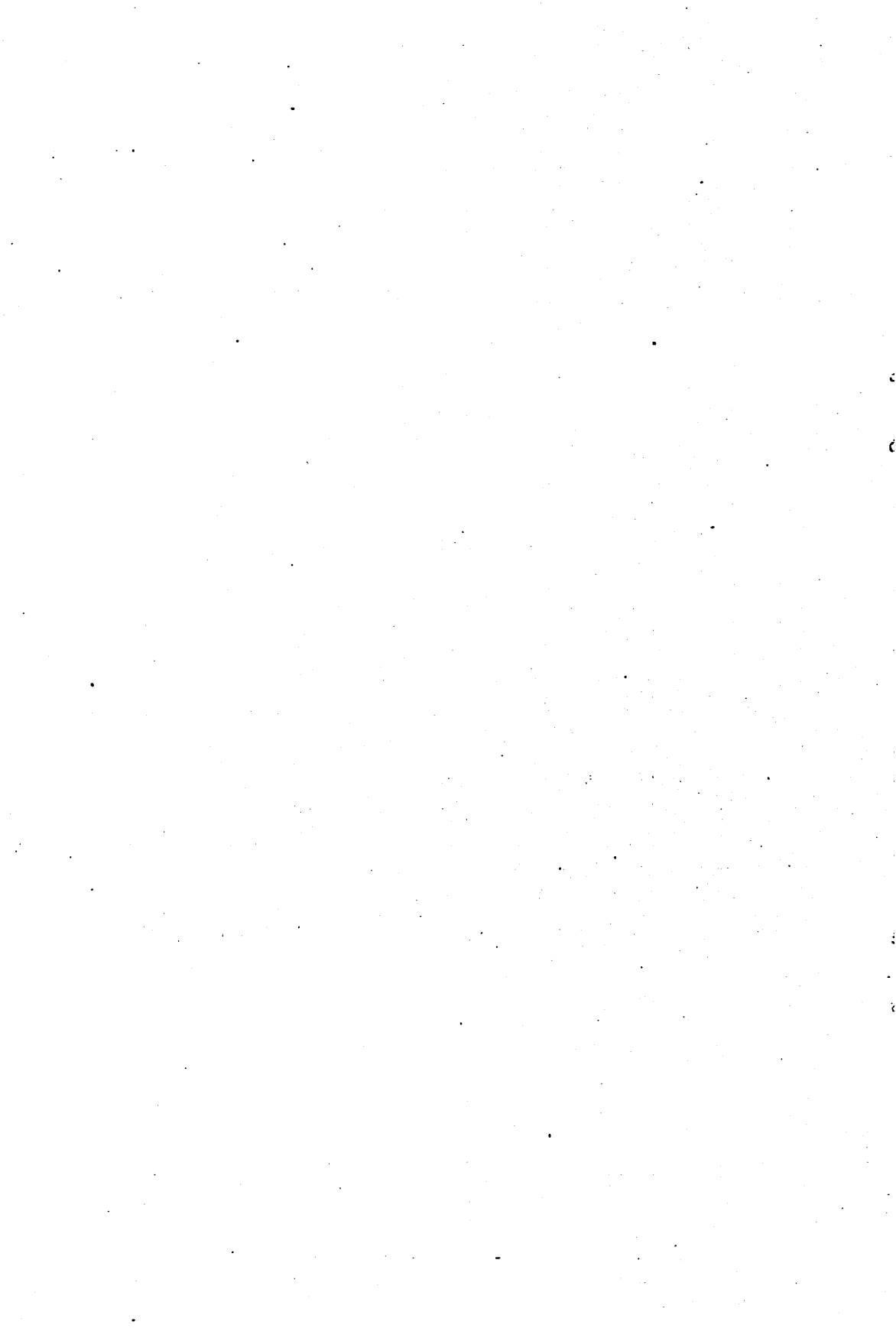
To His Excellency,
Governor Hugh White, Chairman, and
Members of the Geological Commission

Gentlemen:

Herewith is the manuscript of Bulletin 37, entitled The Geologic History of Magnolia State Park. It is the fifth report in the educational series of the survey and was prepared at the request of Mr. Fred B. Merrill, State Forester, who has charge of the state parks. It will be sent, as have other bulletins, to some seven hundred exchanges of the Mississippi Geological Survey, including city, college, university, and survey libraries throughout the United States, Canada, Mexico, South America, Europe, Asia, Africa, Australia, and the major islands where it will be permanently available to their readers.

Very sincerely yours,

William Clifford Morse, Director



PREFACE

Starks Bayou, on U. S. Highway 90 and the Gulf Coast at the eastern edge of Ocean Springs in turn across the beautiful concrete bridge from the companion cities of Biloxi and Gulfport, is one of the last surviving bayous of the north Gulf Coast still undespoiled by man. Representing as it does one of the last geologic processes, it is ideal in that it is neither too small nor too large—neither too small to be representative of its class nor too large to be comprehended by a single glance for what it is; namely, a drowned valley system that has been silted up to tide level. Beautiful beyond description, it is the last natural bayou heritage of these three fortunate cities and the Mississippi Gulf Coast as a whole. Not only is it the heritage but the charge of the Gulf Coast people. In order that it may be recommended as the site of a Summer School of Natural History and of a Marine Research Laboratory, it must be kept in its natural state without the change of a bank, a channel, or the grass—even under the guise of landscape architecture. It is a God given trust to the people of this generation and of the generations yet to come.

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THE GEOLOGIC HISTORY OF MAGNOLIA STATE PARK

BY

WILLIAM CLIFFORD MORSE, Ph. D.

STATE GEOLOGIST

The mortal tide moves on
To some immortal shore
Past purple peaks of dusk and dawn
Into the evermore - Robert Loveman

Finished! Almost! was the geologic history of the North American Continent when Magnolia State Park environs came into existence. Finished! Almost! yet

The nature tide moves on
To some new zoic shore
Past changing peaks of dusk and dawn
Into the evermore.

Finished! Almost! yet nothing is finished; nothing is permanent; everything is changing. The North American Continent was finished! almost! and yet the change goes on and on. Material is being eroded here; it is being deposited there; the bayou is being silted up. The peaks of dusk and dawn are being brought low.



Figure 1.—What God, the Father, hath wrought on Starks Bayou--
through the artistic scientific eyes of one of his appreciative sons.
---Photographed December 20, 1937.



Figure 2.—Finished! Almost! yet the Sun wanes to wax another
day on Starks Bayou.---Photographed December 21, 1937.

The Laurentian peaks, formed by the intrusion of lava beneath Keewatin schists in Archeozoic time and then by erosion, were slowly worn down. Their fragments were carried down into Huronian seas, consolidated into rock, elevated in the Killarney Mountains, separated into peaks, and these in turn brought low—only the grain of the region remaining in the roots of both of these mountain systems to reveal the grandeur of the peaks now gone.

In these processes the fragments accumulated in the Paleozoic seas; they too were consolidated into hard rock; thrust upward into the folds of the Appalachian Mountains; worn into separate peaks, and then brought low in Mesozoic times.

These Mesozoic sediments were carried down into the Atlantic border sea and into the Gulf of Mexico embayment, which reached to the present site of Cairo. They were carried by an ancient Tennessee River or by a number of ancient rivers and dumped, according to Grim, into the eastern border of the Mississippi embayment whose old shore line extended almost north and south across the present northeast corner of the State of Mississippi. As these sediments accumulated layer upon layer in Mesozoic and Cenozoic times, they filled the Mississippi embayment farther and farther gulfward, shifting the successive shore lines from a north-south position to a northwest-southeast position, and finally to the present east-west position.



Figure 3.—Bent Pine on the northern edge of the east branch of Starks Bayou. Bent! Yes! but still growing lightward, heavenward
---Photographed December 21, 1937.

Then these fragments, which have never been consolidated but are still loose clay, sand, and gravel, were uplifted and tilted slightly gulfward. No sooner did they appear above the Gulf waters than they were attacked by rain and stream water and particle by particle started gulfward.

Into them, gulleys were cut which developed into valleys which grew in length headward and laterally into tributaries. Into them, tributaries to these tributaries were cut, and into them, tributaries to these tributaries in turn, and so ad infinitum. Into them, were thus carved valley systems, having a dendritic or tree-like pattern.

Out of these sediments that had been carried into the Gulf, the waves built along-shore bars; and out of them, the winds built dunes on top the bars.

Then the region settled slightly back into the Gulf: (1) shifting the shore line landward and leaving the bar behind as Deer and other coastal islands; and (2) lowering the valleys until they became drowned.

Starks Bayou valley suffered a like fate. Then through the ages the stream carried sediments into it; the tidal currents swept sediments back into it; and the plants and animals added their remains to the filling of it.



Figure 4.—Palmetto cluster. And the Earth as well as “the firmament showeth his handiwork.”—Photographed December 22, 1937.



Figure 5.—Entrance to Starks Bayou—beyond the grass and pine. ---Photographed December 21, 1937.

Thus God has created the beautiful tidal valley of Starks Bayou, a Bayou so beautiful that man must not presume to improve on God's handiwork, a Bayou for the very preservation of which the park was established, a Bayou that must not be despoiled by man, a Bayou that must be passed down from generation to generation inviolate.

Finished! Almost! yet the stream still carries material particle by particle gulfward; and the tide sweeps in and then out, eroding, transporting, and depositing material. Finished! Almost! yet

The nature tide moves on
To some new zoic shore
Past changing peaks of dusk and dawn
Into the evermore.



Figure 6.—Silt fill and marsh grass in the old drowned valley of the east branch of Starks Bayou.---Photographed December 21, 1937.



Figure 7.—Finished! Almost! yet the tide sweeps in and then out of Starks Bayou.---Photographed from the west bank, December 20, 1937.



Figure 8.—Where the tide meets the land and the land meets the tide on an east spur of Starks Bayou.—Photographed December 22, 1937.



Figure 9.—Even Biloxi Light waxes and wanes.—Photographed December 28, 1937.



Figure 10.—Though Ruskin Live Oak never disrobes, she continuously changes her dress of 180 diametric feet. "Many Oaks" in Ocean Springs. Named in honor of Ruskin's visit.---Photographed December 24, 1937.

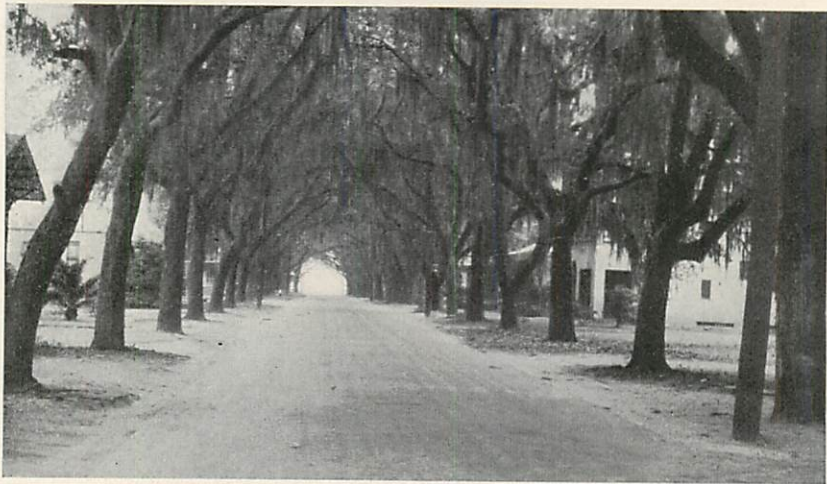


Figure 11.—Under a leafy canopy of Live Oaks stretches Benachi Avenue, Biloxi.---Photographed December 28, 1937.



Figure 12.—A Light House of the soul; Episcopal Church of the Redeemer, Biloxi,—a church containing the pew of the Jefferson Davis family.—Photographed December 28, 1937.

PLATE 1

Map of Starks Bayou showing, as do Figures 1, 6, and 7 in part, the areas of marine marsh grass on each side of the tidal channels and the extent of the mud filling, which is so soft that a slender bamboo pole will penetrate ten feet of it at the mouth and seven feet of it within the bayou off Point Escalon and off Eagle Point and which is so thin that it would flow into any artificial basin or through any piling other than coffer-dam. After the J. D. Ferguson map of 1928, by T. E. McCutcheon.

