



# BUREAU OF GEOLOGY

## Pamphlet 1

Mississippi Department of Natural Resources  
Bureau of Geology  
2525 North West Street  
P. O. Box 5348  
Jackson, MS 39216

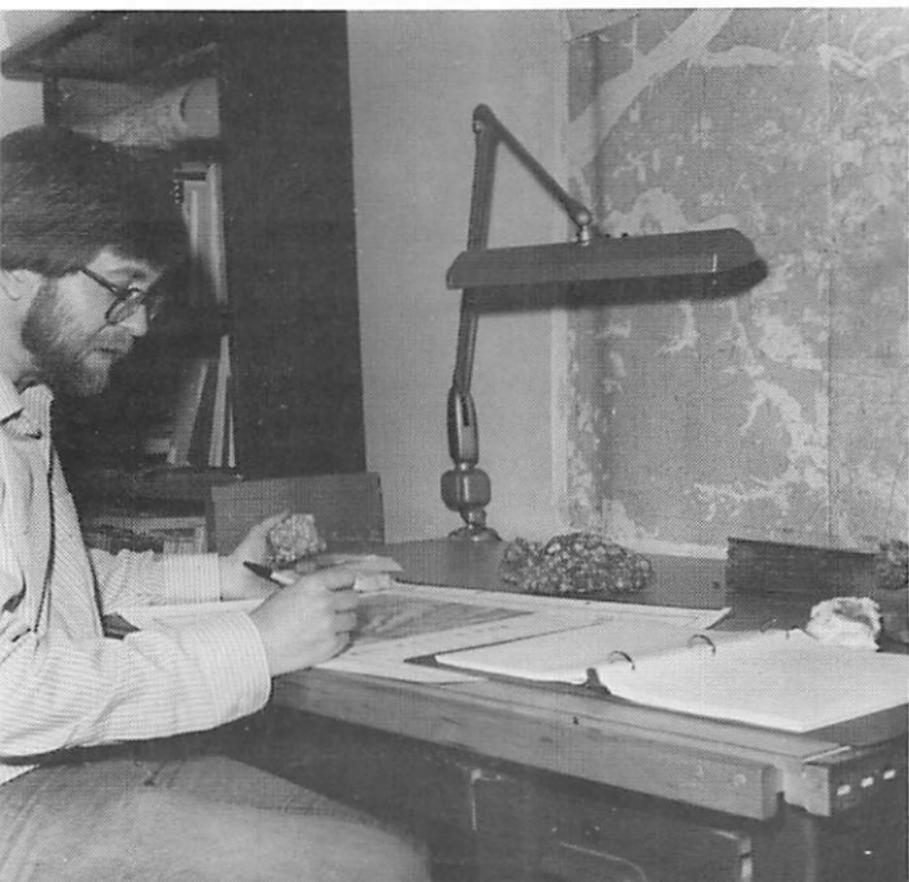
(601) 354-6228

# BUREAU OF GEOLOGY

The Bureau of Geology is responsible for investigating, mapping, and compiling reports about the geology of Mississippi. Geology is the basis of the environment. Knowledge of the areal extent of geologic units, their configuration in three dimensions, and locations of geologic hazards is of vital importance to every human activity from growing crops and locating water supplies to building roads and mining clay for bricks. The Bureau is charged also with studying the mineral resources of the state, including petroleum, natural gas, building stone, clay, sand and gravel, coal, limestone, water, and all other mineral substances of value.

The Bureau of Geology is one of the oldest state agencies in Mississippi, created in 1850 as the Geological and Agricultural Survey of Mississippi. It has had several name changes over the years, but generally went by the name Mississippi Geological Survey. The Geological Survey became the Bureau of Geology of the Mississippi Department of Natural Resources in 1979.

The agency's first publication was the *Report on the Agriculture and Geology of Mississippi*, written and published in 1854 by B. L. C. Wailes. Wailes traveled hundreds of miles by horseback while preparing the



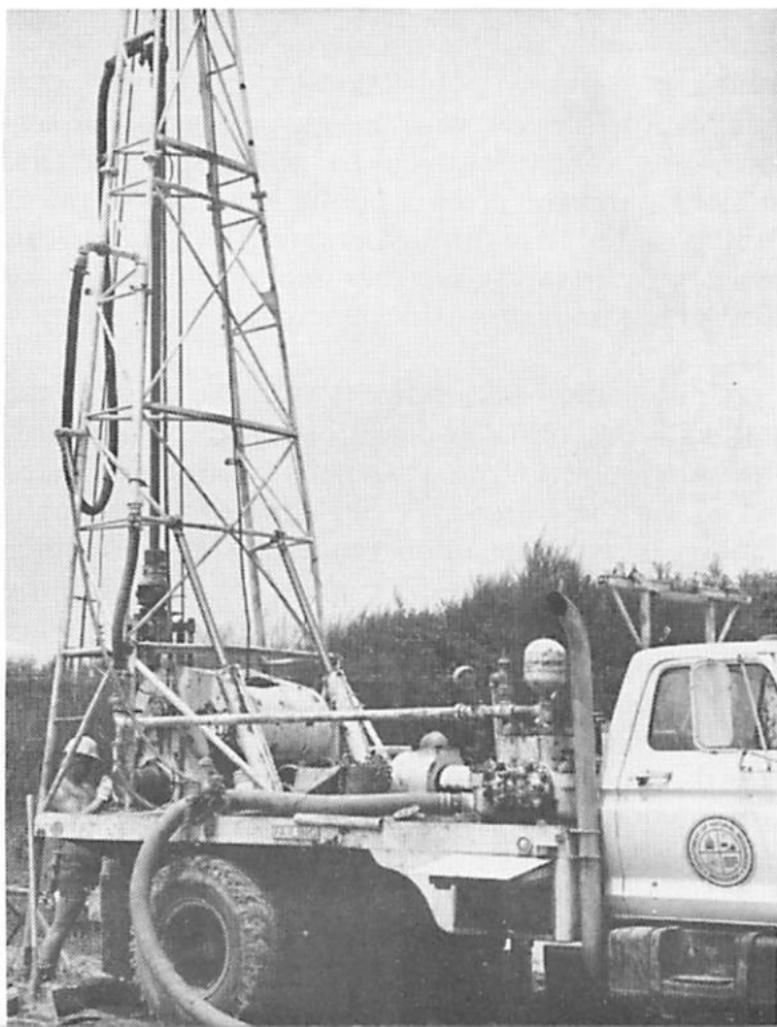


report, with only basic land survey maps for locations. Today the Bureau's geologists utilize detailed topographic maps, satellite imagery, petrographic and binocular microscopes, drilling rigs, geophysical logging equipment, and modern roads to map geology and mineral resources. Over one hundred bulletins and dozens of reports, maps, charts, and cross sections have been published to date.

Preparation of surface geologic maps and studying the composition of the rocks and the fossils they contain are primary functions of the Bureau of Geology. Geologic maps provide detailed information upon which other studies can be based. These other studies involve such activities as searching for

mineral resources, determining geologic suitability of waste disposal sites, planning construction projects such as highways and dams, predicting regional effects from acid rain, and applications to other fields such as agriculture and forestry. The Bureau's geologic mapping work includes updating the state geologic map and preparing a series of county geologic reports. Studies of fossils are vital to accurate geologic mapping and to the search for oil, gas, and other mineral resources.

In addition to mapping the rocks at the surface, the Bureau studies and maps the state's deeply buried rocks, structures, and mineral resources. Subsurface geologic maps and cross sections are of great importance to the oil and gas industry. Other subsurface studies conducted by the Bureau have delineated bituminous coal in northeastern Mississippi and geothermal resources in the southern part of the state. A vitally important activity in subsurface geology is the maintenance of a repository of samples, cores, and electric logs from oil and gas test wells. These samples and cores, which are entrusted to the Bureau's care for the benefit of all, are an irreplace-



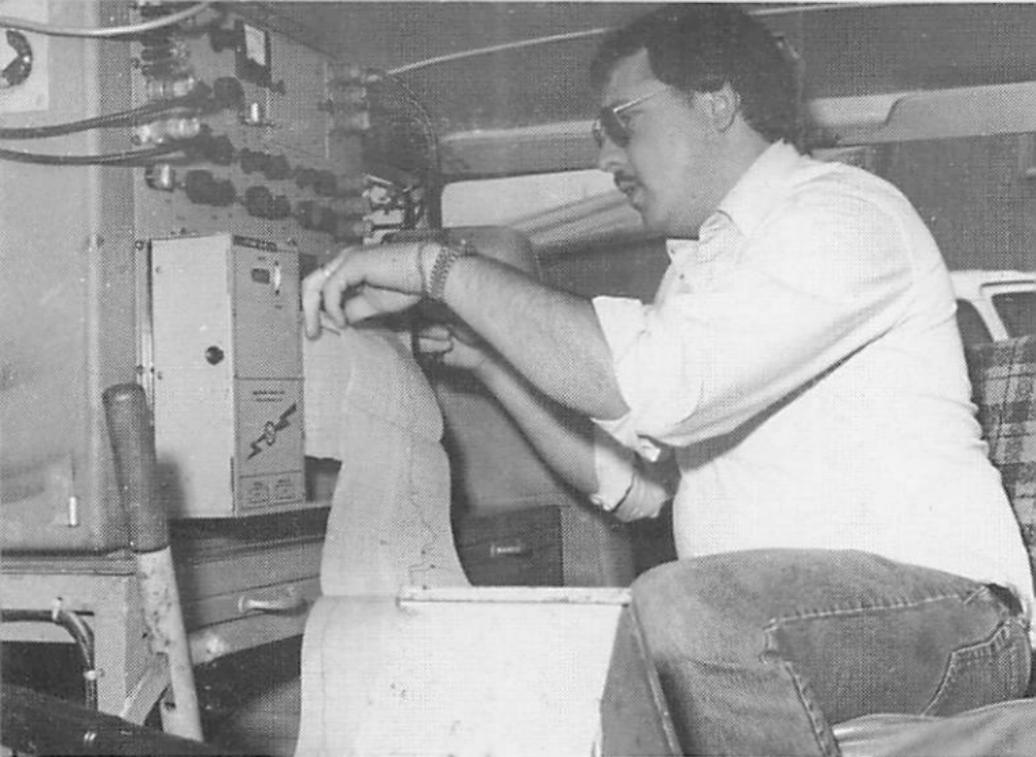


able source of information. Petroleum geologists make extensive use of the sample library in their search for additional oil and gas resources.

Environmental geology is the application of geologic principles and knowledge to problems created by man's occupancy and exploitation of the physical environment. The Bureau's activities in environmental geology are extensive. Staff geologists study and give advice about geologic hazards in the state, such as earthquake risk, swelling clays, unstable slopes, and flood-prone areas. They conduct extensive studies to determine the geologic suitability of potential sites for sanitary landfills and hazardous waste disposal facilities. In addition, Bureau geologists advise state government on any low-level or high-level radioactive waste disposal projects that may affect Mississippi.

The Bureau compiles data on the groundwater resources of the state and provides information to water well drillers, engineers, and the general public. Much of the information about the location and thickness of underground aquifers is derived from electric logs of water wells and test holes that are drilled all over the state. The Bureau operates a very successful electric logging program and maintains a collection of water well and test hole logs that is of utmost importance to staff and outside geologists involved in geologic research in Mississippi.

The Mining and Reclamation Section of the



Bureau is responsible for regulating all the surface mines in the state. Many people do not think of Mississippi as a mining state because there are no large iron or copper mines. But important resources such as sand, gravel, clay, bentonite, chalk, and stone are mined extensively in the state and add hundreds of millions of dollars to the state's economy. There are hundreds of mines in the state that must be inspected to insure that mining activities and reclamation are done in an environmentally sound manner. The Bureau has developed a program for the regulation of the huge lignite mines that may be established here in the future.

The Mineral Lease Division of the Bureau administers all mineral leasing activities on state-owned lands and offshore waters. This involves the permitting of seismic lines and collection of royalties, lease bonus, and rental payments to the state. This division is responsible also for organizing and advertising lease sales, technical assessment of minerals, and making recommendations to accept or reject bids submitted for leases. The division has initiated an inventory of all state-owned lands (over half a million acres) so that the state's resources can be managed more efficiently and profitably.

The Bureau maintains two truck-mounted drilling rigs, which are used to drill stratigraphic test holes for Bureau research projects such as county reports. Four electrical logging devices are utilized to obtain down-hole information in these test holes. The loggers can run spontaneous potential, single and multi-point resistivity, and gamma curves. Rocks are studied with the benefit of a petrographic laboratory with a thin-section machine and a petrographic microscope. Samples from oil tests are washed, dried, and filed in-house, and cores are slabbed with rock

saws. Personal computers are used to compile and store a large variety of data sets.

The Bureau of Geology library is a comprehensive collection of 40,000 volumes, including reference

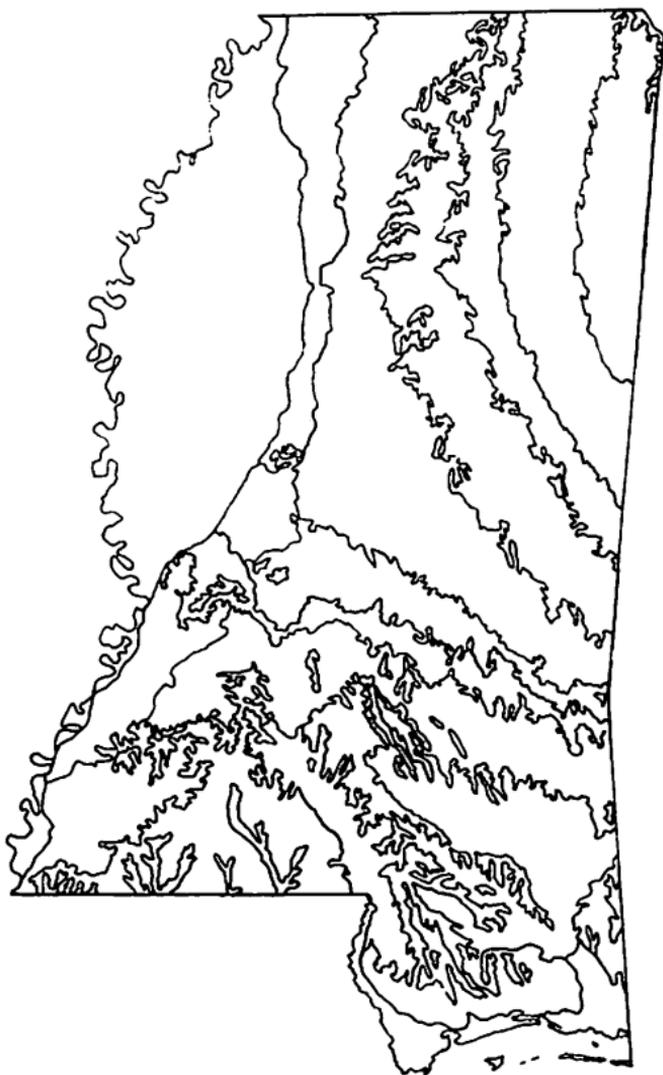


works, government publications, journals, and other publications dealing with geology. As a special service, the library is open to geologists, teachers, students, and the general public from 8:30 a.m. to 4:30 p.m. Monday through Friday. The librarian can assist with literature searches and with inter-library loans. Hundreds of outside researchers use the library every year.

A publication sales office is available to serve the public during office hours. It offers all the bulletins, information series, cross sections, charts, and maps issued by the Bureau. A catalogue of these publications is available upon request. The sales office also stocks all topographic maps available for the state of Mississippi. Thousands of these maps are sold annually.

The staff of the Bureau answers hundreds of requests for information monthly. These inquiries run the gamut from schoolchildren wanting a rock from Mississippi, to homeowners seeking flood-prone area information, to industries requesting data

on specific mineral resources. The work of the Bureau of Geology is vital to the economy of Mississippi. From economic development to environmental protection, the Bureau of Geology contributes to the quality of life Mississippians have come to expect.



For further information, contact:

Mississippi Department of Natural Resources  
Bureau of Geology  
2525 North West Street  
P. O. Box 5348  
Jackson, MS 39216  
Telephone (601) 354-6228