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Department of Conservation  
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Circular 6

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by

Gerald E. Eddy  
State Geologist and Chief  
Geological Survey Division

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## ROLE OF GEOLOGY IN STATE GOVERNMENT

Michigan became a state around noon on January 26, 1837. About two hours later a bill was introduced in the Legislature directing the Governor to appoint the first State Geologist of Michigan, giving him the job of making an accurate and complete geological survey of the state. That first geological survey is a lasting monument to the genius of Douglass Houghton who conceived and directed it until his untimely drowning in Lake Superior in 1845. His organization contained separate departments of geology, zoology, botany, and topography -- like the broad conservation agencies found in many states today. Without Houghton around persuading the state to assume leadership in the study of natural resources, the Survey soon faded away through lack of financial support.

In 1859, however, the Legislature wanted Houghton's work completed and a final report submitted in about two years. Although the Survey was re-established, it was not organized in accordance with Houghton's plan for a thorough and complete study. At any rate, its activities were soon brought to a standstill by the Civil War.

By 1869 the need for establishing a continuous geological survey of the state had become apparent because the Legislature passed an act stating:

"It shall be the duty of the said board to make, or cause to be made, a thorough geological survey of the state, embracing a determination of the succession and arrangement, thickness and position of all strata and rocks, their mineral character and contents, and their economical uses; an investigation of soils and subsoils, and the determination of their character and agricultural adaptation; the investigation of all deposits of brines, coal, marl, clay, gypsum, lime, petroleum, and metals and metallic ores, building stone, marble, gritstone, materials for mortar and cement, mineral paint, and all other productions of the geological world within the limits of the state capable of being converted to the uses of man."

Thus was established the third Michigan Geological Survey, which has continued to serve the people of this state without further interruption.

## Organization of State Surveys

Because needs vary so much from one region to another, state geological surveys cannot be stereotyped. Forty-six states have an agency or bureau for surveying mineral resources and providing geological information. In 29, this agency is called the State Geological Survey, while in the other 17 it is variously designated with the title Mines, Mining, Minerals Resources, or Geology. In most states the chief officer of the organization is called the State Geologist.

The state geological agency may have a large staff or a small regular staff supplemented by part-time personnel; it may be headed by a statutory officer; it may be a large autonomous state department, or a small office within some other state bureau.

Michigan is among the dozen states in which the geological survey is part of a department of conservation or natural resources.

The size of state survey annual budgets vary from less than \$6,500 to more than \$1,500,000. In 1965 Michigan ranked about eleventh with a total budget exceeding \$600,000, more than half of which was committed to administering Michigan's oil and gas conservation statutes.

In spite of the variation in organization of state geological surveys, their functions may be classified basically as either service, research, or regulation. Some states emphasize one category, others try to balance out all three. In actual practice, one concept is probably compromised at the expense of another.

### Service

In Michigan the accent is on service -- to the general public, to the minerals industry, or to anyone using our resources. Our financial support is derived entirely from tax moneys, thus we share our information with even the humblest caller or letter writer. We provide basic geologic information to

enable Michigan citizens to understand the significance of these buried treasures and be able to participate in their development. Probably the foremost obligation of a state survey is to inform the people about their natural resources.

Service is many things like answering the phone, giving information to callers, suggesting sources, giving talks, leading field trips, preparing exhibits, issuing popular pamphlets, and providing advisory services to sister state agencies. It also is carefully maintaining and safeguarding basic technical and scientific records and documents, and being able to retrieve stored information when needed.

#### Research

Basic research is a large function in some state geological surveys. A few have been able to develop outstanding forward-looking programs. In most cases, however, this activity finds little sympathy in the Legislature unless some immediate tangible results are assured. In this respect, it appears that surveys tied in with state universities fare better than those established apart from state universities.

Time and again, it has been demonstrated that research yields benefits far beyond the original investment. State surveys should be pursuing their own continuing research programs to develop a permanent staff thoroughly knowledgeable with local problems. Producing geologic maps and technical reports on mineral resources and commodities are typical research projects conducted by most surveys. Maintaining mineral resource inventories is another vital research activity.

For several decades, the Michigan Survey has been engaged with the U. S. Geological Survey in a program of cooperative work, including the re-mapping of the geology of the iron ore ranges, as well as extensive geomagnetic surveys. This arrangement has proved very satisfactory. The discovery

and development of a single new ore body can benefit a community a hundred-fold over the state expenditure.

### Regulatory

Michigan is one of nine states in which oil and gas regulatory duties have been assigned to the state geological survey. Because many state geologists do not wish to be burdened with duties outside the field of pure geology, regulatory functions are a somewhat controversial topic in discussions involving the role of state geological surveys. The Michigan Geological Survey esteems its oil and gas conservation work. Furthermore, through these endeavors, the industry and the profession have been provided with a tremendous amount of technical information. State surveys generally have an obligation in this field. I am in complete accord with Wilson Laird, State Geologist of North Dakota, who stated:

"Many state geological surveys should interest themselves in this kind of activity. Regulation of any type, particularly that dealing with oil and gas, usually is a very technical subject which requires the best technical minds available. Where else can we find better technical minds in the employ of the state available to handle work of this kind, except at the state geological surveys? They have been trained and ultimately employed by the state survey because of their ability and interest in geology and related fields.

"Therefore, I think it behooves all of us to interest ourselves in seeing that a proper job of regulatory activity is done as far as the mineral resources of our respective states are concerned.

"We all recognize that a certain amount of regulation is absolutely necessary. Too often, such regulation has fallen into the hands of politicians with the result that conservation of our valuable and fast-dwindling natural resources has suffered. Because of our advanced views on conservation of oil and gas, we have done an excellent job in regulating the oil and gas industry in North Dakota and in providing a stable base on which the industry can operate in our area."

A few surveys also have regulatory powers with regard to water, principally in the licensing and regulation of water well drillers.

Several surveys are also charged with assessing metallic mineral properties. In Michigan this important responsibility has been carried out since 1914. One of the supplemental benefits of this work is the accumulation of a wealth of valuable geologic data affecting the long-range development and value of our iron and copper ores.

### Role of State Surveys

Each state has unique resources, history, customs and institutions, statutes, and economic capabilities influencing how the geological survey is established and conducted. Specific roles, therefore, depend upon each state's needs. In general, however, the following roles appear universal:

- 1) To serve industry, agriculture, and commerce
- 2) To provide consulting services to sister state agencies
- 3) To serve the individual taxpayer directly wherever possible by answering his queries and informing him about our mineral resources

Stated briefly, the job of state surveys is providing geological answers, assuring that state interests predominate in state programs. One of the most vital aspects of these organizations is that they provide a continuing reservoir of geologic knowledge in their area.

### The Future

No one really knows what the future will bring. In appraising the fantastic consumption of minerals the past several decades, many of us are beginning to wonder where all the mineral resources are going to come from to satisfy the soaring demands of an exploding population.

If we are to maintain our standard of living, planning must become more thorough, particularly in urbanized regions. Our society can no longer afford to disregard or be ignorant of the economic geology of common mineral resources like limestone, gravel, and sandstone. Planners should have a

fundamental grasp of mineral potentials before acting. The sin is not so much in the not acting as in the not knowing. State geological surveys should conduct more intensive and extensive surveys to make best possible use of the landscape.

Finally, regardless where the geologist serves, his foremost professional obligation is seeing that geologic knowledge is unfolded and applied for the betterment of mankind.

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