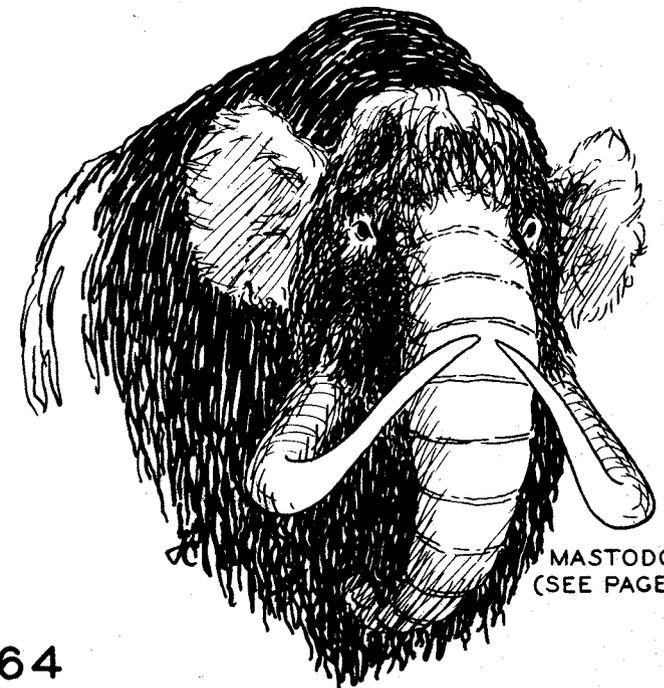


CIRCULAR 2  
GEOLOGICAL SURVEY



GEOLOGIC  
CONTRIBUTIONS TO  
"MICHIGAN  
CONSERVATION"

CLASSIFIED AND ANNOTATED LIST  
1935-1964



MASTODON  
(SEE PAGE 3)

1964



GEOLOGICAL SURVEY

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CIRCULAR 2

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GEOLOGIC CONTRIBUTIONS  
TO  
"MICHIGAN CONSERVATION"

CLASSIFIED AND ANNOTATED LIST  
1935-1964

COMPILED BY  
E. A. KIRKBY

LANSING  
1964

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Michigan Conservation, published since 1931 by the Department of Conservation, is a bi-monthly magazine devoted to natural resource topics of interest to Michigan citizens. Consequently, it is widely distributed to the libraries and schools throughout this state. Early issues not on hand locally, may be borrowed from the State Library in Lansing through any public library.

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This booklet is a revised and improved edition of the original one issued in 1960.

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#### GEOLOGIC HISTORY

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"How old is Michigan?", by H. M. Martin, v. 20, no. 1, 3 p., Jan.-Feb. 1951. Determining Michigan's age by calculating the half-life of certain minerals.

"How it all began", by H. M. Martin, v. 23, no. 5, 5 p., 4 figs., Sept.-Oct. 1954. Animal life, from the beginning, in Michigan.

"The Pictured Rocks, then and now", by H. M. Martin, v. 23, no. 6, 4 p., 2 photos, Nov.-Dec. 1954. The geologic history of Pictured Rocks near Munising.

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#### GENERAL GEOLOGY

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"Pictures in the rocks", from Bela Hubbard's notebook, v. 5, no. 5, 2 p., 3 photos, Oct. 1935. Pictured Rocks at Munising, as seen in 1840.

"Tahquamenon Falls", by G. L. Egbert, and C. F. Boehler, v. 6, no. 5, 2 paragraphs, 5 photos, 2 figs., Oct. 1936; v. 9, no. 9, 3 paragraphs, 1 photo, 1 fig., July 1940. Geology of the "Falls".

"Tahquamenon once highway for Indians", from Douglass Houghton's notebook, v. 7, no. 11, 1 p., 1 photo, July 1938. The geology of the "Falls", the river and its source, as seen by Houghton.

"F. W. Fletcher State Park", by G. Kosmowski, v. 10, no. 12, 1 paragraph, 2 photos, Nov. 1941. The origin of caves and sinkholes.

"Sleeping Bear", by H. M. Martin, v. 11, no. 11, 1 p., 4 photos, Dec. 1942. The geological history of the Sleeping Bear sand dunes.

"Masterwork in stone", by R. D. Burroughs, v. 21, no. 4, 2 p., 1 photo, July-Aug. 1952. The geologic history of Pictured Rocks near Munising.

"Dune country", by R. D. Burroughs, v. 22, no. 4, 2 p., 1 photo, July-Aug. 1953. A geologic sketch of Lake Michigan sand dunes.

"The dunes", by R. W. Kelley, v. 31, no. 4, 7 p., 6 photos, July-Aug. 1962. Origin, types, occurrence, and value of dunes.

"Plants in the sand", by J. A. Kadlec, v. 31, no. 4, 5 p., 3 photos, July-Aug. 1962. Plant succession on dunes.

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### GLACIAL GEOLOGY

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"Upper Peninsula once bed of great inland sea", by H. J. Deason, v. 6, no. 4, 1 p., 1 photo, 1 fig., Sept. 1936. Description of the area covered by glacial Lake Algonquin.

"The Ice Age and Michigan", by H. M. Martin, v. 7, no. 7, 1 p., Mar. 1938; v. 7, no. 9, 1 p., May 1938. The advance and decline of the ice sheet that once covered Michigan and the "construction" done by this ice sheet during its occupancy.

"Yankee Springs", by H. M. Martin, v. 12, no. 7, 1 p., 2 photos, Sept. 1943. Glacial geology of the Yankee Springs area, Barry County.

"When paleontologist and photographer meet", by H. M. Martin, v. 13, no. 8, 1 p., 2 photos, Sept. 1944. The geologic history of Castle Rock and St. Anthony's Rock, Mackinac County.

"Geology to archeology", by H. M. Martin, v. 14, no. 3, 2 p., Mar. 1945. The anatomy of a gravel deposit, and a discussion about glacial deposits.

"Common stuff", by H. M. Martin, v. 22, no. 6, 2 p., Nov.-Dec. 1953. How gravel deposits were formed.

"Rambling rocks", by H. M. Martin, v. 23, no. 4, 3 p., 2 figs., July-Aug. 1954. The geographic origin of erratics or those boulders displaced by the glaciers.

"Land, our basic resource", by R. D. Burroughs, v. 24, no. 1, 4 p., 1 fig., Jan.-Feb. 1955. The composition of till plains, outwash plains, lake plains, moraines, etc., and a map of their locations.

"Mastodons, mammoths, elephants", by H. M. Martin, v. 24, no. 2, 3 p., 3 figs., Mar.-Apr. 1955. The remains and characteristics of glacial-age beasts.

"A glacier passed this way", by R. W. Kelley, v. 29, no. 4, 5 p., 7 figs., July-Aug. 1960. Evolution of the Great Lakes.

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### MINERAL RESOURCES

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"Marquette State Park", by C. Allen, v. 10, no. 1, 3 paragraphs, Nov. 1940. Brief description of the discovery and early mining of iron ore in Marquette County.

"Michigan's minor minerals", by R. A. Smith, v. 10, no. 8, 1 p., 1 photo, July 1941. Utilization of peat, marl, sand, sandstone, clay, bog iron, etc., and some of their occurrences.

"Magnesium ore", by H. M. Martin, v. 12, no. 1, 2 p., 1 fig., Jan. 1943. The geologic history of dolomite, and uses of dolomite.

"Michigan ore for victory", by W. Hastings, v. 12, no. 5, 1 p., 13 photos, June 1943. Photo story of iron mining.

"From Michigan's coral seas", by H. M. Martin, v. 12, no. 8, 3 p., 3 photos, 1 fig., Oct. 1943. Limestone's importance and the history of quarrying in Michigan.

"Our untouched wilderness", by H. M. Martin, v. 12, no. 8, 2 p., 6 photos, Oct. 1943. Some early copper mining ventures in the Porcupine Mountains.

"The romance of copper", by H. M. Martin, v. 13, no. 1, 2 p., 1 photo, 1 fig., Jan. 1944; v. 13, no. 2, 1 p., 3 photos, Feb. 1944. Geologic history of the Keweenaw Peninsula copper deposits and mining of this copper.

"Michigan iron", by H. M. Martin, v. 13, no. 5, 3 p., 2 photos, 1 fig., June 1944; v. 13, no. 6, 2 p., 4 photos, 1 fig., July 1944. Geologic history of the iron deposits and mining of this iron.

"Salt for a million years", by H. M. Martin, v. 13, no. 11, 3 p., 1 fig., Dec. 1944. Geologic history of Michigan's salt deposits and the history of the salt industry in Michigan.

"Michigan's mythical gold mines", by F. G. Pardee, v. 14, no. 11, 2 p., 1 photo, Nov. 1945. The discovery of gold in Michigan, why gold is occasionally found in the Lower Peninsula, and the Alpena County gold hoax.

"Mines of the Porcupine Mountains", by K. Jamison, v. 16, no. 3, 2 p., 1 photo, Mar.-Apr. 1947. Early copper and silver mining ventures in that area.

"Iron ore reserves in Michigan", by F. G. Pardee, v. 17, no. 9, 2 p., 1 photo, Sept. 1948. The various kinds of iron ore being mined and the future ore reserves of the three major Michigan iron ranges.

"Forty-niner fever", by B. E. Kennedy, v. 18, no. 6, 2 p., Nov.-Dec. 1949. Various types of uranium.

"Michigan story", by H. M. Martin, v. 19, no. 2, 4 p., 1 photo, Mar.-Apr. 1950. The history of some of Michigan's mineral industries.

"Those busy bacteria", by H. M. Martin, v. 19, no. 6, 2 p., Nov.-Dec. 1950. The role played by bacteria in the origin of iron, oil, and coal.

"From arbutus to ethyl", by H. M. Martin, v. 20, no. 2, 1 p., Mar.-Apr. 1951. Extracting anti-knock compounds from brines.

"Treasure by the ton", by C. R. Humphrys, v. 22, no. 3, 6 p., 2 photos, 2 figs., May-June 1953. Developing the White Pine copper mine, and information about early copper mining ventures in Michigan.

"Those marble halls", by H. M. Martin, and H. O. Sorensen, v. 23, no. 3, 3 p., 1 photo, May-June 1954. The origin of the "Marble" hallways in the Stevens T. Mason Building, a state office building in Lansing.

"From the U. P., metals for tomorrow", by G. E. Eddy, v. 24, no. 4, 4 p., 2 photos, July-Aug. 1955. Mining difficulties and possible remedies.

"Big city salt cellar", by C. Allison, v. 26, no. 2, 4 p., 11 photos with captions, Mar.-Apr. 1957. Photo story of salt mining beneath southwest Detroit and Melvindale.

"Gypsum", by E. T. Carlson, v. 26, no. 5, 3 p., 3 photos, Sept.-Oct. 1957. Uses for gypsum, and the early mining of it in the Grand Rapids area.

"800,000,000 tons", by H. J. Hardenberg, v. 27, no. 1, 4 p., 5 photos, 1 fig., Jan.-Feb. 1958. Early iron mining in Michigan.

"People of iron", by K. Boyer, v. 28, no. 2, 5 p., 1 fig., 5 photos, Mar.-Apr. 1958. Where did they come from, when and why did the early miners settle in Michigan?

"Dawn of iron", by H. M. Martin, v. 27, no. 4, 4 p., 2 photos, 2 figs., July-Aug. 1958. An origin of iron and early mining of iron.

"The better ore", by W. L. Daoust, v. 27, no. 5, 4 p., 5 photos, Sept.-Oct. 1958. Concentrating low grade iron ore through beneficiation processes, to produce a high grade shipping ore.

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## PETROLEUM

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"Oil fire hazards", v. 8, no. 8, 2 p., 5 photos, Apr. 1939. Reasons for oil fires and the steps being taken to prevent them.

"Oil man's nightmare", by H. Riggs, v. 12, no. 1, 1 p., Jan. 1943. Salt water nuisance in crude oil.

"Speeding the search for oil", by C. Wender, v. 12, no. 1, 2 p., 4 photos, 1 fig., 1 table, Jan. 1943. Leasing state lands for petroleum exploration.

"Why oil proration?" by L.S. Miller, v. 12, no. 9, 2 p., 10 figs., Nov. 1943. Illustrations and text to explain the importance of prorationing oil.

"Saginaw valley brines pose problems", by R. A. Smith and F. R. Frye, v. 14, no. 12, 1 p., Dec. 1945. How a brine contaminated ground water supply might be corrected.

"Those lake bottom leases", by C. Wender, v. 15, no. 3, 2 p., 1 photo, 1 fig., Mar.-Apr. 1946. Leasing Great Lakes bottom lands for petroleum exploration.

"Michigan's oil and gas", by P. J. Hoffmaster, v. 15, no. 9, 2 p., 1 photo, Oct. 1946. Petroleum exploration, legislation, and the importance of petroleum.

"Deep drilling in Michigan", by E. Warren, v. 16, no. 6, 2 p., 12 photos with captions, July 1947. Photo story of rotary drilling for oil.

"Michigan's petroleum producing industry", by R. P. Grant, v. 17, no. 4, 3 p., 6 photos, 1 table, April 1948. Petroleum statistics, and pictures of drilling and pumping operations.

"Salts of the earth", by W. L. Daoust, v. 22, no. 1, 2 p., Jan.-Feb. 1953. The problem of disposing of oil-well brines.

"A shot in the arm for oil fields", by L. S. Miller, v. 22, no. 3, 4 p., 3 figs., Mar.-Apr. 1953. Improved methods to recover petroleum from the earth.

"Liquid gas is stored in "tailor-made caves", by R. P. Grant, v. 22, no. 3, 4 p., 2 figs., May-June 1953. Creating L.P.G. storage reservoirs in the Lower Peninsula.

"Romance of the pipelines", by H. M. Martin, v. 22, no. 5, 6 p., 14 photos, 2 figs., Sept.-Oct. 1953. Laying a pipeline from Superior, Wisconsin, across Michigan to Sarnia, Ontario. Four pages of progress photos.

"Fuels - power", by H. M. Martin, v. 23, no. 2, 4 p., 3 figs., Mar.-Apr. 1954. Fuels and power through the ages.

"Why oil proration?", by L. S. Miller, v. 23, no. 3, 4 p., 10 figs., May-June 1954. A shortened revision of article previously published in the Nov. 1943 issue.

"Michigan's oil, past, present, and future", by R. P. Grant, v. 24, no. 4, 4 p., 1 photo, 1 fig., July-Aug. 1955. The origin of oil, prospecting for oil and the history of the petroleum industry in Michigan.

"A pay from the Trenton", by R. E. Ives, v. 29, no. 2, 5 p., 3 photos, 2 figs., Mar.-Apr. 1960. A discussion of the latest oil drilling successes.

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## ROCKS, MINERALS, FOSSILS

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"Pebbles to pendants", by R. W. Kelley and H. J. Hardenberg, v. 27, no. 4, 3 p., 1 photo, July-Aug. 1958. Lapidary, collecting rocks, minerals, and fossils, and some suggested "gem" hunting grounds.

"Guide to Michigan fossils", by R. W. Kelley, v. 31, no. 4, 16 p., numerous photos, July-Aug. 1962.

"Michigan beach stones", by R. W. Kelley, v. 32, no. 4, 4 p., 1 photo, 1 fig., July-Aug. 1963.

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## GREAT LAKES

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"Ways sought to control wave action", by N. F. Billings, v. 15, no. 7, 2 p., 2 photos, Aug. 1946. Erosion studies on the Great Lakes.

"How long is Michigan's coast line?", by R. W. Kelley, v. 25, no. 2, 3 p., Mar.-Apr. 1956. Measuring the Great Lakes shorelines, and their lengths.

"Chicago's water diversion controversy", by P. L. Adams, v. 28, no. 5, 5 p., 2 photos, Sept.-Oct. 1959. The effect of the diversion on the entire Great Lakes basin.

"The Great Lakes, our inland sea", by J. W. Leonard, v. 29, no. 4, 4 p., 4 photos, July-Aug. 1960. The importance of the Great Lakes.

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## STREAMS AND LAKES

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"Lowered lake levels direct result of subnormal rainfall", by W. Osgood, v. 5, no. 3, 3 p., 2 photos, Aug. 1935.

"Something can be done about lake levels", by P. J. Hoffmaster, v. 11, no. 2, 1 p., 2 photos, Jan. 1942. The procedure and action that can be taken to establish a "normal" lake level.

"Exercise caution when selecting location on a lake", by N. F. Billings, v. 14, no. 4, 1 p., 2 photos, Apr. 1945. Characteristics of a lake that should be considered before investing in water frontage.

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## WATER

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"Fire plugs in state forests", by O. F. Poindexter, v. 5, no. 1, 1 p., 2 photos, June 1935. Utilizing ground water in state forests in the event of a forest fire.

"Ground water table at five-year low", by O. F. Poindexter, v. 9, no. 8, 1 p., May-June 1940. Cause of a low ground water table, economic effect of, and what causes the ground water table to rise.

"Water is a vital resource", by O. F. Poindexter, v. 12, no. 2, 3 p., 4 photos, Feb.-Mar. 1943. The importance of ground water.

"More about our most important resource - water", by H. M. Martin, v. 13, no. 4, 2 p., May 1944. The importance, and protection of our water supplies.

"Michigan's water problems are studied", by S. G. Fontanna, v. 15, no. 6, 2 p., 1 table, July 1946. Study of water, needs, drainage, control, pollution, and legislation.

"Is it true what they say about water?" by N. F. Billings, v. 18, no. 5, 2 p., 1 photo, Sept.-Oct. 1949; v. 19, no. 1, 2 p., 1 photo, Jan.-Feb. 1950. A variety of informative questions, with answers, about water.

"Who's who in water", by N. F. Billings, v. 19, no. 3, 1 p., May-June 1950. Various State and Federal agencies interests in water.

"Legal aspects of ground water contamination", by N. V. Olds, v. 21, no. 4, 4 p., 1 photo, July-Aug. 1952.

"Water", by F. A. Westerman, v. 24, no. 2, 4 p., 2 photos, Mar.-Apr. 1955. Properties of water, and the water "cycle".

"Water, then and now", by H. M. Martin, v. 24, no. 5, 4 p., Sept.-Oct. 1955. Obtaining water through the ages.

"Michigan's restless hidden resource - ground water", by N. F. Billings, v. 24, no. 5, 5 p., 1 photo, 3 figs., Sept.-Oct. 1955. Characteristics of ground water.

"Water and the law", by N. F. Billings, v. 27, no. 1, 3 p., 1 photo, Jan.-Feb. 1958. Water use legislation difficulties.

"Key to a wet kingdom", by O. H. Clark, v. 28, no. 2, 3 p., 2 photos, Mar.-Apr. 1959. Basic ground water assumptions discussed.

"Water for tomorrow", by R. Lehman and N. F. Billings, v. 29, no. 2, 16 p., Mar.-Apr. 1960. Special center supplement of seven articles discussing various phases of water.

"More water from wells", by J. G. Rulison, v. 31, no. 4, 4 p., 1 photo, 1 fig., July-Aug. 1962. Artificially recharging ground-water reservoirs.

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#### MAPS AND SURVEYS

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"Disputed for 100 years, Michigan-Wisconsin boundary", v. 5, no. 11, half of page, 1 fig., Apr. 1936. A U. S. Supreme Court ruling sets a definite boundary between Michigan and Wisconsin after 100 years of bewilderment.

"Michigan's highlands", by O. F. Poindexter, v. 9, no. 8, 1 p., 1 photo, May-June 1940. The locations of Michigan's higher lands and lakes, and their elevations above sea level.

"Base and principal meridian lines in Michigan", by K. Jamison, v. 14, no. 3, 2 p., 1 fig., Mar. 1945. An explanation of the surveying method used to map Michigan.

"Maps", by H. M. Martin, v. 14, no. 8, 1 p., 1 fig., Aug. 1945; v. 14, no. 9, 1 p., Sept. 1945. Ancient maps, the purpose of maps, and an explanation of map scales.

"Ok - Kud - do? What the Sam Hill?", by H. M. Martin, v. 26, no. 1, 1 p., Jan.-Feb. 1957. Derivation of Michigan's county names. - 10 -

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#### GEOLOGICAL SURVEY

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"Journal of Mus-co-ma-in-gun", by Bela Hubbard, v. 5, no. 6, 1 p., Nov. 1935; v. 5, no. 12, 1 p., May 1936; v. 6, no. 1, 1 p., June 1936; v. 6, no. 4, 1 p., Sept. 1936. Excerpts from Hubbard's notebook describing his and D. Houghton's expeditions.

"100 years of Geological Survey in Michigan" by H. M. Martin, v. 7, no. 1, 3 p., 2 photos, Aug.-Sept. 1937; v. 7, no. 2, 2 p., 1 photo, Oct. 1937; v. 7, no. 4, 1 p., Dec. 1937.

"Those useless scientific facts", by H. M. Martin, v. 12, no. 6, 2 p., 1 photo, July-Aug. 1943. Once unimportant notes and facts are considered important during a crisis brought on by the War.

"Douglass Houghton (1809-1845)", by H. M. Martin, v. 14, no. 10, 1 p., 1 photo, Oct. 1945. The life and accomplishments of Michigan's first State Geologist.

"R. A. Smith is retiring on August 1st", by H. M. Martin, v. 15, no. 6, 2 p., 1 photo, July 1946. Life, education, and accomplishments of Michigan's ninth State Geologist.

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