Michigan Geology: A Bibliography, March 2016

Peter Voice
Michigan Geological Repository for Research and Education

Follow this and additional works at: https://scholarworks.wmich.edu/michigangeologicalrepository

Part of the Geology Commons

WMU ScholarWorks Citation
https://scholarworks.wmich.edu/michigangeologicalrepository/1

This Document is brought to you for free and open access by the Geological and Environmental Sciences at ScholarWorks at WMU. It has been accepted for inclusion in Michigan Geological Repository for Research and Education by an authorized administrator of ScholarWorks at WMU. For more information, please contact wmu-scholarworks@wmich.edu.
Contents
A Brief Introduction to the Bibliography of Michigan Geology ............................................................. 1
Michigan Precambrian References ........................................................................................................ 8
Michigan Paleozoic References ........................................................................................................... 99
Michigan Quaternary References ....................................................................................................... 206
Other Michigan Geology References .................................................................................................. 313
Publications of the Michigan Geological Repository for Research and Education, Western Michigan
University: PTTC Workshops ................................................................................................................. 324
Publications of the Groundwater Education in Michigan Center, Institute for Water Sciences, Western
Michigan University ................................................................................................................................. 339
A Brief Introduction to the Bibliography of Michigan Geology

Introduction

The Michigan Geological Survey produced a historic Index of Michigan Geology with an extensive bibliography in 1956. This current bibliography is an update of the bibliography in the Martin and Straight compilation. It is not comprehensive, but provides a starting place for anyone interested in Michigan Geology. The Michigan Geological Survey plans to update this bibliography periodically with newly published citations as well as other older citations we find.

Sources

The following sources were used to compile this bibliography:


In addition, targeted searches were performed using the bibliographic search engines: Georefs, Geoscienceworld, Proquest Dissertations and Web of Science and in publisher search engines: Springerlink, Elsevier’s Science Direct and Taylor and Francis Online. Citations were compiled into an Endnote library. Bill Harrison, Alan Kehew and John Esch provided lists of publications and suggestions for sources that were used to compile the current bibliography.

Bibliographic lists of theses from the major universities with graduate geology programs were also used to compile the bibliography. The lists were filtered for theses that dealt with all aspects of Michigan Geology. Larry Lemke provided a list of Wayne State University
Department of Geology theses. The Library Research staff, John Gierke and Wayne Pennington provided information on Michigan Tech’s student works – from the Department of Geology and Geological Engineering and its predecessors. Clara Castro and Lori Tschirhart provided lists and advice on accessing the library resources at the University of Michigan in order to find student work from the Department of Earth and Environmental Sciences. The faculty (Ron Chase, Bill Harrison, Al Kehew, Carla Koretsky, R.V. Krishnamurthy, and Bill Sauck) in the Western Michigan University Department of Geosciences provided lists of the students that they oversaw who worked on aspects of Michigan geology as well as relevant publications. Mike Velbel, Dave Long and Duncan Sibley provided lists of Michigan State University Department of Geological Sciences student theses and dissertations. Linda Harrison and Jenny Trout provided lists of historic documents generated by the Institute of Water Sciences and the Michigan Geological Repository for Research and Education at Western Michigan University.

Attempts were made to record items that had underwent some critical review before publication. Journal articles, theses, edited books and survey publications were added first. Some publications from the gray literature - magazine articles, popular works, etc. were also incorporated into this database when relevant. Conference abstracts were usually ignored, unless they were longer (Conference papers) or one of the few resources on a specific formation.

Finding these Citations


Organization

The references compiled in this database were sorted with 4 main keywords: Basin, Glacial, Precambrian and Other. These keywords were assigned as the reference was added to the original endnote library. Some references fell under more than one of the 4 categories – and can be found in two or more sections of the bibliography. The terms Basin, Glacial and Precambrian best encapsulate the three major partitions in Michigan Geology and provide a natural way to organize the bibliography.

Precambrian papers deal with the metallic economic resources of the western Upper Peninsula including copper, iron, nickel and gold. Precambrian stratigraphy and bedrock mapping were also included. Papers dealing with the pre-basin rock record in the Lower Peninsula were added to this section on the assumption that these rocks are likely Precambrian in age. Topics also include Precambrian Paleontology (microfossils, grypania, stromatolites).

Basin papers deal with the sedimentology, stratigraphy, paleontology and petroleum geology of the Paleozoic rocks of Michigan. This section also includes papers that deal with non-petroleum resources hosted in Paleozoic rocks – salt, crushed rock, and bedrock aquifers. Papers on karsting of Michigan’s shallow limestones are included in both this section and in the glacial section of the bibliography. The small set of papers dealing with the Jurassic deposits in the
central basin were also included in the Basin section – these papers primarily dealt with biostratigraphy and descriptions of the Jurassic rocks in the basin.

Glacial papers include topics such as soil science, hydrology/hydrogeology, environmental geology and modern depositional environments. In addition, papers dealing with the Pleistocene glaciation including landform analysis, glacial dynamics, quaternary paleontology and glacial depositional environments/sedimentology are in this section. Publications that describe aggregate resources were also added to the glacial section.

Other documents include a variety of topics that do not necessarily fit into the other three general categories. This section includes papers on the history of the geological survey and biographies of famous Michigan Geologists. In addition, documents that provide broad overviews of Michigan Geology or of Michigan’s natural resources were included in this section. Materials designed for the general public including Martin’s county overviews and other educational resources were included in the Other section.

**Bibliography Metrics**

Approximately, 6,600 citations were entered into the Michigan Geology Bibliography. The oldest publications in the database were published in 1821 and publications are found almost every year after that to the present (see Figure 1). Figures 2 through 5 show trends in the publication history sorted for specific aspects of Michigan geology.

**Feedback**

Any feedback on the Bibliography of Michigan Geology is greatly appreciated. If you come across citations that are not in this bibliography but should be, please contact the author.
Figure 1: Historical trends in publication counts per calendar year. Note the overall increase in publication through the late 1970’s followed by a drop off in publication.

![Proportion of Precambrian/Economic Geology References versus Total Publications](image)

Figure 2: Trends in publications dealing with all aspects of Precambrian geology in Michigan. Note that Precambrian studies dominated the early history of Michigan geologic research until the 1930’s. After the 1930’s, Precambrian studies continued to be important through the 1990’s.
Figure 3: Studies of the Paleozoic geology of Michigan became prevalent in the 1920’s as hydrocarbon exploration started to boom in the state. Note that Paleozoic studies were the dominant type of research over the mid-part of the twentieth century until the 1990’s.
Figure 4: Studies of the Quaternary sediments in Michigan show an increasing trend over time, with the bulk of studies performed after 1960.
Figure 5: Production of student work exhibits a dramatic increase in the late 1940’s suggesting the influence of the post-World War II GI Bill. Production of theses and dissertations remained relatively constant through the 1990’s, but has dropped off to a lower plateau over the last 20 years.
Michigan Precambrian References

Abel, C. D., 1985, Petrology and sedimentology of the Jacobsville Sandstone (northern Michigan) and Bayfield Group (northern Wisconsin), MS: University of Wisconsin, 294 p.


Adams, C. L., 1929, Copper concentrating practice at the Mohawk mill: Proceedings of the Lake Superior Mining Institute, v. 27, p. 98-104.


Agassiz, A., 1868, On the position of the sandstone of the southern slope of a portion of Keweenaw Point, Lake Superior: Boston Society of Natural History Proceedings, v. 11, p. 244-246.


Aho, G. D., 1969, Reflection seismic investigation of thickness and structure of the Jacobsville sandstone, Keweenaw Peninsula, Michigan, MS: Michigan Technological University.


Aldrich, H. R., 1929, A demonstration of the reflection of geologic conditions in observed magnetic intensity: American Institute of Mining Engineers Transactions, v. 81, p. 385-400.


Alessi, A. J., 1936a, Hunting agates around Lake Superior: Rocks and Minerals, v. 11, no. 9, p. 139-139.


-, 1938, Chloride garnets of Michigan: The Mineralogist, v. 6, no. 6, p. 9-10.


-, 1940a, Mineral notes from the Michigan iron county: American Mineralogist, v. 25, no. 6, p. 432-434.


-, 1974, Mineralogy, geochemistry, and genesis of the magnetite-jacobsite mineral series and manganese-ferrite-bearing iron-formation from Champion Mine, Champion, Michigan, MS: Michigan Technological University.


Barlow, R. E., 1895, Thesis on underground haulage of the Copper district, ME: Michigan Mining School, 35 p.

Baxter, D. A., 1988, Geology and geochemistry of hydrothermal alteration associated with precious metal mineralization in the Clark Creek Region, Marquette County, Michigan, MS: Michigan Technological University.
Bayley, R. W., 1956, Geology of the Lake Mary Quadrangle, Iron County, Michigan, PhD: The Ohio State University, 213 p.
- 1893b, The basic massive rocks of the Lake Superior Region: Journal of Geology, v. 1, no. 6, p. 587-596.
Beard, R. C., 1964, A photogeological study of a part of the Arvon area of northeastern Baraga County, Michigan, MS: Michigan Technological University.

Beck, J. W., 1988, Implications for Early Proterozoic tectonics and the origin of continental flood basalts, based on combined trace element and neodymium/strontium isotopic studies of mafic igneous rocks of the Penokean Lake Superior Belt, Minnesota, Wisconsin and Michigan, PhD: University of Minnesota, 262 p.


Beh, B., 2013, Depositional processes operating on the Paleoproterozoic Gowganda ice margin, MS: Lakehead University, 208 p.


Bell, J. M., 1974, The petrology of a copper rich conglomerate and its bearing on in situ leaching, Centennial Mine, Houghton County, Michigan, MS: Michigan Technological University, 64 p.

Bell, R., 1899, The geological history of Lake Superior: Canadian Institute Transactions, v. 6, p. 45-60.


-, 1852b, On the physical geography, geology and commercial resources of Lake Superior: Royal Institute of Great Britain Proceedings, v. 1, p. 154-162.


-, 1914, The reserves of iron ore for the United States: American Institute of Mining Engineers Transactions, v. 50, p. 197-203.
Blackwell, R. J., 1964, The analysis of gravity data over Lake Superior type iron formations, MS: Michigan State University.
Boben, C. L., 1986, Geological comparison of three precious metal prospects in Marquette County, Michigan, MS: Michigan Technological University.
Bodwell, W. A., 1972, Geologic compilation and nonferrous metal potential Precambrian section, Northern Michigan, MS: Michigan Technological University.
Bolz, P., 2014, Development of a methodology for the characterization of mafic rocks with respect to their use for mineral carbonation: The mineralogy, petrology, and geochemistry of the Portage Lake Volcanics in the Keweenaw Peninsula, Michigan, MS: University of Alaska.
Booth, J. C., and Hulbert, E. J., 1855, Geological and topographical map of the mineral district of Lake Superior.


Bornhorst, T. J., Barron, R. J., and Whiteman, R., 2013a, Field Trip 1: Caledonia Mine, Keweenaw Peninsula Native Copper District, Ontonagon County, Michigan, in Miller, J., ed., Field Guide to the Copper-Nickel-Platinum Group Element Deposits of the Lake Superior Region, Precambrian Research Center University of Minnesota Duluth, p. 51-63.

Bornhorst, T. J., Barron, R. J., and Whiteman, R. C., 2013b, Field Trip 2: Caledonia Mine, Keweenaw Peninsula, Native Copper District, Ontonagon County, Michigan, in Bornhorst, T. J., and Barron, R. J., eds., 59th Annual Meeting of the Institute on Lake Superior Geology, Volume 59, p. 43-57.


Bornhorst, T. J., Baxter, D. A., MacLellan, M. L., and Johnson, R. C., 1988a, Geological Field Trip to the Marquette Greenstone Belt: Part I Day 1 Road Log - Stops 1 to 11, in Schulz, K. J., ed., 34th Annual Institute on Lake Superior Geology Field Trip Guidebook, Volume 34, p. A54-A64.

Superior Region, Precambrian Research Center University of Minnesota Duluth, p. 65-82.

-, 2013d, Field Trip 6: Geology and Environmental Site Conditions of the Copperwood Deposit, Gogebic County, Michigan, in Bornhorst, T. J., and Barron, R. J., eds., 59th Annual Meeting of the Institute on Lake Superior Geology, Volume 59, p. 97-118.


Bowers, M. C., 1989, Vertical petrologic changes of the Jacobsville sandstone at Rice Lake hole Number 1, MS: Michigan Technological University, 176 p.


Bradshaw, B. A., 1956, Petrological comparison of Lake Superior iron formations, PhD: University of Toronto.
Brady, J. M., 1960, Ore and sedimentation of the lower sandstone at the White Pine Mine, Michigan, MS: Michigan College of Mining and Technology.
Brady, M. B., 1952, A petrographic and structural study of an area in the Huron Mountains, Michigan, MS: Wayne State University, 28 p.
Brandes, P. T., 2004, A Comparative [i.e. Comparative] Study of Copper Sulfide Prospects on the Keweenaw Peninsula, Keweenaw County, Michigan, MS: Michigan Technological University.
Breithart, M. S., 1983, The significance of the distribution of clastic lenses within the Negaunee Iron Formation at the eastern end of the Palmer Basin, Marquette Synclinorium, Northern Michigan, MS: Michigan State University, 121 p.
-, 1908b, The great iron fields of the Lake Superior District: Mining Science, v. 58, p. 444-446.
-, 1933a, Application of geology to problems of iron ore concentration with discussion: Michigan College of Mining and Technology Bulletin, v. 6, no. 4.
-, 1933b, Application of geology to problems of iron ore concentration with discussion: American Institute of Mining Engineers Transactions, v. 115, p. 273-289.
-, 1928b, Geophysical methods applied to exploration and geologic mapping in the Michigan Copper District: Economic Geology, v. 23, no. 5, p. 489-514.
-, 1935a, Differentiation in traps and ore deposition: Michigan College of Mining and Technology Bulletin, v. 8, no. 4, p. 301-312.
-, 1935c, Differentiation in traps and ore deposition discussion: Economic Geology, v. 30, no. 8, p. 924-927.
-, 1876a, Classified lists of the rocks observed in the Huronian series, south of Lake Superior, with remarks on their abundance, transitions, and geographical distribution; also a
tabular presentation of the sequence of the beds, with an hypothesis of equivalency: American Journal of Science, v. 112, no. 69, p. 194-204.


Brothers, J. A., 1967, Physical, chemical, and ion-exchange properties of laumontite from the Osceola #6 Mine, Houghton County, Michigan, MS: Michigan Technological University, 55 p.

Broughton, S. H., 1863, Remarks on the mining interest and details of the geology of Ontonagon County, Philadelphia, King and Baird, Printers, 24 p.

Brown, A. C., 1965, Mineralogy at the top of the cupriferous zone, White Pine mine, Ontonagon Co., Michigan, MS: University of Michigan.

-, 1968, Zoning in the White Pine Copper Deposit, Ontonagon County, Michigan, PhD: University of Michigan, 234 p.


-, 2008, District-scale concentration of native copper lodes from a tectonically induced thermal plume of ore fluids on the Keweenaw Peninsula, Northern Michigan: Economic Geology, v. 103, no. 8, p. 1691-1694.


Browning, T. D., 1986, Age of copper mineralization in the flow tops of the Portage Lake Lava Series determined by paleomagnetic methods, MS: Michigan Technological University.


-, 1989, Ropes pyritic gold deposit in a dilational bend, Marquette Greenstone, Belt, PhD: The University of Western Ontario, 585 p.


Brumleve, C., 1976, Petrology and fracture characteristics of a native copper bearing conglomerate, Kingston Mine, Keweenaw County, Michigan, MS: Michigan Technological University, 97 p.


Bufl, C. G., 1962, An investigation of the remanent magnetization of the Covington dike, MS: Michigan College of Mining and Technology.


Buzas, A., 1960, The interpretation of the aeromagnetics of southeastern Marquette County, Michigan, MS: Michigan State University.


Campbell, R. E., 1952, Geophysical investigations of the Silver Mountain area, Houghton County, Michigan, MS: Michigan College of Mining and Technology, 1-64 p.
- 1974, Bedrock geologic map of of the Greenwood Quadrangle, Marquette County, Michigan, scale 1:24,000.
- 1975, Bedrock geologic map of of the Republic Quadrangle, Marquette County, Michigan, scale 1:24,000.
- 1977, Map showing precambrian geology in parts of the Baraga, Dead River, and Clark Creek Basins, Marquette and Baraga Counties, Michigan, scale 1:62,500.
- 1978, Geologic map of the Iron River 1 degree by two degree Quadrangle, Michigan and Wisconsin, scale 1:250,000.
Formations in the Western Lake Superior Region, Minnesota and Michigan, Precambrian Research Center University of Minnesota Duluth, p. 1-14.


-, 1977, Bedrock geologic map of the southern part of the Diorite and Champion 7 1/2-minute Quadrangles, Marquette County, Michigan, scale 1:24,000.

-, 1978, Bedrock geologic map of the southern part of the Michigamme and Three Lakes Quadrangles, Marquette and Baraga Counties, Michigan, scale 1:24,000.


Carpenter, R. H., 1962, Some vein-wall rock relations in the White Pine mine, Ontonagon County, Michigan, MS: University of Wisconsin.


Carter, N. C., 1962, Geology of a part of the Republic Trough, Marquette, Michigan, MS: Michigan College of Mining and Science.


Cascaddan, A. E., 1969, Petrology and petrofabrics of the Jacobsville sandstone (Precambrian or Cambrian) in the vicinity of the Keweenaw fault (northern Michigan), MS: Michigan State University.


Chabot, L. S., Jr., 1929, Field blasting at the Volunteer Miner: Proceedings of the Lake Superior Mining Institute, v. 27, p. 259-270.
Chapman, R. H., 1952, Seismic depth to ledge studies as related to water problems at Morris Mine, Ishpeming, Michigan, MS: Michigan College of Mining and Technology, 1-51 p.
Chaudhuri, S., 1966, The geochronology of the Keweenawan rocks of Michigan and the origin of the Copper Deposits, PhD: The Ohio State University, 145 p.
Chester, A. H., 1876, On the percentage of iron in certain ores: American Institute of Mining Engineers Transactions, v. 4, p. 219-220.
Church, G. B., 1894, Brakes and safety appliances as applied to mine hoisting machinery in the copper mining district of Michigan, ME: Michigan Mining School, 35 p.
Chynoweth, C. E., 1951, The petrography of some Huronian rocks in Baraga County, Michigan, MS: Wayne State University, 38 p.
Clark, J. L., 1974, Sulfide mineralization in the Kona Dolomite, Marquette County, Michigan, MS: Michigan Technological University.
Clark, L. D., 1955, Pre-Cambrian geology of the Norway Lake Area, Dickinson County, Michigan, PhD: The University of Chicago.
Clark, L. D., Cannon, W. F., and Klasner, J. S., 1975, Bedrock geologic map of the Negaunee SW Quadrangle, Marquette County, Michigan, scale 1:24,000.
Clarke, R. E., 1853a, Notes from the copper region: Harpers Magazine, v. 6, p. 433-448.
- , 1853b, Notes from the copper region: Harpers Magazine, v. 6, p. 577-588.
- , 1899, A study of some examples of rock variation: Journal of Geology, v. 6, no. 4, p. 372-392.
Cohen, T. J., 1966, Explosion Seismic studies of the mid-continent gravity high, PhD: University of Wisconsin.
Collins, J. A., 1974, The sedimentary copper universal; from sedimentologic and stratigraphic syntheses of the Proterozoic of Icon, Quebec; Grinnell Formation, Alberta; Nonesuch Shale, Michigan; and the Mississippian Horton-Windsor formations of Nova Scotia, PhD: Queen's University, 259 p.
Colwell, A. B., 1894, Notes on the geology of the Michigamme River, ME: Michigan Mining School, 35 p.
Coombs, S. L., 1969, Footwall features as related to ore occurrence in the Kingston Conglomerate, Keweenaw County, Michigan, MS: University of Arizona.

Coons, W. E., III, 1975, Affects of thermal assimilation and low grade metamorphism on a xenolith bearing basalt dike in Marquette, Michigan, MS: Western Michigan University, 92 p.


Cooper, J. B., 1901, Historical sketch of smelting and refining lake copper: Proceedings of the Lake Superior Mining Institute, v. 7, p. 44-49.


Cornwall, H. R., 1947, Differentiation in doleritic lavas of the Michigan Keweenawan and the origin of the copper deposits, PhD: Princeton University.

- , 1951b, Differentiation in lavas of the Keweenawan series and the origin of the copper deposits of Michigan: Economic Geology, v. 46, no. 6, p. 658-659.
- , 1951c, Differentiation in magmas of the Keweenawan series: Journal of Geology, v. 59, p. 151-172.
- , 1954b, Bedrock geology of the Lake Medora quadrangle, Michigan.
- , 1954c, Bedrock geology of the Phoenix quadrangle, Michigan.
- , 1955, Bedrock geology of the Fort Wilkins quadrangle, Michigan.


Cornwall, H. R., and White, W. S., 1955, Bedrock geology of the Manitou Island Quadrangle, Michigan, scale 1:24,000.

Cornwall, H. R., and Wright, J. C., 1954a, Bedrock geology of the Brunneau Creek quadrangle, Michigan.
- , 1956, Bedrock geology of the Laurium quadrangle, Michigan.


Credner, H., 1869a, Beschreibung einiger charakterischer Vorkommen des gediegenen Kupfers aus Keweenaw Point am Oberen See Nord Amerika's: Neues Jahrbuch für Mineralogie, Geologie, und Palaeontologie, p. 1-14.


-, 1870a, Gewaltige Kupfermassen an Lake Superior: Neues Jahrbuch für Mineralogie, Geologie, und Palaeontologie, p. 86-86.

-, 1870b, Über nordamerikanische Schieferporphyroide: Neues Jahrbuch für Mineralogie, Geologie, und Palaeontologie, no. 970-984.


Crisman, D. P., 1982, Groundwater geochemistry in the Portage Lake Volcanics, Hancock, Michigan and implications for native copper stability, MS: Michigan Technological University, 138 p.


Cromwell, B., 1912, Methods of sampling at Lake Superior iron mines: Proceedings of the Lake Superior Mining Institute, v. 17, p. 76-93.

Crowell, and Murray, G. E., 1914, The iron ores of Lake Superior: Containing facts of interest relating to mining, beneficiation and shipping of the ore and the location of prinicipal mines, Cleveland, Prenton Press Co., 270 p.

-, 1930, The iron ores of Lake Superior: Containing facts of interest relating to mining, beneficiation and shipping of the ore and the location of prinicipal mines, Cleveland, Prenton Press Co., 332.


Dana, J. D., 1854, Apophyllite from the Cliff mine, Lake Superior region: American Journal of Science, v. 68, no. 54, p. 419-419.


-, 1999, Stratigraphy and lithology of Keweenawan sedimentary rocks penetrated by the Terra-Patrick #7-22 borehole, Bayfield County, Wisconsin: Miscellaneous Paper - Wisconsin Geological and Natural History Survey, p. 75-85.


Dann, J. C., 1978, Major-element variation within the Emperor Igneous Complex and the Hemlock and Badwater volcanic formations, MS: Michigan Technological University.


Davidson, E. S., Espenshade, G. H., White, W. S., and Wright, J. C., 1955, Bedrock geology of the Mohawk Quadrangle, Michigan.


DeGraff, J. M., 1976, Structural and age relationships of rocks associated with the Lac La Belle magnetic anomaly Keweenaw County, Michigan, MS: Michigan Technological University, 130 p.


Diallo, M. S. T., 1987, Point-load testing on irregular lumps of peridotite and greenstone found in Ropes Mine, Ishpeming, Michigan, MS: Michigan Technological University.
- , 1986c, Local geologic issues impacting exploration; Interpretation of the western Lake Superior gravity low: Geoscience Wisconsin, v. 11, p. 53-58.
Ding, X., 2010, Mineralogic, petrological and isotopic studies of the Eagle Ni-Cu Sulfide Deposit, Michigan, PhD: Indiana University, 142 p.


Drier, R. W., and Du Temple, O. J., 1961, Prehistoric Copper Mining in the Lake Superior Region, Drier, 214 p..

Driscoll, E. G., 1956, An environmental and heavy mineral study of the "eastern sandstones" between Marquette and Grand Marais, Michigan, MS: University of Nebraska.


Dyke, G. A., 1988, Structure and stratigraphy of the Silver River area, Baraga County, Michigan, MS: Michigan Technological University.
-, 1917, Equipping and sinking the No. 1 shaft at the Holmes mine: Proceedings of the Lake Superior Mining Institute, v. 21, p. 106-124.
Eberle, H. R., 1929, Iron ores and iron ore beneficiation, MS: Michigan College of Mining and Technology, 1-26 p.
Egleston, T., 1879, Copper mining on Lake Superior: American Institute of Mining Engineers Transactions, v. 6, p. 275-312.
-, 1881, Copper refining in the United States: American Institute of Mining Engineers Transactions, v. 9, p. 678-730.

El-Khalidi, H. H., 1950, A field and petrographic study of the sandstones and conglomerates of the Porcupine Mountains, Ontonagon County, Michigan, MS: Michigan State University, 69 p.


Elkington, R. B., 1952, The structure of the Michigamme Slate along the Huron River, Baraga County, Michigan, MS: Wayne State University, 17 p.


-, 1922a, Spies open-stope system of mining: Proceedings of the Lake Superior Mining Institute, v. 22, p. 113-118.


Ensign, C. O., Jr., White, W. S., Wright, J. C., Patrick, J. L., Leone, R. J., Hathaway, D. J., Trammell, J. W., Fritts, J. J., and Wright, T. L., 1968, Copper deposits in the Nonesuch


Fackler, W. C., 1940, Clastic dikes in the Keweenawan lavas of Lake Superior, MS: University of Cincinnati.


Fan, C.-M., 1989, Shallow seismic reflection study along the Bear Lake road, Hancock, Michigan, MS: Michigan Technological University.


Fedorchuk, N. D., 2014, Evaluating the biogenicity of fluvial-lacustrine stromatolites from the Mesoproterozoic Copper Harbor Conglomerate, Upper Peninsula of Michigan, USA, MS: The University of Wisconsin.

Feighner, M. A., 1983, Three-dimensional inversion of P-wave travel time residuals and other related studies at the Upper Michigan-Northern Wisconsin Seismic Network, MS: Michigan Technological University.


Finley-Blasi, L., 2006, U-Pb dating of detrital zircons from the Fond du Lac and Hinckley Formations of Northern Minnesota, BS: Carleton College.


Fisher, J., 1934a, Recent geothermal measurements in the Michigan copper district: American Institute of Mining Engineers Transactions, v. 110, p. 528-545.
Fowler, J. H., 1979, Analysis and interpretation of the 5,000 ft (1,538 m) red-bed sequence encountered in the Sparks et al. #1-8 (Michigan Basin deep borehole), MS: Western Michigan University, 173 p.
Fritts, C. C., Jr., 1931, Carbonaceous matter of the Nonesuch Shale (northeastern Wisconsin), MS: University of Wisconsin, 20 p.


-, 1969, Bedrock geologic map of the Marenisco-Watersmeet area, Gogebic and Ontonogan Counties, Michigan, scale 1:48,000.

Fulton, J., 1887, Mode of deposition of the iron ores of the Menominee range, Michigan: American Institute of Mining Engineers Transactions, v. 16, p. 525-536.


Goetz, G. W., 1890, Analyses of Lake Superior iron ores: American Institute of Mining Engineers Transactions, v. 19, p. 59-61.


Grass, R. I., 1965, Photoelastic stress orientation analysis of the Nonesuch Formation Ontonagon County, Michigan, MS: Michigan Technological University.


-, 1896b, Traces of organic remains from the Huronian (?) series at Iron Mountain, Michigan, etc.: American Institute of Mining Engineers Transactions, v. 26, p. 527-534.


Grimes, J. G., 1977, Geochemistry and petrology of Keweenawan rhyolites and associated rocks, Portage Lake Volcanics, Michigan, MS: Michigan Technological University, 80 p.


-, 1932a, Additional notes on secondary concentration of Lake Superior iron ores: Economic Geology, v. 27, no. 2, p. 189-205.

-, 1932b, Magnesiosussexite, a new mineral from a Michigan iron mine, isomorphous with sussexite andcamsellite: American Mineralogist, v. 17, no. 11, p. 509-513.


Haase, C. S., 1979, Metamorphic petrology of the Negaunee iron-formation, Marquette District, northern Michigan, PhD: Indiana University.

Hagni, R. D., 1954, Petrology and origin of the Kitchi conglomerate, Marquette County, Michigan, MS: Michigan State University, 45 p.


Haig, T. D., 1986, New palaeomagnetic pole position for the interbedded lava flows within the Copper Harbor conglomerate of Michigan's Keweenaw Peninsula, MS: Michigan Technological University, 46 p.

Hall, C. E., 1985, Precambrian phosphorites of Northern Michigan: mode and environment of deposition, MS: Michigan Technological University.


Halls, H. C., 1966, A review of the Keweenawan geology of Lake Superior, Volume 10, American Geophysical Union, p. 3-27.


Hamilton, S. K., 1965, Copper mineralization in the upper part of the Copper Harbor Conglomerate at White Pine, Michigan, MS: University of Wisconsin.


Hanson, G. N., 1975, $^{40}$Ar/$^{39}$Ar spectrum ages on Logan intrusions, a lower Keweenawan flow, and mafic dikes in northeastern Minnesota – Northwestern Ontario: Canadian Journal of Earth Sciences, v. 12, p. 821-835.


Harris, R. D., 1972, Investigation of a possible mineralogical control of roof failure at the White Pine Copper Mine, MS: Michigan Technological University.


Hearding, J. H., 1911, Reminiscences of the early days on the Gogebic range Proceedings of the Lake Superior Mining Institute, v. 16, p. 251-257.


Hedgman, C. A., 1992, Provenance and tectonic setting of the Jacobsville Sandstone, from Ironwood to Keweenaw Bay, Michigan, MS: University of Cincinnati, 158 p.

Hedlund, D. C., 1953, An algal limestone in the Keweenawan of upper Michigan, MS: University of Wisconsin.


Henrickson, E. L., 1956, A study of the metamorphism of the Upper Huronian rocks of the Western portion of the Marquette District, Northern Peninsula, Michigan, PhD: University of Minnesota, 206 p.

Henry, S. G., 1976, Paleomagnetism of the upper Keweenawan sediments, the Nonesuch Shale and Freda Sandstone, MS: University of Michigan.

-, 1979, Chemical demagnetization; methods, procedures, and applications through vector analysis: Canadian Journal of Earth Sciences, v. 16, no. 9, p. 1832-1841.


Higgins, J. W., 1948, Structural petrology of the Pine Creek Area, Dickinson County, Michigan, PhD: The University of Chicago, 64 p.


---, 1968, Sedimentology of the Upper Keweenawan sequence of Northern Wisconsin and adjacent Michigan, PhD: The University of Wisconsin - Madison, 236 p.


Holcomb, F. W., 1975, Urban geological map of the eastern half of the City of Houghton, Michigan, MS: Michigan Technological University, 43 p.


Holway, W., 1952, The origin and occurrence of specular hematite (specularite) in the Lower Huronian of the Marquette District, Michigan, MS: Michigan State University, 46 p.

Hong, S.-M., 1992, Alteration of the Portage Lake Volcanics in the St. Louis mine area near Calumet, Michigan, MS: Michigan Technological University.


Horner, W. J., 1958, Paleocurrent studies of the middle and upper Keweenawan conglomerates of Michigan, MS: University of Kansas, 38 p.

Hornstein, O. M., 1950, A field and petrographic study of some extrusive and sedimentary rocks along the Carp and Little Carp rivers in Ontonagon and Gogebic counties, Michigan, MS: Michigan State University, 55 p.

-, 1923a, Exploration methods on the Gogebic Range: American Institute of Mining Engineers Transactions, v. 68, p. 287-293.


Hotchkiss, W. O., and Ingersoll, L. R., 1934, Post-glacial time calculations from recent geothermal measurements in the Calumet copper mines: Journal of Geology, v. 42, no. 2, p. 113-122.


Hovey, E. O., 1893, An analcite copper boulder from the Keweenaw Range, Michigan: Science, v. 22, p. 93-93.

-., 1975a, Geologic map and section of the Little Girl Point, North Ironwood and the northern part of the Ironwood Quadrangles, Michigan, scale 1:62,500.

Hubbard, L., 1894, Two new geological cross-sections of Keweenaw Point: Proceedings of the Lake Superior Mining Institute, v. 2, p. 79-96.
-., 1912b, In the Lake Superior area what influence, if any, did the thickness and contour of foot wall beds have upon the subsequent deposition and distribution of copper in overlying beds?: Proceedings of the Lake Superior Mining Institute, v. 17, p. 227-237.

Hubbard, T. P., 1971b, An investigation of the Keweenawan magnetic field intensity using regionally hydrothermally altered lavas, PhD: University of Liverpool.

Huber, N. K., 1956, The environmental control of sedimentary iron minerals and its relation to the origin of the Ironwood iron formation, PhD: Northwestern University.
-., 1959, Some aspects of the origin of the Ironwood iron-formation of Michigan and Wisconsin: Economic Geology, v. 54, no. 1, p. 82-118.


Imbus, S. W., 1990, Organic petrologic and geochemical studies on the Oronto Group Nonesuch Formation (middle Proterozoic) of the Midcontinent Rift system, northern Wisconsin and Upper Peninsula Michigan, PhD: University of Oklahoma, 393 p.


-, 1887a, Is there a Huronian Group?: American Journal of Science, v. 134, no. 201, p. 204-216.


-, 1888, Observations on the junction between the eastern sandstone and the Keweenaw series on Keweenaw Point, Lake Superior: American Geologist, v. 1, no. 1, p. 44-57.


-, 1845a, On the copper and silver of Keweenaw Point, Lake Superior: American Journal of Science, v. 49, no. 1, p. 81-93.


-, 1851a, Analyses of pitchstone porphyry from Isle Royale and a crystal of phosphate of lime from Hurdstown, New Jersey: American Journal of Science, v. 61, no. 33, p. 401-403.


-, 1854a, Analyses of pitchstone porphyry from Isle Royale and a crystal of phosphate of lime from Hurdstown, New Jersey: Boston Society of Natural History Proceedings, v. 4, p. 39-41.


-, 1862, A communication, On domeykite from the vicinity of Portage Lake, Lake Superior Region: Boston Society of Natural History Proceedings, v. 8, p. 258-258.
Jacobsen, S. I., 1978, Geochemistry of peat bogs over different bedrock types Houghton County, Michigan, MS: Michigan Technological University.


Johnson, C. A., 1977a, Uranium and thorium occurrences in Precambrian rocks, Upper Peninsula of Michigan, MS: Michigan Technological University.

Johnson, D. J., 1975, Petrology of a portion of the Hemlock Formation, Iron County, Michigan, MS: Michigan Technological University.

Johnson, D. L., 1988, Geotechnical characterization of Keweenaw copper sulfides for in-situ solution mining, MS: Michigan Technological University.

Johnson, D. W., 1977b, Geophysical investigations of subsidence in mines near Iron River, Michigan, MS: Michigan Technological University.

Johnson, R. C., 1987, Geology and Precious Metal Mineralization of the Silver Creek to Island Lake Area, Marquette County, Michigan, MS: Michigan Technological University.

-, 1993, Stratigraphic, structural, tectonic and economic studies of the Archean Ishpeming greenstone belt, Marquette County, Michigan, PhD: Michigan Technological University, 133 p.


Johnson, R. L., 1973a, Petrology, pebble morphology and origin of the Outer Conglomerate (Upper Member), Copper Harbor Conglomerate, Keweenaw Peninsula, Michigan, MS: Michigan Technological University.

Johnson, W. J., 1973b, Application of geophysical exploration techniques to a site investigation at the Houghton County Memorial Airport, Houghton, Michigan, MS: Michigan Technological University.


Kantor, J. A., 1969, Assimilation and dike swarms in the Sugarloaf Mountain area, Marquette County, Michigan, MS: Michigan Technological University, 83 p.

Kappmeyer, J., 1982, Quartz deformation in the Marquette and Republic Troughs, Upper Peninsula of Michigan, MS: University of Michigan.


Kelley, G. M., 1974, Audio-frequency magnetotelluric survey in Marquette County and Baraga County, Michigan, MS: Michigan Technological University.


Kelly, W., 1898, A mine-dam: American Institute of Mining Engineers Transactions, v. 27, p. 400-404.

-, 1900, Address of President William Kelly [a discussion of the mining industry]: Proceedings of the Lake Superior Mining Institute, v. 6, p. 13-22.


Kennedy, A. D., 1951, Study of the amenability of certain iron ores of the Marquette range to concentration by froth flotation with petroleum sulfonate and fuel oil, MS: Michigan College of Mining and Technology.


Kerman, C. E., 1962, The application of the radio field intensity methods to mapping Precambrian structures in the Lake Superior region, MS: Michigan State University.
Klasner, J. S., 1972, Style and sequence of deformation and associated metamorphism due the Penokean orogeny in the Western Marquette Range, Northern Michigan, PhD: Michigan Technological University, 196 p.
Klasner, J. S., Cannon, W. F., and Brock, M., 1979a, Bedrock geologic map of parts of the Baraga, Dead River, and Clark Basins, Marquette County Michigan, scale 1:62,500.
Klein, C., 2005, Some Precambrian banded iron-formations (BIFs) from around the world; their age, geologic setting, mineralogy, metamorphism, geochemistry, and origins: American Mineralogist, v. 90, no. 10, p. 1473-1499.
Knoll, W. A., 1940, Shaft sinking on the Gogebic iron range: American Institute of Mining Engineers Transactions, v. 141, p. 128-145.
Knowlton, F. G., 1946, Drift or float copper: Rocks and Minerals, v. 21, no. 8, p. 491-492.
-., 1902, On the new species melanochaleite and keweenawite; with notes on some other known species: American Journal of Science, v. 164, no. 84, p. 404-416.
Koepel, E., 1929a, The annual production of copper and the yearly average price of copper: Proceedings of the Lake Superior Mining Institute, v. 27, p. 147-149.
Koepel, E., 1929b, Copper concentrating practice on amygdaloid rock at the Champion Copper Company's stamp mill: Proceedings of the Lake Superior Mining Institute, v. 27, p. 112-130.
Kopydlowski, P. J., 1983, Oak Bluff Volcanics : a middle Keweenawan Central volcano; Porcupine Mountains Region, Michigan, MS: Michigan Technological University, 88 p.
Kulakov, E. V., 2014, Properties of the proterozoic geomagnetic field and geological applications of paleomagnetic data from rocks of the North American Midcontinent rift, PhD: Michigan Technological University.


La Point, R. S., 1965, A mineralogical study of certain ores from four mines of the Iron River district, Michigan, MS: Michigan Technological University.


LaFountain, L. J., 1966, A deformed differentiate at Crystal Falls, Michigan, MS: University of Wisconsin.


-., 1933b, The intrusive relationship and metamorphic effects of the Republic Granite, PhD: Northwestern University, 238 p.


- , 1899a, Isle Royale; what has been accomplished in unearthing its mineral wealth: Michigan Miner, v. 1, no. 11, p. 18-21.
- , 1899b, Isle Royale; what has been accomplished in unearthing its mineral wealth: Michigan Miner, v. 1, no. 12, p. 14-18.
- , 1905b, The Theory of Copper Deposition, in Lane, A. C., ed., Report on the State Board of Geological Survey of Michigan for the year 1903, being the report of Alfred C. Lane, State Geologist, p. 239-249.
- , 1907a, The geology of Keweenaw Point: a brief description: Proceedings of the Lake Superior Mining Institute, v. 12, p. 81-104.
- , 1907b, Salt water in the Lake mines: Proceedings of the Lake Superior Mining Institute, v. 12, p. 154-163.
- , 1908b, Mine waters: Proceedings of the Lake Superior Mining Institute, v. 13, p. 63-152.
- , 1909a, The decomposition of a boulder in the Calumet and Hecla conglomerate, and its bearing on the distribution of copper in the Lake Superior copper lodes as indicating the trend and characters of waters forming the chute: Economic Geology, v. 4, no. 2, p. 158-173.
- , 1911b, Native Copper Deposits, in Bain, H. F., ed., Types of Ore Deposits, p. 133-139.
- , 1911c, Native Copper Deposits: Canadian Mining Institute, Quarterly Bulletin, v. 13, p. 81-87.
- , 1912c, Unexplored parts of the copper range of Keweenaw Point: Proceedings of the Lake Superior Mining Institute, v. 17, p. 127-143.
Lane, A. C., 1914, Mine water composition an index to the course of ore-bearing currents: Economic Geology, v. 9, no. 3, p. 239-263.


-, 1935, Discussion of "Differentiation in traps and ore deposition": Economic Geology, v. 30, p. 927-927.


Langill, R. F., 1964, Properties of some Michigan cherts as used in concrete aggregate, MS: Michigan Technological University.

Lapoint, R. S., 1964, Mineralogical study of certain iron ores from four mines of the Iron River District, Michigan, MS: Michigan Technological University.

Larson, R. J., 1968, Mott Island Conglomerate, Isle Royale National Park, Michigan, MS: Michigan Technological University, 74 p.


Larue, D. K., 1979, Sedimentary history prior to chemical iron sedimentation of the precambrian X Chocolay and Menominee Groups (Lake Superior Region), PhD: Northwestern University.


Lehner, F., 1951, A study of part of the gneissic complex north of the Felch Mountain district, Michigan, MS: Ohio State University, 74 p.


-, 1902, A comparison of the origin and development of the iron ores of the Mesabi and Gogebic iron ranges: Proceedings of the Lake Superior Mining Institute, v. 8, p. 75-81.


-, 1911, Lake Superior type of iron-ore deposits, in Bain, H. F., ed., Types of Ore Deposits, p. 53-76.


-, 1914b, Pre-Cambrian correlation from a Lake Superior standpoint: Comptes rendus de la XII Session, Congres Geol. Intern., Canada, p. 409-421.


Leonardson, R. W., 1966, Petrology of the Bergland Rhyolite, the Firetower Rhyolite, and associated rocks, Ontonagon County, Michigan, MS: Michigan Technological University, 121 p.
Lewan, M. D., 1972, Metasomatism and weathering of the Presque Isle serpentinized peridotite, Marquette, Michigan, MS: Michigan Technological University.
Li, H., 1987, Remagnetization of the Allouez Conglomerate in the Portage Lake Volcanics in Michigan, MS: Michigan Technological University, 45 p.
Lindsay, D. W., 1986, The provenance of the Jacobsville Formation of the Upper Peninsula of Michigan through a petrographic study, MS: Western Michigan University, 113 p.
Lippus, C. S., 1988, The seismic properties of mafic volcanic rocks of the Keweenawan Supergroup and their implications, MS: Purdue University, 160 p.


Longacre, T. L., 1957, Geophysical investigations in the Cornell area, Michigan, MS: Michigan College of Mining and Technology.


-, 1946a, New chlorastrolite find: The Mineralogist, v. 14, no. 8, p. 399-400.


Lynott, J. S., 1992, Nature and origin of alteration along overlapping unconformities in Baraga county, northern Michigan, MS: Michigan Technological University.


MacLellan, M. L., 1988, Geology of the Reany Lake Area, Marquette County, Michigan, MS: Michigan Technological University.


Maki, J. C., 1999, Gratiot chalcocite deposit, Keweenaw Peninsula, Michigan, MS: Michigan Technological University.


Mariano, J., 1992, Geophysical investigations of the Midcontinent rift in eastern Lake Superior, PhD: Purdue University.


Martin, H. M., 1939, Ne-Saw-Je-Won, a tale of the waters that run down from Lake Superior to the Sea, Cleveland, William Feather Company, 82 p.

Massey, N. W. D., 1983, Magma genesis in a late Proterozoic proto-oceanic rift: REE and other trace-element data from the Keweenawan Mamainse Point Formation, Ontario, Canada: Precambrian Research, v. 21, p. 81-100.


Matthews, A. W., 1941, Safety practices and their development in the iron mines of the Lake Superior district, MS: Michigan College of Mining and Technology, 26 p.


Meek, B. W., 1935, The heavy accessory minerals of the Palms quartz slates of the Penokee-Gogebic range, MS: University of Wisconsin.
Mengel, J. T., Jr., 1956, The relationship of clastic sediments to iron formation in the vicinity of Palmer, Michigan, MS: University of Wisconsin.
-, 1963, The charts of the Lake Superior iron-bearing formations, PhD: University of Wisconsin.
Merino, M., 2014, Tectonics and Seismicity of Rifts Past and Present, PhD: Northwestern University.
Meshref, W. M., 1968, Aeromagnetic study of the regional geology of the western half of the northern peninsula of Michigan, PhD: Michigan State University.
Michels, A. C., 2013, Paleomagnetic study of the Portage Lake Volcanics exposed in the Quincy Mine, PhD: Michigan Technological University, 92 p.


Miller, T. J., 1989, Evaluation of bioextraction techniques for in-situ mining of copper sulfide ores in Michigan, MS: Michigan Technological University.


Montgomery, W. W., 1977, Deformation of the Tyler Slate (Middle Precambrian), northern Wisconsin and western Upper Michigan, MS: University of Wisconsin.


Moss, M. J., 1975, Some pegmatites near Gwinn, Michigan, MS: Western Michigan University, 64 p.
Naegeli, F. I., 1959, Petrofabrics at the falls of the Sturgeon, Dickinson County, Michigan, MS: Michigan State University.
Nichols, J. B., 1942, Michigan copper arsenides and historical mineralogy: The Mineralogist, v. 10, no. 4, p. 113-114, 128-129.
Nwachukwu, S. O. O., 1964, The geologic significance of geomagnetic measurements over the Lake Huron basin and adjacent areas, PhD: University of Toronto.
Nyquist, J. E., 1986, Thermal and mechanical models of the Mid-Continent Rift, PhD: University of Wisconsin, 193 p.
Oehler, E. T., 1947, Geology of the Black Creek Area, Dickinson County, Michigan, MS: The University of Chicago, 52 p.
Ohr, M., 1993, U-Pb, Rb-Sr, and Sm-Nd dating of diagenesis and mineralization in the Late Proterozoic Nonesuch Formation, northern Michigan, PhD: University of Michigan.


Olson, D. J., 1977, Subsidence in the Iron River Mining District, Iron County, Michigan, MS: Michigan Technological University.


Orajaka, S. O., 1951, A geological, geochemical and radiometric investigation of the Huron River and part of the Huron Mountain area, Baraga and Marquette Counties, Michigan, MS: Michigan College of Mining and Technology, 82 p.

Oray, E., 1971, Regional gravity investigation of the Eastern portion of the Northern Peninsula of Michigan, PhD: Michigan State University, 95 p.


Owens, E. O., 1986, Precambrian geology and precious metal mineralization of the Fire Center area, Marquette County, Michigan, MS: Michigan Technological University, 152 p.


Paces, J. B., 1988, Magmatic processes, evolution and mantle source characteristics contributing to the petrogenesis of midcontinent rift basalts: Portage Lake Volcanics, Keweenaw Peninsula, Michigan, PhD: Michigan Technological University, 432 p.

Paces, J. B., and Bell, K., 1989, Non-depleted sub-continental mantle beneath the Superior Province of the Canadian Shield; Nd-Sr isotopic and trace element evidence from Midcontinent Rift basalts: Geochimica et Cosmochimica Acta, v. 53, no. 8, p. 2023-2035.

Page, G. W., 1971, Occurrence, mineralogy, and geochemistry of barite in the Keweenaw Peninsula, Michigan, MS: Michigan Technological University, 41 p.


Palmer, D. E., 1930, Treatment and use of drill steel in copper and iron mines of the Lake Superior districts, MS: Michigan College of Mining and Technology, 26 p.


Papadakis, J., 1954, Geology of part of the Bete Grise area, Keweenaw Peninsula, Michigan, MS: Michigan College of Mining and Technology.


-, 1929, Recent work of the state geological surveys in Huronian and Keweenawan areas: Proceedings of the Lake Superior Mining Institute, v. 27, p. 166-172.


Parker, D. C., 1959, A petrologic investigation of the Greenstone flow at Tamarack Location, Houghton County, Michigan, MS: Michigan College of Mining and Technology, 95 p.


Parnall, W. E., Jr., 1901, No. 5 shaft at the Tamarack mine: Proceedings of the Lake Superior Mining Institute, v. 7, p. 50-61.


Pascoe, C. F., 2001, Three dimensional geologic model and gypsum distribution of the Cascade taconite deposit near Palmer, Marquette County, Michigan, MS: Michigan Technological University.

Patenaude, R. W., 1962, Results of a regional aeromagnetic survey of a part of upper and lower Michigan, MS: University of Wisconsin.


-, 1946, Geology of the Crystal Falls-Alpha iron-bearing district, Iron County, Michigan, scale 1:12,000.
Pettit, W., 1847, Remarks respecting the copper district of Lake Superior: Franklin Inst. Jour., v. 43, no. 5, p. 338-344.
Philip, L. R., and Van De Meent, D., 1983, Characterization of Precambrian kerogens by analytical pyrolysis: Precambrian Research, v. 20, p. 3-16.
Phillion, G. W., 1962, Fracture pattern analysis of the Keweenaw Peninsula, MS: Michigan College of Mining and Technology, 87 p.

Phillips, W. M., 1979, The Michigamme intrusion, a case study of the importance of remanent magnetization interpretations, Marquette County, Michigan, MS: Michigan State University, 90 p.


Porturas, P. A., 1945, Granitization in the Lake Pelesier area, formerly known as Lake Mary, Marquette County, Michigan, MS: Michigan College of Mining and Technology, 65 p.

Posselt, C., 1856, Die Kupfer-Distrikte des Obersee's Neues Jahrbuch für Mineralogie, Geologie, und Palaeontologie, p. 1-10.


-, 1917, Magnetic differentiation in effusive rocks: American Institute of Mining Engineers Transactions, v. 54, p. 442-455.


Price, M. L., 1977, Trace element distribution in the Native Copper from the Centennial Number 3 Mine, Houghton County, Michigan, MS: Michigan State University, 116 p.
Prinz, W., 1952, The geology of a portion of the Quinnesec igneous complex south of Iron Mountain, Michigan, MS: Ohio State University, 1-90 p.
Prinz, W. C., 1959, Geology of the Southern Part of the Menominee District, Michigan and Wisconsin, PhD: Yale University.
Pumpelly, R., 1871a, The paragenesis and derivation of copper and its associates on Lake Superior: American Journal of Science, v. 102, no. 9, p. 188-198.
-, 1876, The iron district of Michigan, centennial Committee: American Institute of Mining Engineers Transactions, p. 1-5.
-, 1878a, Metasomatic development of the copper-bearing rocks of Lake Superior: American Academy of Arts and Sciences Proceedings, v. 13, p. 253-309.
-, 1878b, Metasomatic development of the copper-bearing rocks of Lake Superior; discussion, entitled Eruptive copper-bearing rocks of Lake Superior: American Journal of Science, v. 116, no. 92, p. 143-144.
-, 1880, Lithology of the Keweenawan or copper-bearing system, Geology of Wisconsin, Volume 3, p. 27-49.
Quirke, T. T., Jr., 1953, A preliminary investigation of the geology of the north Michigamme area of the Marquette range, Michigan, MS: University of Minnesota, 76 p.


Raza, S. N., 1953, Part of the geology of Bete Grise Bay area, Keweenaw Peninsula, Michigan, MS: Michigan Tech.


Reddi, U. B. C., 1981, Feasibility study of different haulage systems in Republic underground mine, MS: Michigan Technological University.


Reed, R. C., 1965, Copper mineralization in Animikie sediments of the eastern Marquette iron range, Michigan, MS: Michigan State University.


Reuss, R. J., 1962, An investigation of the use of seismic methods to track meteorological disturbances over Lake Superior and to locate strain releases taking place in the Houghton-Hancock areas, MS: Michigan College of Mining and Technology.


-, 1932, Note on grunerite from the Lake Superior region: American Mineralogist, v. 17, no. 9, p. 437-442.
Riedel, R. W., 1957, Geophysical investigation of the Sturgeon River-Indian Lake area, Delta and Schoolcraft counties, Michigan, MS: University of Wisconsin.
Ringler, J. R., 1971, Subsurface analysis of an area south of the intersecting runways at the Houghton County Memorial Airport, MS: Michigan Technological University.
-, 1856g, Über die Kupferez-Lagerstätten am Obern See in dem Nordamerikanischen Freistaaten: Allegemeine berg- und hüttenmännische Zeitung, v. 15, no. 333-334.
-, 1856m, Über die Kupferez-Lagerstätten am Obern See in dem Nordamerikanischen Freistaaten: Allegemeine berg- und hüttenmännische Zeitung, v. 15, no. 261-263.
Robertson, J. M., 1972, Geology and mineralogy of some copper-sulfide deposits, Keweenaw County, Michigan, PhD: University of Michigan, 125 p.
Rognerud, W. N., 1974, Geophysical investigation of a gravity anomaly in the central portions of Rockland and Rousseau Quadrangles, Michigan, MS: Michigan Technological University.
Rohrbacher, T. J., 1968, Selected trace elements, copper, and iron distributions in the Copper Harbor Conglomerate (Precambrian), White Pine, Michigan, MS: University of Toledo.
Rolker, C. M., 1877, The Allouez mine and ore dressing, as practiced in the Lake Superior copper district: American Institute of Mining Engineers Transactions, v. 5, p. 585-611.
Rose, W., and Olson, J., 2013, Isle Royale: Keweenaw Rift Geology, Institute on Lake Superior Geology, 88 p.
Rush, R. J., 1984, Geophysical and geotechnical investigations near Dupee Shaft, Hancock Mine, Hancock, Michigan, MS: Michigan Technological University.


Sahakian, A. S., 1959, A petrographic and structural study of a portion of the Palmer gneiss area, Marquette district, Michigan, MS: Michigan State University.


-, 1925, Mining method of the Copper Range Co.: American Institute of Mining Engineers Transactions, v. 72, p. 346-370.


Schapiro, N., 1952, The geology of a part of the Quinnesec greenstone complex, Dickinson County, Michigan, MS: Ohio State University, 76 p.


Scheiner, S. W., 2012, Refining Paleoproterozoic sedimentary sequence boundaries in east-central Minnesota, Carlton County implications for source, age, correlations, and tectonic histories, MS: Kent State University, 59 p.


-, 1824a, Notice of a recently discovered copper mine on Lake Superior with several other localities of minerals: American Journal of Science, v. 7, p. 43-49.


Scofield, N., 1976, Mineral chemistry applied to interrelated albitization, pumpellytization, and native copper redistribution in some Portage Lake basalts, Michigan, MS: Michigan Technological University, 144 p.


Scott, G. W., 1971, Investigation of possible fissure copper mineralization east of Gratiot mine, Keweenaw County, Michigan, MS: Michigan Technological University, 46 p.


Shepeck, A. W., 1985, Characterization of the ore host rock and hydrothermal system at the Ropes Gold Mine, Ishpeming, Michigan, MS: Michigan Technological University.


Siebelthal, W. A., 1906, Methods of iron ore analysis used in the laboratories of the iron mining companies of the Lake Superior mining region: Proceedings of the Lake Superior Mining Institute, v. 11, p. 71-138.


Sikkila, K. M., 1987, Structural Analysis of Proterozoic Metasediments, Northern Falls River, Baraga County, Michigan, MS: Michigan Technological University.

Simmons, G. C., 1974, Bedrock geologic map of the Ishpeming Quadrangle, Marquette County, Michigan, scale 1:24,000.


Sliney, R. E., 1988, Comparative mineralogy and geochemistry of a stratigraphic unit within the upper shale member of the Nonesuch Formation, White Pine, Michigan, MS: University of Michigan.


Smale, G. R., 1958, A field and petrographic study of the Freda Formation along the Montreal River, Gogebic County, Michigan, MS: Michigan State University.


Smith, C. C., 1980, Underground hydrofracturing in-situ stress measurements near the Keweenaw Fault in Upper Michigan, MS: Michigan Technological University.


Smith, R. R., 1950, Effects of compression and impact on the rocks of the Marquette, Gogebic, and Menominee Ranges, MS: Michigan College of Mining and Technology.


-, 1897, Magnetic observations in geological mapping: American Institute of Mining Engineers Transactions, v. 26, p. 640-709.


Steder, R. M., 1958, A field and petrographic study of Millie pit and adjacent area, Dickinson County, Michigan, MS: Michigan State University.


-, 1920a, Summaries of pre-Cambrian literature of North America: Journal of Geology, v. 28, no. 6, p. 558-568.


-, 1921a, Summaries of pre-Cambrian literature of North America: Journal of Geology, v. 29, no. 1, p. 81-86.


-, 1934, Use of magnetic data in Michigan iron mines: American Institute of Mining Engineers Transactions, v. 110, p. 290-312.


-, 1872a, Appendix to Swineford's history of the Lake Superior iron district, being a review of its mines and furnaces for 1871, Marquette, Mining Journal Office, 33 p.

-, 1872b, Appendix to Swineford's history of the Lake Superior iron district, being a review of its mines and furnaces for 1872, Marquette, Mining Journal Office, 71 p.

-, 1873, Appendix to Swineford's history of the Lake Superior iron district, being a review of its mines and furnaces for 1873, Marquette, Mining Journal Office, 80 p.


-, 1876, History and review of the copper, iron, silver, slate, and other material interests of the south shore of Lake Superior, Marquette, Michigan, 1-280 p.

-, 1880, The Menominee iron range: history of its mines, when and by whom discovered, their present conditions and future prospects: Mining Journal, p. 1-44.


Taylor, G. L., 1972, Stratigraphy, Sedimentology and Sulphide Mineralization of the Kona Dolomite, PhD: Michigan Technological University, 112 p.

Taylor, I. E., 1989, Middle and upper Keweenawan siliciclastics of the Lake Superior basin, PhD: McMaster University, 319 p.


Theodosis, S. D., 1948, Metamorphism of the Randville Dolomite in the Felch Mountain range, Michigan, MS: Northwestern University, 68 p.


Thiruvathukal, J. T., 1963, A regional gravity study of basement and crustal structures in the Southern Peninsula of Michigan, MS: Michigan State University.


Thompson-Rizer, C. L., 1993, Optical description of amorphous kerogen in both thin sections and isolated kerogen preparations of Precambrian to Eocene shale samples: Precambrian Research, v. 61, no. 3-4, p. 181-190.


Thompson, R. C. L., 1993, Optical description of amorphous kerogen in both thin sections and isolated kerogen preparations of Precambrian to Eocene shale samples: Precambrian Research, v. 61, no. 3-4, p. 181-190.

Thompson, R. J., 1962, The structure and stratigraphy of a portion of the southern edge of the Dead River basin, Marquette County, Michigan, MS: Michigan State University.

Tituskin, S. E., 1983, Rare earth elements distribution in the Negaunee iron formation, Marquette District, Michigan, MS: Michigan State University, 110 p.


Tourshou, S. I., 1930, Analysis of the electrical equipment used in the copper and iron mines of Michigan and special electrical engineering laboratory report, MS: Michigan College of Mining and Technology, 26 p.


Trammell, J. W., and Ensign, C. O., Jr., 1964a, Ancient stream channels affect White Pine’s mining techniques: Mining Engineering, v. 16, no. 12, p. 75-78.
86


Treves, S. B., 1959, Geology of the Carney Lake Complex, Dickinson County, Michigan, PhD: The Ohio State University, 167 p.


Vallini, D. A., 2006, The formation of authigenic xenotime in Proterozoic sedimentary basins: petrography, age and geochemistry, PhD, University of Western Australia, 59 p.


Van Altena, P. J., 1951, Some Keweenawan sediments of Ontonagon County, Michigan, MS: Michigan College of Mining and Technology, 47 p.


- , 1900, Some principles controlling the deposition of ores: American Institute of Mining Engineers Transactions, v. 30, p. 27-177.


Van Horn, J. E., 1980, Seismotectonic study of the southwestern Lake Superior region utilizing the Upper Michigan-northern Wisconsin seismic network, MS: Michigan Technological University, 146 p.

Van Lewen, M. C., 1957, Geology of St. Ignace Island, Ontario, and a correlation of the Keweenawan series of the Lake Superior region, MS: Michigan College of Mining and Technology.

Van Roosendaal, D. J., 1985, Analysis of rock structures and strain in cleaved pelitic rocks, East Branch of the Huron River, Baraga County, Michigan, MS: Michigan Technological University.


Van Schmus, W. R., Schneider, D. A., Holm, D. K., Dodson, S., and Nelson, B. K., 2007, New insights into the southern margin of the Archean-Proterozoic boundary in the north-
central United States based on U-Pb, Sm-Nd, and Ar-Ar geochronology: Precambrian Research, v. 157, no. 1-4, p. 80-105.


Vehrs, R. A., 1959, On an occurrence of "quartzite" in the southern complex near Palmer, Marquette County, Michigan, MS: Michigan State University.


-, 1957, Origin and Occurrence of Uranium in Northern Michigan, PhD: The University of Wisconsin Madison, 82 p.


-, 1883a, Keweenaw Point geology: Science, v. 1, no. 9, p. 249-249.
-, 1883b, On the filling of amygdaloidal cavities and veins in the Keweenaw Point district of Lake Superior, a reply to Prof. James D. Dana: Boston Society of Natural History Proceedings, v. 21, p. 91-103.
- , 1891a, The relation of the eastern sandstone of Keweenaw Point to the Lower Silurian limestones: Science, v. 18, no. 25-25.
- , 1891c, A sketch of the geology of the Marquette and Keweenawan districts in Ralph, J., ed., Along the bowstring or south shore of Lake Superior: Duluth, C. B. Hibbard and Duluth, South Shore and Atlantic Railway, p. 77-99.
-, 1982, The bedrock topography of the Keweenaw Peninsula, Michigan, PhD: Michigan Technological University, 213 p.

Wasuwanich, P., 1979, Models of basalt petrogenesis: a study of Lower Keweenawan diabase dikes and Middle Keweenawan Portage Lake Lavas, Michigan, MS: Michigan State University, 78 p.


Weaver, T. L., 1994, The role of volume loss in the development of deformation fabrics in Proterozoic metadiabase dikes in the Marquette-Republic region of northern Michigan, MS: Michigan State University, 135 p.

Webster, C. L., 1999, Structural analysis of a ductile shear zone within the Marquette iron range, Upper Peninsula, Michigan, MS: Michigan State University, 92 p.


Whitaker, J. T., 1966, Ultrasonic velocity measurements of Precambrian metamorphic rocks and their correlation with field measurements, MS: Michigan State University.


White, W. S., 1956, Geologic map of the Chassell Quadrangle, Michigan, scale 1:24,000.


White, W. S., Cornwall, H. R., and Swanson, R. W., 1953, Bedrock geology of the Ahmeek Quadrangle, Michigan, scale 1:24,000.


Whitney, J. D., 1847, Description and analysis of three minerals from Lake Superior: Boston Journal of Natural History, v. 5, p. 486-489.

-, 1848, Description and analysis of three minerals from Lake Superior: American Journal of Science, v. 56, no. 17, p. 269-270.


-, 1851a, On a black oxide of copper from Copper Harbor, Lake Superior: Boston Society of Natural History Proceedings, v. 3, p. 100-103.


Wilkin, R. T., 1991, Geologic investigations of Precambrian rocks in the Negaune NW quadrangle, Marquette County, Michigan and archean granitoids in the Northern Complex, Michigan, MS: Michigan Technological University.


Williams, C. P., and Blandy, J. P., 1862, Some contributions to a knowledge of the constitution of the copper range of Lake Superior: American Journal of Science, v. 84, no. 100, p. 112-120.

Williams, C. P., Stevens, W. H., and Hill, S. W., 1863, Geological map of the trap range of Keweenaw Point, Lake Superior.


Williams, S. A., 1957, Study of chlorastrolite, MS: Michigan College of Mining and Technology.


Wilson, C. H., 1967, Petrology of the Algomah mine area, Ontonagon County, Michigan, MS: Michigan State University.

-, 1975, A detailed petrographic and chemical study of differentiation in Keweenawan lava flows of Michigan, PhD: Michigan State University, 85 p.


Winchell, A., 1889a, Field studies in the Archean rocks of Minnesota, with accessory observations in Ontario, Michigan and Wisconsin, Ann Arbor, 504 p.


-., 1920, Handbook of mining in the Lake Superior region prepared for the Lake Superior Meeting, Minneapolis, American Institute of Mining Engineers, 260 p.
-., 1889c, Methods of stratigraphy in studying the Huronian: The Pan-American Geologist, v. 4, no. 6, p. 342-357.
-., 1895a, Comparative taxonomy of the rocks of the Lake Superior region: American Geologist, v. 16, no. 6, p. 331-337.
-., 1895b, The Keweenawan according to the Wisconsin geologists: American Geologist, v. 16, no. 2, p. 75-86.
-., 1895e, Steps of progressive research in the geology of the Lake Superior region prior to the late Wisconsin survey: American Geologist, v. 16, no. 1, p. 12-20.
-., 1898b, Thompsonite and lintonite from the north shore of Lake Superior: American Geologist, v. 22, no. 6, p. 347-349.
Winchell, R. E., 1959, Description and mineralogy of some pegmatites in Dickinson County, Michigan, MS: Michigan College of Mining and Technology.
Wold, R., 1966, Development of digital recording magnetometer system and its application to the western Lake Superior region, PhD: University of Wisconsin.


-, 1925b, Ore estimation on the Menominee range, including Iron River, Crystal Falls, and Florence districts: American Institute of Mining Engineers Transactions, v. 72, p. 659-660.


Wood, W. W., 1962, Distribution and stratigraphic position of Late Precambrian diabase dikes in parts of northern Michigan, MS: Michigan State University.


Woznessensky, B., 1967, Structural analysis of the fracture pattern at White Pine Mine, Ontonagon County, Michigan, MS: Michigan Technological University.

Wright, F. E., 1905, Report on progress made in Porcupine Mountains, in Lane, A. C., ed., Report on the State Board of Geological Survey of Michigan for the year 1903, being the report of Alfred C. Lane, State Geologist, p. 35-.


Wunderman, R., 1988, Crustal structure across the exposed axis of the midcontinent rift and adjacent flanks, based on magnetotelluric data, central Minnesota-Wisconsin: a case for crustal inhomogeneity and possible reactivation tectonics, PhD: Michigan Technological University.


Wyrembelski, S. A., 2003, Sedimentology and stratigraphy of the Reany Creek Formation, Marquette County Michigan: evidence for a non-glacial origin, MS: Michigan Technological University.


Zainuddin, S. M., 1971, Petrology of the granitic rocks in the vicinity of Republic Trough in the Upper Peninsula of Michigan, PhD: Michigan State University, 115 p.


Zimmerman, M. J., 1997, Mechanical analysis of natural fractures in the wall rock of the Quincy Mine, Keweenaw Peninsula, Michigan, MS: Michigan Technological University.

Zinn, J., 1930a, Petrography of the Keweenawan lava flows of Michigan, MS: Michigan College of Mining and Technology, 26 p.


-, 1933b, The Upper Huronian of the Marquette District of Michigan, PhD: The University of Wisconsin - Madison.


Zinn, J., and Dutton, C. E., 1939, Ninth Annual Field Excursion of the Michigan Academy of Science, Arts and Letters, Section of Geology and Mineralogy to Marquette and Menominee Districts, p. 20.


Michigan Paleozoic References

Abdul-Razzaq, S., 1973a, Evolution of Middle Devonian Species of *Euglyphella* as indicated by Cladistic Analysis: Contributions from the Museum of Paleontology The University of Michigan, v. 24, no. 6, p. 47-64.

-, 1973b, Evolution of Middle Devonian Species of *Euglyphella* as indicated by Cladistic Analysis, MS: University of Michigan.

Abduslam, A., 2012, Reservoir characterization and enhanced oil recovery potential in Middle Devonian Dundee Limestone Reservoirs, Michigan Basin, USA, MS: Western Michigan University, 228 p.


Adam, R. B., 1992, Use of geology and petrophysics in the characterization of St. Peter Sandstone reservoirs, MS: Western Michigan University, 140 p.


Angold, D. W., 1955, Manitoulin Formation in the Hamilton Area, Ontario, BS: McMaster University.
Apak, S. N., 1985, Subsurface Stratigraphy and Sedimentologic Control on the Productive Middle Devonian Age Richfield Member of the Lucas Formation in The Michigan Basin, MS: Western Michigan University, 96 p.


Asseez, L. O., 1964, A chemical and petrographic analysis of Wooden No. 6, Middle Ordovician from Hillsdale County, Michigan, MS: Michigan State University.


Bacon, D. J., 1971, Chert genesis in a Mississippian sabkha environment, MS: Michigan State University, 47 p.


Bailey, T. C., III, 1968, A geochemical and petrologic study of core MQ-63-1 penetrating the Columbus Limestone (Middle Devonian) and Detroit River Group (Middle Devonian) at Marblehead, Ohio, MS: Bowling Green State University, 140 p.


Balakrishna, T. S., 1972, Petrography of some Silurian rocks from northern Michigan, MS: Wayne State University, 87 p.


Balombin, M. T., 1974, The St. Peter Sandstone in Michigan, MS: Michigan State University, 127 p.

Balthazor, D. A., 1991a, Sedimentology of the Bedford-Berea Sequence (Early Mississippian), Williams Field, Michigan, MS: Western Michigan University, 133 p.


Banash, R. M., 2011, A geophysical and geological analysis of the Collingwood Member of the Trenton Formation, MS: Michigan Technological University, 74 p.


Barcas, K., 1980, Examination of Lower Silurian clastic deposits along the Niagara Escarpment, Bruce Peninsula, Ontario, MS: Wayne State University.


Bassett, C. F., 1933, Stratigraphy and paleontology of the Dundee Limestone of Southeastern Michigan, PhD: University of Michigan.


Beauclair, W. A., 1951, Paleontology and stratigraphy of two well cores in the Middle Devonian rocks of Clare County, Michigan, MS: University of Michigan.


Beeker, R. E., 1940, Chemical variations in Dundee brine and their relation to structure, MS: University of Michigan.


Behrens, E. W., 1958, An extension and reinterpretation of a regional magnetometer survey of part of southeastern Michigan, MS: University of Michigan.


Bennett, G. H., 1978, Sedimentology of the Antrim Shale from five drill sites in the Michigan Basin, MS: Michigan Technological University, 75 p.

Bensinger, H. S., 1961, Joint patterns in quarries in southeastern Michigan, MS: University of Michigan.


Bernardon, M. A., 1957, A mechanical and statistical analysis of the Middle Devonian, Rogers City-Dundee Formations in Michigan, MS: Michigan State University.

Berner, R. E., 1930, New species of favosites from the Niagaran series of Michigan, PhD: University of Michigan.


Birchard, M. C., 1993, Stratigraphy and facies of the Middle Devonian Dundee Formation, southwestern Ontario, Lambeth, ON, Canada (CAN), Ontario Petroleum Institute, Lambeth, ON, 156 p.


Blaisdell, G. L., 1979, Influence of the weak bedding plane in Michigan Antrim Shale on laboratory hydraulic fracture orientation, MS: Michigan Technological University, 98 p.


Boneham, R. F., 1965, Occurrence of Tasmanites, plant spores, and Chitinozoa in Middle and Upper Devonian formations of Michigan, Ohio, and Ontario, MS: Wayne State University, 31 p.


Bose, R., 2006, Epibionts on brachiopods from the Devonian Dundee Formation of Ohio, MS: Bowling Green State University, 74 p.


Bottoms, K. D., 1959, Middle Devonian strata based on a core from Grosse Ille, Michigan, MS: University of Michigan.


Brady, B., and DeHaas, R., 1988a, The "deep" (pre-Glenwood) formations of the Michigan basin, part 1-the Goodwell unit: Michigan Oil and Gas News, v. 94, no. 9, p. 32-38.


Braitenberg, C., and Ebbing, J., 2009, The GRACE-satellite gravity and geoid fields in analysing large-scale, cratonic or intracratonic basins: Geophysical Prospecting, v. 57, no. 4, p. 559-571.


Brandt, D., Larcinese, E., and Anderson, E., An Upper Ordovician onshore/offshore dolomitization gradient, in Proceedings Geological Society of America, 22nd annual meeting, North-Central Section, with the North-Central Section of the Paleontological
Society, Pander Society, Great Lakes Section of the Society of Economic
Paleontologists and Mineralogists and the East-Central Section of the National
Association of Geology Teachers

Brandt, D., Seitz, M., McCoy, V., Csonka, J., Barringer, J., Holmquist, E., Kraig, S., Morgan, R.,
Myers, J., and Paquette, L., 2010, A New Ichnospecies of Arthrophycus from the Late
Carboniferous (Pennsylvanian) of Michigan, USA: Ichnos, v. 17, no. 1, p. 12-19.

Trenton Trend – Engineering Committee Report, Michigan Oil and Gas Operators
Committee, Michigan Department of Conservation, Oil and Gas Advisory Board, 25 p.

Branson, E. B., 1915, Origin of thick gypsum and salt deposits: Geological Society of America

Breining, K. A., 1985, Stable isotopic and cathodoluminescence study of a Silurian shelf reef,
MS: University of Michigan.

Brennan, S. T., and Lowenstein, T. K., 2002, The major-ion composition of Silurian seawater:

taphonomy, and paleoecology of meter-scale cycles from the Upper Ordovician of
Ontario: Palaios, v. 21, no. 6, p. 530-547.

Sequence stratigraphy and a revised sea-level curve for the Middle Devonian of eastern
21-53.

Devonian sequence stratigraphy, cycles and paleoenvironments of the Niagara
Peninsula area of Ontario, Canada: Geological Society of America, Annual Meeting,
Field Trip Guidebook, v. 16, p. 32.

Brett, J. W., 1960, A vertical magnetic intensity survey of a portion of south-central Michigan,
MS: Michigan State University.

1-65.

Bricker, D. M., 1982b, Oil and gas developments in Michigan in 1981: American Association of

1-49.

Bricker, D. M., 1983b, Oil and gas developments in Michigan in 1982: American Association of

1-52.

Bricker, D. M., 1984b, Oil and gas developments in Michigan in 1983: American Association of

84.

Bricker, D. M., and Henderson, W. L., 1985, Oil and gas developments in Michigan in 1984:

-, 1986, Oil and gas developments in Michigan in 1985: American Association of Petroleum

Bricker, D. M., and Henderson, W. L., 1987, Oil and Gas Developments in Michigan in 1986:


Burgess, C. W., 1950, Devonian stratigraphy and faunas of two cores from Antrim and Crawford counties, Michigan, MS: University of Michigan.


Buxton, T. M., 1983, Lithologic control of pressure solution; Alpena Limestone, Alpena, Michigan, MS: Michigan State University, 70 p.


Byerley, M. C., 1992, Sedimentology of the Late Ordovician Georgian Bay Formation, Manitoulin Island and Bruce Peninsula, Ontario, MS: University of Waterloo, 257 p.


Cadorette, S., 1997, Stratigraphy and sedimentology of the Lower Silurian Thorold Formation in subsurface Lake Erie, Maitland Field, BS: Brock University, 106 p.


Caldwell, M. S., 1991, Structural, depositional, and diagenetic controls on reservoir evelopment: St. Peter Sandstone, Newaygo County, Michigan, MS: Western Michigan University, 97 p.


Cameron, J. A., 1975, Hydrocarbon content of the Manitoulin Dolomite on Manitoulin Island, BS: McMaster University, 78 p.

Carlton, R. R., 1982, Models of Dolomitization from Petrographic and Selected Trace Element Data within the Middle Devonian Carbonates of the Reed City Storage Field, Lake, and Osceola Counties, Michigan, MS: Michigan State University, 153 p.


Chapel, J. D., 1975, Petrology and depositional history of Devonian carbonates in Ohio, PhD: Ohio State University, 558 p.


Chittick, S., 1995, Characterization of the Dundee Formation, Winterfield field, Clare County, Michigan, MS: Michigan Technological University, 150 p.

Chittrayanont, S., 1978, A geohydrologic study of the Garfield Township coal basin area, Bay County, Michigan, MS: Michigan Technological University, 183 p.


Churcher, P. L., 1985, Geology and Geochemistry of the Collingwood member, Lindsay Formation, southern Ontario, BS: University of Waterloo, 46 p.

Churcher, P. L., Johnson, M. D., Telford, P. G., and Barker, J. F., 1991, Stratigraphy and oil shale resource potential of the Upper Ordovician Collingwood Member, Lindsay


-, 1945a, Geology and oil and gas possibilities of Trenton and Black River limestones of the Michigan basin, Michigan and adjacent areas: U.S. Geological Survey, Oil and Gas Investigation Preliminary Map.

-, 1945b, Stratigraphy of Lower Ordovician and Cambrian rocks in the Michigan Basin.


Cohee, G. V., and Underwood, L. B., 1944, Maps and sections of the Berea Sandstone in eastern Michigan, 1944: Reston, VA, United States (USA), U. S. Geological Survey, Reston, VA.


Coley, T. B., 1950, The statigraphic distribution and correlation of some Middle Devonian ostracoda, MS: Wayne State University.


-, 1991c, Paragenetic History of the Ordovician Trenton Group Carbonates, Southwestern Ontario MS: Brock University, 250 p.


Cookman, C. W., 1976, Petrology of the Rockport Quarry Limestone (Middle Devonian Traverse Group) Alpena, Presque Isle and Montmorency Counties, Michigan, MS: Western Michigan University, 171 p.


Cooper, W. F., 1905, The coal formations of Bay County: Michigan Miner, v. 7, no. 9-12.


Coupal, F. E., 1954, Stratigraphy and paleontology of a well core from Sharon township, Washtenaw County, Michigan, MS: University of Michigan.


Crane, M. J., 1955, A new occurrence of Mississippian Ostracoda in Michigan, MS: Michigan State University.


-, 1982, Model studies of ignition and retort strategies for true in situ retorting of Antrim oil shale: In Situ, v. 6, no. 2, p. 77-106.


Cunningham, F. F., Jr., 1972, Stratigraphy and petrology of the Columbus Limestone (Devonian) and Detroit River Group (Devonian) in north-central Ohio, MS: Bowling Green State University, 85 p.

Curran, B. C., 1990, Reservoir geology of The Dundee Limestone West Branch field, Michigan, MS: Western Michigan University, 158 p.


Curren, R. F., 1953, An investigation of some methods of chemical precipitation in the artificial growth of calcite, MS: Michigan State University.


Dahlern, R. D., 1959, Stratigraphy and paleontology of the Hibbard No. 1 well core, Barry County, Michigan, MS: University of Michigan.

Dali, A. H., 1975, Depositional environment of the upper Silurian of the Michigan Basin, MS: Michigan State University, 45 p.


Davidson, R. H., 1981, Petrology of pinnacle reefs in the Guelph Formation (Niagaran), Northern Michigan, MS: Stephen F. Austin State University, 103 p.

Davies, W. E., 1941, Stratigraphic significance of crinoidal columns of the Traverse of Michigan, MS: Michigan State University, 45 p.


Deiss, C. F., 1928, A description and stratigraphic correlation of the Fenestellidae from the Devonian of Michigan, PhD: University of Michigan, 43 p.


Dibble, E. T., 1956, Stratigraphy and paleontology of a core from Silurian and Devonian strata of Wayne County, Michigan, MS: University of Michigan.


Din, M., 1950, Microfossils of the Middle and Upper Ordovician Formations in Deep Wells of Alpena, Ogemaw, Bay, and Ingham Counties of Michigan, MS: Michigan State University, 118 p.


Driscoll, E. G., 1956, An environmental and heavy mineral study of the "eastern sandstones" between Marquette and Grand Marais, Michigan, MS: University of Nebraska.


Driscoll, E. G., 1963, Paraconularia newberryi (Winchell) and Other Lower Mississippian Conulariids from Michigan, Ohio, Indiana, and Iowa: Contributions from the Museum of Paleontology The University of Michigan, v. 18, p. 33-46.


Dunn, D. L., and Miller, T. H., 1964, A distinctive Chitinozoan from the Alpena Limestone (Middle Devonian) of Michigan: Journal of Paleontology, v. 38, no. 4, p. 725-&.


Eames, L. E., 1974, Palynology of the Berea Sandstone and Cuyahoga Group of northeastern Ohio, PhD: Michigan State University, 253 p.

Eckert, J. D., 1976, Stratigraphy and paleontology of the Bertie Formation, BS: Brock University.

Eckert, J. D., 1984, Early Llandovery crinoids and stelleroids from the Cataract Group (Lower Silurian) southern Ontario, Canada, Royal Ontario Museum, 82 p.


Egemen, Y., 2015, Petrophysical analysis and rock-physics based prediction of sonic velocities in carbonates, MS: Michigan Technological University.

Egleston, D. L., 1958, Relationship of the magnesium-calcium ratio to the structure of the Reynolds and Winfield oil fields, MS: Michigan State University.


-., 1925b, Two new crinoids from the Devonian of Michigan: Contributions from the Museum of Geology The University of Michigan, v. 2, no. 6, p. 99-104.

-., 1930, Stratigraphy of the Niagaran Series of the Northern Peninsula of Michigan, PhD: University of Michigan.

-., 1936, Guide to the Sixth Annual Field Trip of the Section of Geology and Mineralogy of the Michigan Academy of Science: A Study of the Fort Wayne Outlet of the Early Glacial Lakes and the Niagaran Strata of Northern Indiana.


Ehlers, G. M., and White, T. E., 1932, Cylindrophyllum panicum (Winchell) and Cylindrophyllum hindshawi sp. nov., Tetracoralla from the Traverse Group of Michigan: Contributions from the Museum of Paleontology The University of Michigan, v. 4, no. 4, p. 93-100.
Eley, B. E., 1977, Chert in the Fossil Hill Member of the Lockport Formation (Middle Silurian), Manitoulin Island, Ontario, MS: University of Windsor, 150 p.


Farmerie, R. L., 1989, Subsurface geology of the Lockport and Salina Groups (Middle to Upper Silurian) of northeastern Ohio, MS: Kent State University, 338 p.
Fauser, W. B., Jr., 1951, Paleontology and stratigraphy of well cores from Garfield Twp., Newaygo County, Michigan, MS: University of Michigan.
Felber, B. E., 1964, Silurian reefs of Southeastern Michigan, PhD: Northwestern University, 133 p.
-, 1971, Environmental influences on the distribution and abundance of conodonts from the Dundee Limestone (Devonian), Saint Mary's, Ontario: Canadian Journal of Earth Sciences, v. 8, no. 3, p. 378-386.
-, 1980a, Antrim Structure, Plate 3, scale 1:1,000,000.
-, 1980b, Dundee Structure, Plate 5, scale 1:1,000,000.
-, 1980c, Stratigraphy of the Upper Devonian-Lower Mississippian of Michigan.
-, 1980d, Structure map on Berea Sandstone, Plate 2, scale 1:1,000,000.
-, 1980e, Structure map on Sunbury Shale, Plate 1, scale 1:1,000,000.
-, 1980f, Thickness of Antrim Shale, Plate 12, scale 1:1,000,000.
-, 1980g, Thickness of Bedford Shale, Plate 10, scale 1:1,000,000.
-, 1980h, Thickness of Berea Sandstone, Plate 9, scale 1:1,000,000.
-, 1980i, Thickness of Ellsworth Shale, Plate 11, scale 1:1,000,000.
-, 1980j, Thickness of Sunbury Shale, Plate 8, scale 1:1,000,000.
-, 1980k, Traverse Formation Isopach, Plate 13, scale 1:1,000,000.
-, 1980l, Traverse Limestone Structure, Plate 4, scale 1:1,000,000.
-, 1980m, Trenton structure, Plate 6, scale 1:1,000,000.
Fitterman, D. V., Graves, B. J., Lehr, J. H., Butcher, K., Owen, T. E., and Mathews, M., 1986, Transient electromagnetic sounding in the Michigan Basin for ground water evaluation, Dublin, OH, United States (USA), Natl. Water Well Assoc., Dublin, OH.


Frew, W. M., 1955, Stratigraphy and paleontology of a well core through the Middle Ordovician in Salem Township, Washtenaw County, Michigan, MS: University of Michigan.


- 1913b, Sections of two Michigan salt wells: Journal of Geology, v. 21, no. 4, p. 320-322.


Furnish, W. M., 1938, Conodonts from the Prairie du Chien (Lower Ordovician) beds of the upper Mississippi Valley: Journal of Paleontology, v. 12, no. 4, p. 318-340.

Galloway, J. J., and Ehlers, G. M., 1960, Some Middle Devonian stromatoporoids from Michigan and Southwestern Ontario, including the types described by Alexander Winchell and A. W. Grabau: Contributions from the Museum of Paleontology The University of Michigan, v. 15, no. 4, p. 39-120.


Garner, H. F., 1951, Lower Mississippian orthoconic nautiloid cephalopods of Michigan, MS: State University of Iowa, 72 p.

-, 1953, Lower Mississippian cephalopods of Michigan, coiled nautiloids and ammonoids, PhD: State University of Iowa, 201 p.


Gibbs, C. J., 1939, The influence of sub-surface geology upon the propagation of electromagnetic waves, MS: Michigan State University, 55 p.


Gilpin, A. R., 1912, Geology of Cheboygan County (Michigan), MS: The Univerity of Chicago, 38 p.


Gishler, C. A., 1977, Upper Ordovician Chitinozoa from Manitoulin Island and Bruce Peninsula, Ontario, MS: University of Western Ontario, 156 p.


-, 1945, Michigan Geological Field Trip 1945, p. 1-5.


-, 1948b, The petroleum producing industry in Michigan: Compass, v. 25, no. 3, p. 113-120.


-, 1968, Champlainian Biostratigraphy in Northern Michigan, PhD: Iowa State University.


Gutschick, R. C., 1976, Geology of the Kentland Structural Anomaly, Northwestern Indiana, Field Trip Guidebook, North-Central section of the Geological Society of America and Western Michigan University, 58 p.
Hamberg, L. R., 1953, Paleontology and stratigraphy of two well cores in the Devonian rocks of Bay and Arenace counties in Michigan, MS: University of Michigan, 1-22 p.


Hamrick, R. J., 1978, Dolomitization patterns in the Walker Oil Field, Kent and Ottawa Counties, Michigan, MS: Michigan State University, 94 p.


-, 1938b, Mississippian gas sands of central Michigan area, PhD: University of Michigan.


Hartsell, M. Y., 1982, Niagara pinnacle reefs of Western Michigan, MS: Michigan State University, 279 p.


-, 1954, Richfield is a major oil zone for Michigan: World Oil Magazine, v. 139, no. 7, p. 100, 102-104.

Haynes, S. J., 1990, Stratigraphy and depositional environment of the Salina A and B units, Domtar and Westroc gypsum deposits, Algonquin Arch-Niagara Peninsula, Lambeth, ON, Canada (CAN), Ontario Petroleum Institute, Lambeth, ON.
Haynes, S. J., and Hughes-Pearl, J., 1990, Gypsum deposits and stratigraphy of the Salina A and B units, Algonquin Arch; Niagara Peninsula, southwestern Ontario, Lambeth, ON, Canada (CAN), Ontario Petroleum Institute, Lambeth, ON, 31 p.
Hefner, J. H., 1957, A rapid method for the correlation of fine-grained sediments with the aid of the spectrograph as applied to the Mississippian-Devonian sequence in Ogemaw County, Michigan, MS: Michigan State University.
Heller, F. K., 1936, Geology and economics of the Crystal-Ferris oil and gas field, MS: University of Michigan.
Henderson, W. C., 1988, A seismic analysis of reefs in the Traverse Limestone of Allegan County, Michigan, MS: Western Michigan University.
Herndon, T., 1951, Niagaran Reefs, MS: University of Michigan.
Hewitt, D. F., 1960, Detroit River limestone of the Beachville area, showing drift thickness: Sudbury, ON, Canada (CAN), Ministry of Northern Development, Mines and Forestry, Sudbury, ON, 1 p.


Hobbs, R. A., 1949, The application of roundness and sphericity measurements to subsurface samples of the Marshall formation of Western Michigan, MS: Michigan State University, 36 p.


Hoffmaster, P. J., 1946, Michigan’s oil and gas: Michigan Conservation, v. 15, no. 9, p. 6, 14.

Hofstra, W. E., 1949, The effects of washing oil well cuttings from rotary and cable tool wells as related to sample losses, MS: Michigan State University, 84 p.


Hoin, S. J., 1983, A high resolution ground magnetic study of part of the Albion-Scipio trend, MS: Western Michigan University, 89 p.


Holmquest, H. J., Jr., 1952, A statistical morphologic classification of the Paleozoic ostracoda, MS: Michigan State University, 32 p.


Horvath, A. L., 1957, Stratigraphy and paleontology of the Middle Devonian strata penetrated by core H-2A in Wayne County, Michigan, MS: University of Michigan.


Hull, D. A., 1980, Stratigraphy and petrology of the Newton Creek and Alpena limestones (Middle Devonian) in the Huron Portland Quarry, Alpena, Michigan, MS: Bowling Green State University, 176 p.

Humphrey, W. E., 1940, Revision of A. E. Strong's types from the Mississippian Point au Gres Limestone at Grand Rapids, MS: University of Michigan.

Hunt, A. S., 1957, Species of the tabulate coral Trachypora from Middle Devonian Traverse Group of Michigan, MS: University of Michigan.


Husband, P. M., 1958, A sedimentary and chemical analysis of the Niagara series in Michigan, MS: Michigan State University.

Hussey, R. C., 1925, The Richmond Formation of Michigan, PhD: University of Michigan, 75 p.


-, 1928, Cystoids from the Trenton Group of Michigan: Contributions from the Museum of Paleontology The University of Michigan, v. 3, p. 77-79.


Hutchinson, T. W., 1964, Upper Devonian and Lower Mississippian pectinoid pelecypods from Michigan, Ohio, Indiana, Iowa and Missouri, MS: University of Michigan.

Hyde, M. K., 1979, A study of the dolomite/calcite ratios relative to the structures and producing zones of the Kawkawlin Oil Field Bay County, Michigan, MS: Michigan State University, 126 p.

Ibrahim, A., 1970, The application of the gravity method to mapping bedrock topography in Kalamazoo County, Michigan, MS: Michigan State University.


Imbrie, J., 1951, Protremate Brachiopods of the Traverse Group "Devonian" of Michigan, PhD: Yale University.


Jacobson, R. C., 1951, Stratigraphy and fauna of two cores penetrating Middle Devonian formations of Missaukee County, Michigan, MS: University of Michigan.


Jeffs, B. G., 1993, Stratigraphic and petrographic investigation of the Sylvania Sandstone (Middle Devonian) in the subsurface of the Michigan Basin, MS: Bowling Green State University, 158 p.


Jodry, R. L., 1954, A rapid method for determining the magnesium/calcium ratios of well samples and its use as an aid in predicting structure and secondary porosity in calcareous formations, MS: Michigan State University.


Johnson, H., 1934, Stratigraphy and Paleontology of the Cataract Formation in Ontario, PhD: University of Toronto, 29 p.


-, 1978, Patch reef development and effects of repeated subaerial exposure in Silurian shelf carbonates, Maumee, Ohio: Field Excursions from the University of Michigan, v. 5.


Kavary, E., 1959, Study of the two new species of ostracods of the Middle-Devonian genus Glyptapleura from Michigan and Ohio, MS: University of Michigan.
-, 1986, Reservoirs resulting from facies-independent dolomitization: case histories from the Trenton and Black River carbonate rocks of the Great Lakes Area: Carbonates & Evaporites, v. 1, no. 1, p. 74-82.
Keller, P. H., 1965, Middle Devonian stromatoporoids of northwestern Ohio, MA: Bowling Green State University.
Kelley, R. W., 1949, Silurian stratigraphy of Cockburn Island, Ontario, MS Wayne State University.


Kersting, C. C., 1953, Stratigraphy of the Delray core, Wayne County, Michigan, MS: University of Michigan.


- 1954b, Ostracods from the Middle Devonian Dundee Limestone in northwestern Ohio: Contributions from the Museum of Paleontology The University of Michigan, v. 11, no. 8, p. 167-186.


- 1963, Occurrence and variations of Botryocrinus thomasi Laudon in the Thunder Bay Limestone of Michigan: Contributions from the Museum of Paleontology The University of Michigan, v. 18, no. 15, p. 231-244.


- 1964b, Two new crinoids of the family Periechocrinitidae from the Middle Devonian Thunder Bay Limestone of Michigan: Contributions from the Museum of Paleontology The University of Michigan, v. 19, no. 11, p. 143-155.


Kesling, R. V., 1971a, Dolatocrinus kutasii, a new crinoid from the Middle Devonian Bell Shale of Michigan: Contributions from the Museum of Paleontology The University of Michigan, v. 23, p. 201-211.

- 1971b, Michiganaster inexpectatus, a new many-armed starfish from the Middle Devonian Rogers City Limestone of Michigan: Contributions from the Museum of Paleontology The University of Michigan, v. 23, p. 247-262.

-, 1973b, New botryocrinus and glossocrinus from the Middle Devonian Bell Shale of Michigan: Contributions from the Museum of Paleontology The University of Michigan, v. 24, no. 5, p. 31-46.
-, 1975, Revision of Upper Ordovician and Silurian rocks of the Northern Peninsula of Michigan: Papers on Paleontology, no. 9, p. 32-32.
-, 1978, Strata of the middle Devonian Silica Formation: Field Excursions from the University of Michigan, p. 3-33.
Kesling, R. V., and Hussey, R. C., 1953, A new family and genus of ostracod from the Ordovician Bill's Creek Shale of Michigan: Contributions from the Museum of Paleontology The University of Michigan, v. 11, no. 4, p. 77-95.


Kier, P. M., 1951, Echinoderms of the Middle Devonian Silica Formation of Ohio, MS: University of Michigan.


Kilgore, J. E., 1951, Ostracods of the families Leperditellidae, Drepanellidae, Glyptoleuridae, Kloedenellidae, Bairdiidae, Barychilinidae, and Thlipsuridae from the Genshaw formation of Michigan, MS: University of Michigan.


Kim, K. H., 1992, A microfacies study of the sedimentology and diagenesis of the Formosa Reef Limestone (Middle Devonian), southwestern Ontario, MS: University of Toronto (Canada), 376 p.


-, 1979, Formation temperature of fluorite in Lockport Dolomite in Upper New York State as indicated by fluid inclusion studies with a discussion of heat sources - reply: Economic Geology, v. 74, no. 1, p. 159-164.


-, 1948, Two new inadunate crinoids genera from the Middle Devonian: American Journal of Science, v. 246, no. 11, p. 701-710.


Kirshke, W. H., 1962, A petrographic core analysis of the Lower and Middle Ordovician rocks, Pulaski field, Jackson County, of Michigan, MS: Michigan State University.


Kline, V. H., 1933, Revision of Alexander Winchell's types of brachiopods from the Middle Devonian Traverse Group rocks of Michigan, MS: University of Michigan.


Koch, W. F., II, 1981, Brachiopod community paleoecology, paleobiography and depositional
topography of the Devonian Onondaga Limestone and correlative strata in Eastern North
North America, Boulder, Geological Society of America, Geological Society of America
Special Paper, 84 p.
-, 2001, The Ordovician Sebree Trough: An oceanic passage to the Midcontinent United States:
Konstantinou, A., Wirth, K. R., Vervoort, J. D., Malone, D. H., Cameron, D., and Craddock, J. P.,
2014, Provenance of Quartz Arenites of the Early Paleozoic Midcontinent Region, USA:
sheetflood events on the Bruce Peninsula, Ontario: Canadian Journal of Earth Sciences,
v. 35, no. 10, p. 1180-1202.
Kowalski, J. J., 1967, Cambro-Ordovician Exposures in the Eastern Upper Peninsula of
Michigan, in Ostrom, M. E., and Slaughter, A. E., eds., Correlation Problems of the
Cambrian and Ordovician Outcrop Areas, Northern Peninsula of Michigan, Michigan
Basin Geological Society, p. 67-78.
Kramer, J. R., 1954, The spectrochemical analysis of limestone and dolomite, MS: University of
Michigan.
compared to liquid inclusion analyses: Geochimica et Cosmochimica Acta, v. 29, no. 8,
p. 921-945.
Kraus, E. H., 1905a, On the Occurrence and Distribution of Celestite-Bearing Rocks: American
-, 1905b, On the Occurrence and Distribution of Celestite-Bearing Rocks: Seventh Report of the
-, 1905c, On the Origin of the Sulphur Deposits at the Woolmith Quarry, Monroe Co., Michigan:
Kraus, E. H., and Hunt, W. F., 1906a, The occurrence of sulphur and celestite at Maybee,
-, 1906b, The occurrence of sulphur and celestite at Maybee, Michigan: Zeitschrift für
Kropschot, R. E., 1953, A quantitative sedimentary analysis of the Mississippian deposits in the
Michigan Basin, MS: Michigan State University, 57 p.
Krushensky, R. D., 1956, Insoluble residues and stratigraphy of a Trenton-Black River section
from the Northville pool, Michigan, MS: Wayne State University, 69 p.
Kuglitsch, J. J., 2000, Correlation of the Silurian rocks of southeastern and northeastern
Wisconsin using conodonts and conodont strontium isotope ratios and proposed
conodont and ostracode biofacies models for the environs of the Middle Aeronian
Kunasz, I. A., 1968, Significance of laminations in the upper Silurian evaporite deposit of the
Michigan Basin, MS: Pennsylvania State University.
Kunert, R., Coniglio, M., and Jowett, E. C., 1998, Controls and age of cavernous porosity in
Middle Silurian dolomite, southern Ontario: Canadian Journal of Earth Sciences, v. 35,
no. 9, p. 1044-1053.
KunleDare, M. A., 2005, Petrographic investigation into the development of secondary porosity
in sandstones: A case study of the Cambrian Mount Simon and Galesville Sandstones,


La Rocque, A., 1946, New genera and species of Mollusca from the Middle Devonian of Michigan and Manitoba, MS: University of Michigan.
- , 1948, Pre-Traverse Devonian Pelecypods of Michigan, PhD: University of Michigan.
- , 1949, New uncoiled gastropods from the Middle Devonian of Michigan and Manitoba: Contributions from the Museum of Paleontology The University of Michigan, v. 7, p. 113-122.


Lammers, L. J., 1956, Analysis of the core from drill hole no. 2, Wayne County Airport, Detroit, Michigan: MS: University of Michigan.


-, 1899a, Coal in lower Michigan: Michigan Miner, v. 1, no. 9, p. 9-12.


-, 1899c, Coal in lower Michigan: Michigan Miner, v. 1, no. 4, p. 9-16.


-, 1899e, Coal in lower Michigan: Michigan Miner, v. 1, no. 6, p. 9-12.


-, 1899g, Coal in lower Michigan: Michigan Miner, v. 1, no. 8, p. 9-12.


- 1910, Notes on the geological section of Michigan Part II From the St Peter sandstone up: Journal of Geology, v. 18, no. 5, p. 393-429.
LaRowe, M., 2000, Conodont biostratigraphy of the Ordovician Bills Creek, Stonington, and Big Hill Formations in the Upper Peninsula of Michigan, BS: The Ohio State University, 36 p.
Laub, R. S., 1983, The Silurian coral biostratigraphy of New York, Binghamton, NY, United States (USA), State Univ. New York, Binghamton, NY.
Le, M. A., 2004, Application of well log tomography to the Dundee and Rogers City Limestones, Michigan Basin, USA, MS: Michigan Technological University.
Legault, R. Z., 1959, Study of the Frank J. & Barbara Kammer number 1 well in the Peters Reef St. Clair County, Michigan, MS: University of Michigan.
Lehle, P. F., 1980, Deposition and development of Lockport and Salina (Silurian) rocks at west Millgrove, Ohio, MS: Bowling Green State University, 105 p.


Lesperance, P. J., 1957, Drill hole No. 8, Wayne County Major Airport, Wayne County, Michigan, MS: University of Michigan.

Leutze, W., 1950, The stratigraphy and paleontology of the (Silurian) middle Salina in central New York, MS: Syracuse University.


Lilienthal, R. T., 1972, A trace element analysis of Silurian carbonate rocks, MS: Wayne State University, 71 p.


Linsley, R. M., 1953, New gastropods from the Middle Devonian Anderdon Limestone of Michigan, Ohio and Ontario, MS: University of Michigan, 37 p.

-, 1960, Gastropods of the Middle Devonian Anderdon Limestone, PhD: University of Michigan.


Lizotte, M., 1962, Structural and lithological controls on oil and gas producing zones in Trenton limestone, MS: University of Michigan, 53 p.


Lovato, J., 1979, The geohydrologic characteristics of the glacial drift within the Water Quality Management Project Site, Michigan State University, MS: University of Michigan, 136 p.


Lowden, J. E., 1965, A combined geologic and gravity analysis of the Walker field, Michigan, MS: Michigan State University.


Lukens, P. S., 1971, Petrology and Depositional Environments of The Au Train Formation Alger County, Michigan, MS: Western Michigan University.


Luukkonen, C. L., Grannemann, N. G., and Holtschlag, D. J., 1997a, Ground-Water Flow in the Saginaw Aquifer in the Vicinity of the North Lansing Well Field, Lansing, Michigan--


Ma, L., Castro, M. C., and Hall, C. M., 2009b, Crustal noble gases in deep brines as natural tracers of vertical transport processes in the Michigan Basin: Geochemistry, Geophysics, Geosystems, v. 10, no. 6, p. Q06001.


Martin, H. M., 1942, Have we enough oil?: Michigan Conservation, v. 11, no. 8.


-, 1944, Salt for a million years: Michigan Conservation, v. 13, no. 11, p. 4-5, 11.


Martin, J. R., 1982, Pennsylvanian Deltaic Sedimentation in Grand Ledge, Michigan, MS: Western Michigan University.


Mason, D., 1962, Pyritized microfossils from the Upper Devonian black shale of Southwestern Ontario and Southern Michigan, MS: The University of Western Ontario, 59 p.

Matelski, A. L., 2002, Characterization of limestone and dolomite aggregates in Michigan, Northern Ohio, and Ontario, Canada, MS: Michigan Technological University.


McCammon, R. B., 1956, Stratigraphy and paleontology of a core penetrating Upper Silurian and Middle Devonian strata in Wayne County, Michigan, MS: University of Michigan.
McCloskey, S. M., 2012, 3-D reservoir characterization of the South Buckeye Field, Dundee Formation (Devonian), Michigan Basin, USA, MS: Western Michigan University, 366 p.
McIntosh, J. C., 2004, Impact of Pleistocene glaciation on midcontinent sedimentary basin fluids: Reorganization of salinity structure and generation of microbial gas, PhD: University of Michigan.
McMillan, G. W., 1949, Ostracods of the family Hollinidae from the Bell Shale of Michigan, MS: University of Michigan.

McNair, A. H., 1935, Cryptostomatous bryozoa from the Middle Devonian Traverse Group of Michigan, PhD: University of Michigan.

-, 1937, Cryptostomatous bryozoa from the Middle Devonian Traverse Group of Michigan: Contributions from the Museum of Paleontology The University of Michigan, v. 5, no. 9, p. 103-170.

McNair, A. H., Jr., 1933, Some cryptostomatous Bryozoa from the Traverse Group of Michigan, MA: Montana State University.


Meissner, B. D., 1993, The geochemistry and source for solutes in ground water from the Pennsylvanian bedrock sequence in the Michigan Basin, MS: Michigan State University, 126 p.


Melik, J. C., 1963, The hingement and contract margin structure of palaeocopid ostracodes from some Middle Devonian Formations of Michigan, Southwestern Ontario, and Western New York, PhD: University of Michigan, 144 p.


Mencenberg, F. E., 1963, Groundwater geology of the (Pennsylvanian) Saginaw Group in the Lansing area, Michigan, MS: Michigan State University, 38 p.

Merritt, D. W., 1968, A gravitational investigation of the Scipio oil field in Hillsdale County, Michigan, with a related study for obtaining a variable elevation factor, PhD: Michigan State University.

Mescher, P. K., 1980, Structural evolution of Southeastern Michigan - Middle Ordovician to Middle Silurian, MS: Michigan State University, 120 p.


Mesolella, K. J., and Weaver, O. W., 1975, What is the effect of salt-collapse structures on finds in Michigan basin arena?: The Oil and Gas Journal, p. 166-168.
Meyer, F. O., 1979, Middle Devonian lagoon patch reef complex of Michigan: Stratigraphy and physical and biological determinants of reef structure, PhD: University of Michigan.
-, 1953b, Lower Mississippian cephalopods of Michigan; Part 2, Coiled nautiloids: Contributions from the Museum of Paleontology The University of Michigan, v. 11, p. 111-151.
-, 1953c, Lower Mississippian cephalopods of Michigan; Part 3, Ammonoids and Summary: Contributions from the Museum of Paleontology The University of Michigan, v. 12, no. 8, p. 113-173.
Miller, L. S., 1943, Why oil proration?: Michigan Conservation, v. 12, no. 9, p. 4-5, 11.
Miller, M. A., 1988, Dolomitization and porosity evolution, PhD: Michigan State University, 168 p.
Mintz, L. W., 1962, The species of the crinoid Dolatocrinus from the Middle Devonian Dock Street Clay of Michigan, MS: University of Michigan.
Mitten, H. T., 1957, Some aspects of differential thermal analysis experiments applied to the Antrim and Bedford-Berea Shales (Devonian-Mississippian) from Oakland County, Michigan, MS: Michigan State University, 86 p.
Montgomery, E. L., 1986, Facies development and porosity relationships in the Dundee Limestone of Gladwin County, Michigan, MS: Western Michigan University, 82 p.
Moore, D. J., 1962, Ordovician and Cambrian Fossils from a Well Core, Delta County, Michigan, MS: Michigan State University, 52 p.
Moretti, G., 1971, Reference Section for Paleozoic Rocks in Eastern Wisconsin: Van Driest No 1, Sheboygan County, MS: University of Wisconsin Milwaukee, 120 p.


Morse, M. L., 1938, Conodonts from the (Devonian) Norwood and Antrim Shales of Michigan, PhD: University of Michigan.


Motamedi, S., 1982, Celestite mineralization in the Lockport Dolomite (Niagaran) at Genoa, Ohio, MS: Bowling Green State University, 132 p.


Nellist, W. E., 1986, Stratigraphy, petrography, and depositional environment of the Kokomo Dolomite Member, Wabash Formation (Silurian, Ludlovian-Pridolian) of Cass, Howard, and Miami counties, Indiana, MS: Indiana University, 137 p.
-, 1930a, Interpretation of Recent Discoveries in the Salt-Bearing Rocks of Michigan: Papers of the Michigan Academy of Science, Arts and Letters, v. 12, p. 239-250.
-, 1931a, Petroleum production in middle western states, 1930: American Institute of Mining Engineers Transactions, v. 92, p. 386-392.
-, 1938a, Geology of Allegan County and the surrounding district in southwestern Michigan: Oil & Gas Journal, v. 37, no. 29, p. 32-34.
Newcombe, R. J. B., 1931b, Depositional and structural features of the Michigan synclinal basin, PhD: University of Michigan.
Newcombe, R. J. B., 1938b, Geology of the Clare County field in Michigan: Oil and Gas Journal, v. 37, no. 21, p. 25-27.

Newhart, R. E., 1976, Carbonate facies of the Middle Ordovician Michigan Basin, MS: Michigan State University, 44 p.


Newman, F. G., 1955, Stratigraphy and paleontology of a core from Silurian and Devonian strata of Wayne County, Michigan, MS: University of Michigan.


Nowak, R. P., 1978, Clay mineralogy of pre-Coldwater (Mississippian) argillaceous sediments in the State Foster #1 well, Ogemaw County, Michigan, MS: Michigan State University, 73 p.


Nurmi, R. D., 1972, Upper Ordovician stratigraphy of the southern peninsula of Michigan, MS: Michigan State University.


Nutter, N. H., 1958, The use of infra-red spectro-photometric analysis in the correlation of different units within Dundee Limestone, Devonian age, Rogers City, Michigan, MS: Michigan State University.

O'Connell, J. F., 1952, Study of Ordovician rocks from deep wells in the Hillsdale, Northville and adjacent areas in southeast Michigan, MS: Michigan State University.


Obermajer, M., 1997, Thermal maturity and petroleum potential of the Paleozoic strata in southwestern Ontario, PhD: University of Western Ontario.


Ochoa, R. I., 2010, Porosity characterization and diagenetic facies analysis of the Cambrian Mount Simon Sandstone: Implications for a regional carbon dioxide sequestration reservoir, MS: Purdue University, 152 p.


Oetking, P. F., 1951, The relation of the lower Paleozoic rocks to the older rocks in the northern peninsula of Michigan, PhD: University of Wisconsin.

Oinonen, R. L., 1965, A study of selected Salina salt beds in northeastern Ohio, MS: Ohio University, 60 p.


-, 1981, The Middle Devonian rugose coral _Prismatophyllum conjunctum_ (Davis) and the age of the "Columbus" Limestone at Ingersoll, Ontario: Geological Society of America Bulletin, v. 92, no. 11, p. 873-877.


Osgood, W., 1929, Michigan oil and gas development and possibilities: Proceedings of the Lake Superior Mining Institute, v. 27, p. 160-165.
Paige, D. S., 1952, A rapid method for the correlation of fine-grained sediments with the aid of the spectrograph as applied to the Mississippian-Devonian sequence in Clare County, Michigan, MS: Michigan State University, 34 p.
Palmquist, R. C., 1969, The configuration of the Prairie du Chien-Saint Peter contact in southwestern Wisconsin; an example of an integrated geological-geophysical study: Journal of Geology, v. 77, no. 6, p. 694-702.
Pandolfi, J. M., 1983, Distribution of tabulate corals in Devonian strata of New York State, Binghamton, NY, United States (USA), State Univ. New York, Binghamton, NY.
Park, S. G., 1987, Deposition, diagenesis, and porosity development of the Middle Devonian, Lucas Formation in the West Branch Oil Field, Ogemaw County, Michigan, MS: Western Michigan University, 102 p.
Patterson, K., 2011, Geologic controls on reservoir quality and geologic carbon sequestration potential in the Upper Cambrian Mount Simon Sandstone, MS: Western Michigan University, 128 p.
Pennington, E. K., 1967, A stratigraphic study of the Upper Cambrian of the Perry-Wooden No. 1 deep test well, Cass County, Michigan, MS: Michigan State University.
Peterson, R. M., 1961, Ostracods of the family Quasillitidae from the Middle Devonian strata of Michigan, Ohio, New York, and Ontario, PhD: University of Michigan, 193 p.
Porcher, E. N., 1985a, Lithofacies and Geochemistry of Interreef Carbonates, Middle Silurian, Michigan Basin, MS: Western Michigan University, 118 p.


Powell, L. M., 1950, Calcium carbonate-magnesium ratios in the Rogers City and Dundee Formations of the Pinconning field, MS: University of Michigan.


Preble, H. D., 1950, Paleontology and stratigraphy of a well core penetrating Middle Ordovician formations of Garfield Township, Newaygo County, Michigan, MS: University of Michigan, 35 p.


Qualman, H. K., 2009, 3-D interpretation of reservoir property distribution in the Belle River Mills Silurian (Niagaran) Reef, St. Clair County, Michigan, MS: Western Michigan University, 104 p.


Radabaugh, R. E., 1937, The Dundee and Rogers City Limestones of the northern part of the Southern Peninsula of Michigan, MS: University of Michigan.

Radabaugh, R. E., 1942, The Middle Devonian Rogers City Limestone and its Gastropod Fauna, PhD: University of Michigan, 166 p.


Read, W. F., 1986, Possible impact spherules from near the base of the Middle Ordovician in Northern Illinois: Meteoritics, v. 21, no. 3, p. 251-262.


Richardson, J. G., 2006a, Glacio-eustatic response recorded in the Lower Mississippian (Kinderhookian-Osagean;Middle Tournaisian) clastic environments of the Michigan Basin: Stratigraphy, v. 3, no. 1, p. 65-75.


-, 1900c, The origins, properties, and use of shale: Michigan Miner, v. 2, no. 1, p. 31-32.


-, 1943, Oil man's nightmare: Michigan Conservation, v. 12, no. 1.

Rinke, G. C., 1990, Lithofacies and paleoenvironments of the Middle Ordovician Trenton and Black River Formations, Southeastern Michigan, MS: Wayne State University, 120 p.


-, 1930, Geological report on oil and gas possibilities in Delta, Schoolcraft, Mackinac and Chippewa Counties, Detroit, Hiawatha Development Company, 31 p.: Roche, J. E., 1969, Petrography of back-reef carbonates: Traverse Group (Givetian) of the Northern part of the Southern Peninsula of Michigan, PhD: University of Illinois at Urbana-Champaign, 85 p.

Roche, J. E., and Carozzi, A. V., 1970, Petrography of back-reef carbonates; Traverse Group (Givetian) of the northern part of the southern peninsula of Michigan: Centre de Recherches de Pau (Societe Nationale des Petroles d'Aquitaine), Bulletin., v. 4, no. 1, p. 137-173.

Rockwood, D. N., 1938, Oil and gas occurrence in Gratiot County, Michigan, MA: University of Michigan.


Rodwan, J. C., 1986, Stratigraphic and sedimentologic analysis of the Middle Devonian Filer Sandstone, MS: Western Michigan University, 94 p.


-, 1959, Core Drilling at the Mackinac Bridge Site, Michigan, in Geology of Mackinac Island and Lower and Middle Devonian South of the Straits of Mackinac, in Shelden, F. D., ed., Geology of Mackinac Island and Lower and Middle Devonian South of the Straits of Mackinac, Michigan Basin Geological Society, p. 25-38.

Ross, R. M., 1957, A quantitative sedimentary analysis of the Middle Devonian Traverse Group in the Michigan basin, MS: Michigan State University, 52 p.


Roth, J. N., 1965, A gravitational investigation of fracture zones in Devonian rocks in portions of Arenac and Bay counties, Michigan, MS: Michigan State University.

Rovey, C. W., II, 1990, Stratigraphy and sedimentology of Silurian and Devonian carbonates, eastern Wisconsin, with implications for groundwater discharge into Lake Michigan, PhD: University of Wisconsin Milwaukee, 461 p.

Rowe, D. E., 1951, An isopachous and structural map study of the Allegan area of Southwestern Michigan, MS: Wayne State University, 37 p.


Rulli, V. G., 1973, Stratigraphy and taxonomy of the cryptostome bryozoan genus Sulcoretepora in the subsurface of lower Michigan, MS: Wayne State University, 63 p.


Runyon, S. L., 1976, A Stratigraphic Analysis of the Traverse Group of Michigan, MS: Michigan State University, 85 p.


Russell, I. C., 1905, A geological reconnaissance along the north shores of lakes Huron and Michigan, in Lane, A. C., ed., Report on the State Board of Geological Survey of Michigan for the year 1904, being the report of Alfred C. Lane, State Geologist.


Sanders, L. L., 1986, Geochemistry and paleotemperatures of formation waters from the Lower Silurian "Clinton" Formation, eastern Ohio, PhD: Kent State University, 141 p.


Saunders, J. M., 1949, Lithology and insoluble residues of a core from the (Lower Devonian) Detroit River Group, MS: University of Michigan.
Sayegh, E. F., 1963, A reservoir engineering study of the performance of the Coldwater field, Michigan, MS: University of Texas.

Scheiern, M. R., 1953, A study of species of the ostracod genus Dizygopleura from the Middle Devonian Traverse Group of Michigan, MS: University of Michigan.


Schmidt, D. A., 2006, Paleontology and sedimentology of calcifying microbes in the Silurian of the Ohio-Indiana region; an expanded role of carbonate-forming microbial communities, PhD: Ohio State University, 276 p.


Schulz, J. E., 2011, High resolution depositional analysis of the Black River Group (Ordovician), Michigan Basin, MS: Western Michigan University, 290 p.


Seyler, D. J., 1974, Middle Ordovician of the Michigan Basin, MS: Michigan State University, 139 p.

Shadrach, R. J., 1989, Subsurface geology of the Clinton section (Lower Silurian Albion Group) in Medina County, Ohio, MS: Kent State University, 94 p.

Shaffer, B. L., 1969, Palynology of the Michigan "red beds" ,PhD: Michigan State University, 250 p.

Sharma, G., 1961, Geology of the Peters Field, St. Clair County, Michigan, MS: University of Michigan, 132 p.


Sharma, S., 2004, Geochemistry and sedimentology of Upper Ordovician mudrocks and limestones, eastern Ontario: A new sedimentary framework for the distal Taconic foreland, PhD: Carleton University, 224 p.


-, 1976, Silurian Reefs, Interreef Facies, and Faunal zones of Northern Indiana and Northeastern Illinois, Field Trip Guidebook, North-Central section of the Geological Society of America and Western Michigan University, 37 p.
-, 1959b, Geology of Mackinaw Island and Lower and Middle Devonian South of the Straits of Mackinac, Michigan Basin Geological Society Annual Geological Excursion, 63 p.
Shukla, V., 1980, Dolomitization in the Lockport Formation (Middle Silurian) in New York, PhD: Rensselaer Polytechnic Institute, 203 p.
- 1939c, Revived interest in Michigan as new prospects open: Oil & Gas Journal, v. 38, p. 18-19.
Simons, M. E., 1949, Insoluble residues of the Traverse Group in the Charlevoix-Petoskey area, Michigan, MS: Wayne State University.
- 1952, Insoluble Residues of the Devonian Traverse Group, Michigan, PhD: The University of North Carolina, 1 p.
Singh, S. P., 1979, Laboratory investigation on changes of mechanical and physical properties of Michigan oil shale on retorting, MS: Michigan Technological University.
Slaughter, A. E., 1950, The stratigraphic value of certain cryptostomatous Bryozoa of the Traverse Formation, Middle Devonian age of Michigan, MS: Michigan State University, 37 p.
Sloss, L. L., 1937, Devonian rugose corals from the Traverse Beds of Michigan, PhD: University of Chicago.
Smith, G. W., 1972, The Ferron Point and Genshaw Formations of Cheboygan and western Presque Isle Counties, Michigan, MS: Michigan State University.
Smith, J. E. I., 1959, Ostracods from the Middle Devonian Traverse Group of Emmet and Charlevoix Counties of Michigan, PhD: University of Michigan, 224 p.
Smith, L. R., 1977, Niagaran (Middle Silurian) Reef Trends of Southcentral Michigan, MS: University of Michigan, 97 p.
- 1931, Supplemental Report to Geological Report by W. I. Robinson on Oil and Gas Possibilities in Delta, Schoolcraft, Mackinac and Chippewa Counties.
- 1937, Michigan Academy of Science, Arts, and Letters, Section of Geology and Mineralogy, Seventh Annual Field Excursion: Devonian of Alpena and Presque Isle counties, Michigan.

Smith, R. N., 1961, *Genneocrinus variabilis*, a new crinoid species from the Middle Devonian Bell Shale of Michigan, MS: University of Michigan.


Sohrabi, A., 2013, The Trentonian (Late Ordovician) brachiopod fauna of Ontario: Evolution through a global warming event, PhD: The University of Western Ontario, 279 p.


Sorrwar, G., 1961, Middle Devonian ostracods from the Ferron Point Formation, Cheboygan and Presque Isle Counties, Michigan, MS: Michigan State University.


Sparling, D. R., 1956, Occurrence of *prasopora* in a core from the Northville area, Michigan, MS: Wayne State University, 82 p.

Spruit, J. D., 1981, The paleoecology of carbonaceous (algal) material in the Middle Devonian Rockport Quarry Limestone of the Northeastern portion of Michigan's Lower Peninsula, MS: Western Michigan University, 98 p.
-, 1909b, The Middle Devonian of Ohio, PhD: The University of Chicago, 204 p.


Steinfurth, C., 1972, The role of pre-existing grain surfaces in recrystallization of the Mississippian Bayport Limestone (Michigan), MS: Michigan State University, 48 p.


Strutz, T. A., 1979, A pre-Pennsylvanian paleogeologic study of Michigan, MS: Michigan State University, 68 p.


-, 1951, Check list of fossil invertebrates described from the Middle Devonian Traverse Group of Michigan: Contributions from the Museum of Paleontology The University of Michigan, v. 9, no. 1, p. 1-44.


-, 1953a, Lower Middle Devonian Proetid Trilobites from Michigan, Southwestern Ontario, and northern Ohio: Contributions from the Museum of Paleontology The University of Michigan, v. 11, p. 11-31.


-, 1956a, A revision of A. W. Grabau's species of *Mucrospirifer* from the Middle Devonian Traverse Group of Michigan: Contributions from the Museum of Paleontology The University of Michigan, v. 13, no. 3, p. 81-94.


Stumm, E. C., 1961a, Addenda to the check list of fossil invertebrates described from the Traverse Group of Michigan: Contributions from the Museum of Paleontology The University of Michigan, v. 17, no. 5, p. 149-171.


-, 1967c, Growth stages in the Middle Devonian rugose coral species Hexagonaria anna (Whitfield) from the Traverse Group of Michigan: Contributions from the Museum of Paleontology The University of Michigan, v. 21, no. 5, p. 105-108.
-, 1968b, A redescription of the Middle Silurian compound rugose coral Grazuphyllum Johnstoni Foerste: Contributions from the Museum of Paleontology The University of Michigan, v. 22, no. 6, p. 71-73.
-, 1968c, Rugose corals of the Silica Formation (Middle Devonian) of Northwestern Ohio and Southeastern Michigan: Contributions from the Museum of Paleontology The University of Michigan, v. 22, p. 61-70.


Sulllivan, K. J., 1986, Petrography, diageneric history, and development of porosity in the Richfield member of the Lower Middle Devonian Lucas Formation, Northeast Isabella County, Central Michigan Basin, MS: Western Michigan University, 85 p.


Swann, D. H., 1940, The *Favosites alpenensis* lineage in the Middle Devonian Traverse Group of Michigan, PhD: University of Michigan.


Swanson, R. I., 1955, The extent of the Clare Dolomite, a marker horizon of Michigan, MS: Michigan State University.


Tabor, N. R., 1951, Ostracods of the family Hollinidae from the Genshaw Formation of Michigan, MS: University of Michigan.


-, 1945, The (Devonian) Antrim-(Mississippian) Ellsworth and Coldwater Formations in Michigan, MS: University of Michigan.

Tatlock, D. B., 1955, Stratigraphy and paleontology of a well core through Upper and Middle Silurian strata in Oakland County, Michigan, MA: University of Michigan.


Ten Have, L. E., 1979, Relationship of dolomite/limestone ratios to the structure and producing zones of the West Branch Oil Field, Ogemaw County, Michigan, MS: Michigan State University, 106 p.

Terwilliger, F. W., 1951, Oil-gas drilling operations decline in 1951: Michigan Manufacturer & Financial Record, v. 89, no. 5.


Tharp, M., 1945, Subsurface studies of the (Lower Devonian) Detroit River series (Michigan, Ontario, Ohio), MS: University of Michigan.


Thiruvathukal, J. T., 1963, A regional gravity study of basement and crustal structures in the Southern Peninsula of Michigan, MS: Michigan State University.

Thompson, S. L., 1963, Stratigraphic and structural relationships governing Mississippian gas occurrence in Mecosta County and the Falmouth gas field in Missaukee County, Michigan, MS: Michigan State University.
- 2011, Prediction of Petrophysical properties of Trenton-Black River (Ordovician) Reservoirs by comparing pore architecture and permeability to Sonic Velocity, MS: Western Michigan University, 414 p.
Tillman, J. R., 1958, A study of the Middle Devonian species of the genera Alveolites and Planalveolites from the Traverse Group of Michigan, MS: University of Michigan.
Tillman, J. R., 1962, Variation in species of Mucrospirifer from Middle Devonian rocks of Michigan, Ontario and Ohio, PhD: University of Michigan, 43 p.


-, 1974, Sabkha deposition of the Salina Group (upper Silurian) of New York State, United States (USA), North. Ohio Geol. Soc., Inc., Cleveland, Ohio, Fourth Symposium on Salt, Volume one (edited by Coogan, Alan H.); General Geology of Salt and Other Evaporites.


Trisch, S., 2006, Crosswell seismic amplitude variation with angle studies at a Niagaran reef, MS: Michigan Technological University.


Tyler, J. H., 1963, Petrology, fauna, and paleoecology of the type Four Mile Dam Limestone, Alpena County, Michigan, PhD: University of Michigan, 162 p.


Utterback, D. D., 1936, A study of outcropping bituminous limestones and sandstones with reference to porosity and to the origin and migration of petroleum, PhD: University of Illinois.


Varga, L. L., 1981, Dolomitization of the Brassfield Formations (Lower Silurian) in Adams County, Ohio, MS: Western Michigan University, 74 p.


Verhoeven, C. S., 1948, Possibility of determining restricted reef conditions from the areal distribution of the widely distributed contemporaneous detrital and lagunal facies MS: Michigan State University, 32 p.


Walles, F. E., 1980, Niagaran Pinnacle Reefs of South Central Michigan, MS: Michigan State University, 325 p.


-. 1934, Oil and gas developments in Michigan during 1933: American Institute of Mining Engineers Transactions, v. 107, p. 253-258.
-. 1937, Oil and gas developments in Michigan during 1936: American Institute of Mining Engineers Transactions, v. 123, p. 397-403.
-. 1939, Oil and gas developments in Michigan during 1938: American Institute of Mining Engineers Transactions, v. 132, p. 352-357.
-. 1941, Oil and gas developments in Michigan during 1940: American Institute of Mining Engineers Transactions, v. 142, p. 347-351.
-. 1942, Oil and gas developments in Michigan during 1941: American Institute of Mining Engineers Transactions, v. 146, p. 348-354.
-. 1943, Oil and gas developments in Michigan during 1942: American Institute of Mining Engineers Transactions, v. 151, p. 393-399.
-. 1944, Oil and gas developments in Michigan during 1943: American Institute of Mining Engineers Transactions, v. 155, p. 386-396.
Watkins, J. L., 1958, Middle Devonian Auloporid Corals from the Traverse Group of Michigan, PhD: University of Michigan, 83 p.
-. 1959, Middle Devonian auloporid corals from the Traverse Group of Michigan: Journal of Paleontology, v. 33, no. 5, p. 793-808.


Watson, J. K., 1972, Stratigraphic correlation of the Niagara-lower Salina units, MS: University of Michigan, 24 p.


Weiss, M., 1951, Ostracod fauna of the Norway Point Formation of Michigan, MS: University of Michigan.


Wender, C., 1943, Speeding the search for oil: Michigan Conservation, v. 12, no. 1.


Westjohn, D. B., 1994a, Geohydrology of Carboniferous Aquifers of the Michigan Basin, Great Lakes Section-SEPM Fall Field Conference, Great Lakes Section-SEPM.


Wilson, H. T., 1955, Paleontology and stratigraphy of a well core through Silurian and Ordovician strata in Oakland County, Michigan, MS: University of Michigan.


Winchell, A., 1861, First biennial report of the progress of the geological survey of Michigan, embracing observations of the geology, zoology, and botany of the Lower Peninsula.


-, 1876a, Rectification of the geological map of Michigan American Association for the Advancement of Science Proceedings, v. 24, p. 27-43.
-, 1881, Geology of Washtenaw County, Michigan, History of Washtenaw County: Chicago, p. 141-172.
Wines, H., 1997, Reservoir Characterization of Crystal Field and Analysis of The Tow #1-3 HD-1 Well, Montcalm County, Michigan, MS: Western Michigan University, 112 p.
Wold, J. L., 2008, Sequence stratigraphy and 3-D reservoir characterization of a Silurian (Niagaran) reef - Ray Gas Storage Field, Macomb County, Michigan, MS: Western Michigan University, 104 p.
Wood, E., 1905, On new and old Middle Devonian crinoids: Smithsonian Miscellaneous Collections, v. 47, no. 1471, p. 56-84.

Wooten, M. J., 1951, The (Mississippian) Coldwater Formation in the area of the type locality (Michigan), MS: Wayne State University, 52 p.

Wright, J. D., 1955, The type species of Spinocyrtia, Fredericks, and two new species of this brachiopod genus from the Middle Devonian Hamilton Group, in the Thedford-Arkonaw region of southwestern Ontario, MS: University of Michigan.


Wuckert, A. E., 1950, Bioseries of the ostracode Ponderodictya in the Traverse Group of Michigan, MS: Michigan State University, 38 p.


Wylie, A. S., 2002, Log curve amplitude slicing -- visualization of well log amplitudes for paleogeographic reconstruction of the Middle Devonian Traverse Group, Michigan Basin, PhD: Michigan Technological University, 166 p.


Yang, L., 2015, A petrophysical evaluation of the Trenton-Black River Formation of the Michigan Basin, MS: Michigan Technological University.

Yang, T.-Y., 1939, Molluscs of the Middle Devonian Traverse Group of Michigan, PhD: Yale University.

Yokoyama, K. T., 1981, Geology of the Engadine Group (Silurian) in the subsurface of the northern peninsula of Michigan, MS: Bowling Green State University, 84 p.

Young, D. C., and Anonymous, 1978, Chemical and physical properties of Michigan Antrim Shale: DOE/METC (Morgantown Energy Technology Center), p. 129-137.

Young, R. T., 1955, Significance of the magnesium/calcium ratio as related to structure in the Stony Lake oil field, Michigan, MS: Michigan State University.


Zaitzeff, J. B., 1962, Middle Ordovician Black River ostracods from a well core, Jackson County, Michigan, MS: Michigan State University.


Michigan Quaternary References


Al-Agidi, W. K. H., 1970, A chronolithosequence of soils on Pleistocene terraces along Maple River in northeastern Clinton County, Michigan, USA (their morphologic, genetic and geomorphic interrelationship, PhD: Michigan State University.


Alessi, A. J., 1936, Hunting agates around Lake Superior: Rocks and Minerals, v. 11, no. 9, p. 139-139.


Anderson, L. M., 1996, A study of the chemical and physical interactions between a wetland and a shallow aquifer in Cass County, Michigan, MS: Western Michigan University.

Anderson, R. C., 1955, Pebbles and lithology of the major Wisconsin glacial lobes, PhD: University of Chicago.


Atekwana, E., 1996, Hydrogeology and stable isotope investigations of a landfill impacted site in southwest Michigan, PhD: Western Michigan University.


Aylsworth, R. L., Jr., 2008, A geophysical investigation of large-scale glaciotectonic deformation, Ludington Ridge, Michigan, MS: Michigan State University.

Ayodelle, A. E., 2014, Changes in the lead concentration in air and soil during house deconstruction and demolition: Case study Springwells, Detroit, Michigan, MS: Wayne State University.

Baas, D. G., 2009, Inferring dissolved phosphorous cycling in a TMDL watershed using biogeochemistry and mixed linear models, PhD: Michigan State University, 234 p.


-, 2014b, Reproductive ecophysiology of Rubus occidentalis in southeastern Michigan II. Variation in fruit characteristics relates to light and soil conditions: Rhodora, v. 116, no. 967, p. 267-282.


Barnick, S. K., 1987, Feasibility of the proposed Garden Lane recharge basin in Portage, Michigan, MS: Western Michigan University.


Bartnik, P., 1995, Hydrogeochemical delineation of a groundwater flow system, Berrien County, Michigan, MS: Western Michigan University.
Barton, G. J., 1984, Land Use Effects on Shallow Earth Resistivity, MS: Western Michigan University, 125 p.
Benedict, M. L., 2006, Lead isotopic chronologies from inland lakes : watershed vs. regional scale sources of lead in the great lakes region, MS: Michigan State University, 83 p.
Benjakul, R., 2010, Simulating dioxane transport in a heterogeneous glacial aquifer system (Washtenaw County, Michigan) using publicly available models and data, MS: Michigan Technological University, 66 p.


Berger, R. J., 1973, Compilation and interpretation of the geologic factors affecting land use planning, Chassell Quadrangle, Houghton County, Michigan, MS: Michigan Technological University.


-, 1933a, The Pleistocene history of the Tahquamenon and Manistique drainage region of the Northern Peninsula of Michigan, PhD: University of Michigan.


Bigsby, M. E., 2010, The characterization and possible origins of two loess sheets in the upper Great Lakes region, USA, MS: Michigan State University.


Bingham, M. W., 1978, Investigation of local site amplification of ground motion in the Upper Peninsula of Michigan, MS: Michigan Technological University.


Bird, B. C., 2005, Glacial stratigraphy and surficial geology of the Decatur, Lawrence, and Paw Paw U.S.G.S. 7.5 Minute Quadrangles in Van Buren County, Michigan, MS: Western Michigan University.

-, 2010, Glaciotectonic deformation along the Valparaiso Upland, Southwest Michigan, USA, PhD: Western Michigan University.


Biteman, S. E., 2002, Characterization of aquifer heterogeneity and tracer test simulations by incorporating geologic information in the form of outcrop analog and well core at a distal and medial outwash aquifer in Schoolcraft, Michigan, MS: Michigan State University.


Blandy, J. F., 1873, Topography with special reference to the Lake Superior Copper District: American Institute of Mining Engineers Transactions, v. 1, p. 75-82.


-, 1991b, The glacial geomorphism of the Port Huron Complex in northwestern southern Michigan, PhD: Michigan State University.


Blumer, B. E., 2008, An application of OSL dating to test the perched-dune model on coastal dunes at Arcadia, Michigan, MS: Michigan State University.
Bookout, J. R., 2006, Using digital elevation data to predict slopes of coastal sand dunes in Berrien County, Michigan, MS: Michigan State University.


Brabb, E. E., 1952, Description of Whittlesey beach sediments, Ann Arbor area, Michigan, MS: University of Michigan.

Bradley, P. W., 2009, Determination of select polybrominated diphenyl ethers and methoxylated polybrominated diphenyl ethers in sediment cores from two inland lakes in Michigan, MS: Michigan State University.


Bretz, J. H., 1907, Glacial Features of Genesee County: The Schoolmaster, p. 482-487; 530-539.

-., 1933, How Chicagoland was made: The Western Society of Engineers, v. XXXVIII, p. 135-141.

-., 1944, Geology of the beach phenomena of Lake Michigan with discussion: Shore and Beach, v. 12, no. 2, p. 31-40.


-, 1975b, Manistee County bedrock topography.


Brown, G. O., 1989, Bedford Shale (Port Lambton Group) and glacial dispersal of clay, southwestern Ontario, MS: University of Western Ontario, 243 p.

Brown, R. E., 1963, Bedrock topography, lithology and glacial drift thicknesses of Lapeer and St. Clair Counties, Michigan, MS: Michigan State University, 47 p.


-, 1981, Rates and implications of bluff recession along the Lake Michigan shorezone of Michigan and Wisconsin, PhD: Michigan State University.
Buckley, S. B., 1975, Study of post-Pleistocene ostracod distribution in the soft sediments of southern Lake Michigan, PhD: University of Illinois.
-, 1977, Lake Wisconsinan history of northeast Lower Michigan, PhD: University of Michigan.
Buzby, C. E., 1979, Engineering geology of the Wadhams Bridge Site, St. Clair County, Michigan, MS: University of Michigan.
-, 1942, The glacial and post-glacial history of the Platte and Crystal Lake depressions, Benzie County, Michigan, PhD: University of Michigan.
Camp, M. J., 1974, Pleistocene mollusca of three southeastern Michigan marl deposits, PhD: The Ohio Sate University.
Campbell, K. T., 1981, A study of landsat lineament data observed in Michigan, MS: Michigan State University, 170 p.
Carey, N. J., 1986, An evaluation of the effectiveness of bentonite as a soil additive for the cover material on the KL Avenue sanitary landfill, Kalamazoo, Michigan, MS: Western Michigan University.
Carlson, K., 2002, Inorganic and organic geochemistry of the former Lakeside Refinery in Kalamazoo, Michigan, MS: Western Michigan University.


Chambers, R. L., 1975, Information content of grain-size frequency distributions in coastal deposits on the eastern shore of Lake Michigan, PhD: Michigan State University.


Chang, H. C., 1968, X-ray diffraction studies of test boring samples from the glacial lake plain in Wayne County, Michigan, MS: Wayne State University, 89 p.


-, 1937b, Late-glacial and postglacial history of the Champlain Valley, PhD: University of Michigan, 89-124 p.


Chapman, R. H., 1952, Seismic depth to ledge studies as related to water problems at Morris Mine, Ishpeming, Michigan, MS: Michigan College of Mining and Technology, 1-51 p.

Chapman, W. B., 1950, Terrestrial tides as determined from deviations of gravity at Ann Arbor, Michigan, MS: University of Michigan.


Che-Alota, V., 2009, Temporal geophysical and geochemical signatures due to contaminant source reduction at Wurtsmith airforce base in Oscoda, Michigan, USA, MS: Oklahoma State University.


Childs, K. E., 1970, History of the salt, brine and paper industries and their probable effect on the ground-water quality in the Manistee Lake area of Michigan, 69 p.


Chittrayanont, S., 1978, A geohydrologic study of the Garfield Township coal basin area, Bay County, Michigan, MS: Michigan Technological University, 183 p.

Chowdhury, S. H., 1999, A comprehensive approach for evaluation of groundwater vulnerability to contamination, PhD: Western Michigan University.


Christensen, M. D., 1993, Acoustic investigation and new depositional model for the development of the St. Clair Delta, Ontario, Canada, MS: University of Windsor.

Christensen, R. H., Jr., 1990, A hydrogeological and hydrogeochemical investigation of groundwater at a landfill for sludge from the Kalamazoo wastewater treatment plant, MS: Western Michigan University.


Clawson, C. R., 2011, Relative dating and correlation of soil chronosequences developed in sandy late quaternary sediments near Detroit, Michigan using potassium adsorption isotherm analysis, MS: Wayne State University, 161 p.

Claypole, E. W., 1882, Evidence from the drift of Ohio, Indiana and Illinois, in support of the preglacial origin of the basins of lakes Erie and Ontario: American Association for the Advancement of Science Proceedings, v. 30, p. 147-159.


Cole, H. D., 1990, Highway deicing salts and the mobilization of selected heavy metals from stream sediments, PhD: Western Michigan University.


Colgan, P. M., 1999a, Early middle pleistocene glacial sediments (780000-620000 BP) near Kansas City, northeastern Kansas and northwestern Missouri, USA: Boreas, v. 28, p. 477-489.

-, 1999b, Reconstruction of the Green Bay Lobe, Wisconsin, United States, from 26,000 to 13,000 radiocarbon years BP, in Mickelson, D. M., and Attig, J. W., eds., Meeting of the North-Central-Geological-Society-of-America/Midwest Glaciology: Madison, p. 137-150.


Connallon, C. B., 2015, Mapping and characterizing a relict lacustrine delta in central Lower Michigan, MS: Michigan State University.

Cookman, R. R., 2000, Comparison of hydrologic and chemical outputs from three watersheds of the Keweenaw Peninsula and four U.S. Geological Survey monitored watersheds in the Lake Superior basin, MS: Michigan Technological University.


Coram, M., 2011, Stratigraphy and provenance of late pleistocene glacial sediments in the Pontic South quadrangle, Southeastern Michigan, MS: Wayne State University, 118 p.


Crisman, D. P., 1982, Groundwater geochemistry in the Portage Lake Volcanics, Hancock, Michigan and implications for native copper stability, MS: Michigan Technological University, 138 p.


Cypher, J. A., 2008, Hydrogeologic modeling of a 1,4-dioxane plume in a glacial aquifer system; Washtenaw County, Michigan, MS: Wayne State University.


Davis, C. A., 1900a, A contribution to the natural history of marl: Journal of Geology, v. 8, no. 6, p. 485-497.
-, 1900b, A remarkable marl lake: Journal of Geology, v. 8, no. 6, p. 498-503.
-, 1901, A second contribution to the Natural History of Marl: Journal of Geology, v. 9, no. 6, p. 491-506.
-, 1903, A second contribution to the natural history of marl: Journal of Geology, v. 9, no. 6, p. 491-506.
-, 1907a, Peat: essays on its origin, uses and distribution in Michigan, in Lane, A. C., ed., Report on the State Board of Geological Survey of Michigan for the year 1903, being the report of Alfred C. Lane, State Geologist.


Davis, R. A., Jr., 1964, Sedimentation in the nearshore environment, southeastern Lake Michigan, PhD: University of Illinois.


-, 1854a, On the existence of dunes on the shores of the upper American lakes: Boston Society of Natural History Proceedings, v. 4, p. 41-42.
- 1854b, On the origin of some of the elements of the so-called Tertiary or drift of Lake Superior: Boston Society of Natural History Proceedings, v. 4, p. 28-29.
Dodson, R. L., 1985, Topographic and sedimentary characteristics of the Union streamlined plain and morainic area PhD: Michigan State University.


Drake, R. H., 1979, Lake Whittlesey outlet channels and the late Wisconsinan history of the Michigan thumb region, MS: University of Michigan.


Drexler, C. W., 1969, Sand dunes along the east shore of Lake Michigan, MS: University of Michigan.

-, 1981, Outlet channels for the post-Duluth lakes in the Upper Peninsula of Michigan, PhD: University of Michigan.

Drummond, C. N., 1994, Stable isotopic and stratigraphic proxy records of local, regional, and global climate, PhD: University of Michigan.

Drymond, J., 1941, Survey of the Wisconsin glaciation of Lower Michigan, BS: Carleton College.

Dubay, B. R., 2012, Urban soil genesis, weathering of waste building materials, and bioavailability of lead in a chronosequence at former demolition sites, Detroit, Michigan, MS: Wayne State University, 120 p.


Dumper, T. A., 1970, The relationship of the physical environment to land use potential in Muskegon County, Michigan, MS: Virginia Polytechnic Institute and State University.


Dworkin, S. I., 1984, Late Wisconsin ice-flow reconstruction for the central Great Lakes region, MS: Michigan State University, 30 p.


-, 1936, Guide to the Sixth Annual Field Trip of the Section of Geology and Mineralogy of the Michigan Academy of Science: A Study of the Fort Wayne Outlet of the Early Glacial Lakes and the Niagara Strata of Northern Indiana.

Ehlers, R. B., 1934, Municipal ground water supplies in the Southern Peninsula of Michigan, with emphasis on quality, MS: Michigan State University.


Erickson, R. L., 1948, A petrographical study of the longitudinal deposition within the Mason esker relative to its origin, MS: Michigan State University, 27 p.


Espenshade, E. B., Jr., 1932, An intensive study of the sphericity and roundness of beach and dune sands of the south of Lake Michigan, MS: University of Chicago.

Eubanks, S. W., 1979, Urban and rural services study-draft: Genesee-Lapeer-Shiawassee Region V Planning and Development Commission, p. 1-171.


-, 1940b, The low and ball of the eastern shore of Lake Michigan, MS: University of Michigan.


-, 1942, The relation between the size of wave-formed ripple marks, depth of water, and the size of the generating waves: Journal of Sedimentary Research, v. 12, no. 1, p. 31-35.


Eveland, H. E., Jr., 1948, Topographic expression of geology in the Lake Huron basin, MS: University of Illinois, 18 p.


Ezeagu, A., 2002, Electrical resistivity tomography and induced polarization techniques with paired vertical resistivity probes, MS: Western Michigan University, 111 p.

Fahle, E., 1991, An analysis of dissolved organic compounds and their contribution to iron complexation in the shallow leachate plume of the West KL landfill, Kalamazoo, Michigan, MS: Western Michigan University.


Farnsworth, J. W., 1980, Relationship of gravity anomalies to a drift filled bedrock valley system in Calhoun County, Michigan, MS: Western Michigan University.

Farrand, W. R., 1960, Former shorelines in western and northern Lake Superior basin, PhD: University of Michigan.


Fitterman, D. V., Graves, B. J., Lehr, J. H., Butcher, K., Owen, T. E., and Mathews, M., 1986, Transient electromagnetic sounding in the Michigan Basin for ground water evaluation, Dublin, OH, United States (USA), Natl. Water Well Assoc., Dublin, OH.


Fletcher, M. R., 1979, Distribution patterns of Holocene and reworked Paleozoic palynomorphs in sediments from Southeastern Lake Michigan, PhD: Case Western Reserve University, 331 p.


Fuller, L., 1905, Failure of wells along the lower Huron River, Michigan, in 1904, in Lane, A. C., ed., Report on the State Board of Geological Survey of Michigan for the year 1904, being the report of Alfred C. Lane, State Geologist.


Gacek, W. F., 1951, Mechanical analyses of sediments from southwest Lake Erie, MS: University of Michigan.


Gallagher, J. T., 1956, The ground-water resources of the Jackson, Michigan area, MS: University of Michigan, 52 p.


Gill, G. M., 1970, Size distribution of heavy minerals relative to the hydraulic parameters of sediments, MS Wayne State University, 86 p.


Gilpin, A. R., 1912, Geology of Cheboygan County (Michigan), MS: The University of Chicago, 38 p.


-, 1902, The Port Huron oil field, Wave cutting on west shore of Lake Huron, Sanilac County, Michigan, Report on the State Board of Geological Survey of Michigan for the year 1901, being the report of Alfred C. Lane, State Geologist, p. 269-.


Graf, J. B., 1975, Nearshore sediment distribution, southwestern Lake Michigan, PhD: University of Illinois.


Groncki, J. M., 1999, Calibration, installation techniques, and initial measurements for vertical resistivity probes in hydrogeologic investigations, MS: Western Michigan University, 122 p.


Gutschick, R. C., 1976, Geology of the Kentland Structural Anomaly, Northwestern Indiana, Field Trip Guidebook, North-Central section of the Geological Society of America and Western Michigan University, 58 p.

Guzman, I., 2014, Stratigraphic framework and landsystem correlation for deposits of the Saginaw Lobe, Michigan, USA, MS: Western Michigan University.


Haddadin, M. S., 1972, Engineering and ceramic studies of the glacial clays of the Keweenaw Peninsula, Michigan, MS: Michigan Technological University.

Hage-Hassan, J., 2015, Impacts of anthropogenic watershed activity on the sedimentary record of dams from the midwestern United States: A case study from Michigan and Indiana, MS: Wayne State University.

Haile-mariam, S., 1991, Mineralogy of fine-loamy and sandy hydrosquences in Michigan, PhD: Michigan State University.


Hall, D. W., 1983, Electrical resistivity survey near the "KL" Avenue Landfill, Kalamazoo County, Michigan, MS: Western Michigan University.
Halstead, L. L., 1979, Installation and calibration of a short-period seismic network in Upper Michigan and Northern Wisconsin, with preliminary data analysis, MS: Michigan Technological University.


Hammoud, A. H., 1995, Geochemical forms of lead, nickel, zinc and cadmium in undeveloped urban soils, Detroit, Michigan, MS: Wayne State University, 86 p.


Hase, H. W., Jr., 1973, Geological-geophysical site investigation of a portion of the student development complex, Michigan Technological University, Houghton County, Michigan, MS: Michigan Technological University, 35 p.


Heft, A. W., 1993, The role of atmospheric deposition of contaminant metals to the Great Lakes deduced from sediment cores, MS: Michigan State University, 150 p.


-, 1971a, Reconnaissance of the Black River of Michigan’s southern peninsula, scale 1:125,000.

-, 1971b, Reconnaissance of the Pere Marquette River, a cold-water river in the central part of Michigan’s southern peninsula, 1971, scale 1:62,500.

-, 1971c, Reconnaissance of the Sturgeon River, a cold-water river in the north-central part of Michigan’s southern peninsula, scale 1:62,500.


-, 1972b, Reconnaissance of the Manistee River, a cold-water river in the northwestern part of Michigan’s southern peninsula, 1972, scale 1:62,500.

-, 1974, Reconnaissance of the Upper Au Sable River, a cold-water river in the north-central part of Michigan’s southern peninsula, scale 1:62,500.


Herbert, T. A., 1974, An analysis of the physical and legal aspects of erosion on Lake Michigan, a case study at St. Joseph, Michigan, PhD: Michigan State University.


Heyman, L., 1949, A loess-like silt in Ann Arbor, Michigan, MS: University of Michigan.


Hobbs, T. C., 2009, Characteristics and origin of silty kettle bottom deposits in a sandy northern lower Michigan landscape, MS: Michigan State University.
Hobin, J. S., 1993, The hydrogeology of Bonnie Castle and Dustin Lakes and its relationship to groundwater contamination from the KL Avenue Landfill, Kalamazoo County, Michigan, MS: Western Michigan University.
Holcomb, F. W., 1975, Urban geological map of the eastern half of the City of Houghton, Michigan, MS: Michigan Technological University, 43 p.


Hough, J. L., 1934, The mechanical composition of the deposits of southern Lake Michigan, MS: University of Chicago.


Hughes, J. D., 1963, Physiography of a six-quadrangle area in the Keweenaw Peninsula north of Portage Lake, PhD: Northwestern University, 229 p.

Hughes, L. D., 1995, A feasibility study for using computerized water well records to delineate areas of recharge-discharge potential, MS: Western Michigan University, 138 p.


Hulsey, J. D., 1962, Beach sediments of eastern Lake Michigan, PhD: University of Illinois.


Ibrahim, A., 1970, The application of the gravity method to mapping bedrock topography in Kalamazoo County, Michigan, MS: Michigan State University.


Irvin, W. C., 1948, The topographic expression of the sub-lacustrine geology of the Lake Superior basin, MS: University of Illinois, 18 p.

Jacobsen, S. I., 1978, Geochemistry of peat bogs over different bedrock types Houghton County, Michigan, MS: Michigan Technological University.


-, 2002a, Soil Survey of Iosco County, Michigan.


Johnston, J. W., 2004, Changes in water level, vertical ground movement, shoreline behavior and climate in the Lake Superior basin during the last 5,000 years, PhD: Indiana University.


Jones, L., 1992, Hydrogeologic characterization of a multi-aquifer system at Station 11 in Kalamazoo, Michigan, MS: Western Michigan University.


Keener, A. M., 2013, Natural landscape drivers of total phosphorus concentrations in Michigan lakes, MS: Michigan State University.


Kimmel, R. E., 1973, Implications of photogeologic linears in the south Long Lake area, Alpena and Presque Isle Counties, Michigan, MS: Western Michigan University, 89 p.

Kinabo, B. D., 2003, Geophysical characterization of a former refinery site, Kalamazoo, Michigan, MS: Western Michigan University, 90 p.


Kirkby, E. A., 1967, Senescence and extinction of inland lakes in the Lower Peninsula of Michigan, MS: Michigan State University.


Klanke, J. E., 1981, An analysis of nitrate concentrations in the ground-water of Antwerp Township, Van Buren County, Michigan, MS: Western Michigan University.

Klasner, J. S., 1964, A study of buried bedrock valleys near South Haven, Michigan by the gravity method, MS: Michigan State University.


Knowlton, F. G., 1946, Drift or float copper: Rocks and Minerals, v. 21, no. 8, p. 491-492.

Koehler, J. A., 1988, Electrical resistivity as an approach to evaluating brine contamination of groundwater in the Walker Oil Field, Ottawa County, Michigan, MS: Western Michigan University.


Konkel, D. C., 1979, Heavy metal distributions of Lake St. Clair, MS: Wayne State University, 195 p.

Koon, G. J., 1965, Some geologic and engineering properties of the Pleistocene clays at Victoria, Ontonagon County, Michigan, MS: Michigan Tech.

Koons, G. J., 1969, Some geologic and engineering properties of the Pleistocene Ontonagon Clays at Victoria, Ontonagon County, Michigan, MS: Michigan Technological University.


Kozłowski, A. L., 1999, Three dimensional mapping of the East Leroy and Union City 7.5 minute quadrangles, southwest Michigan, MS: Western Michigan University.


Krumbein, W. C., 1933, Textural and Lithological Variations in Glacial Till: Journal of Geology, v. 41, no. 4, p. 382-408.


Kuiper, S., 2015, Determining Discharge from the Fallasburg Dam and the Hydrology of the Flat River Bypass Channel, Lowell, Michigan, MS: Western Michigan University, 114 p.

Kunkle, G. R., 1961, The ground-water geology and hydrology of Washtenaw County and the Upper Huron River basin, PhD: University of Michigan.


Lachance, A. D., 1992, The application of a statistical trend analysis program to ground-water quality monitoring data from eight western Michigan solid waste landfills, MS: Western Michigan University.


Lane, A. C., 1897, The drainage of the Saginaw Valley: Science, v. 5, p. 553-553.
- 1908a, Mine waters: Proceedings of the Lake Superior Mining Institute, v. 13, p. 63-152.
- 1908b, Summary of the surface geology of Michigan, in Lane, A. C., ed., Report on the State Board of Geological Survey of Michigan for the year 1907, being the report of Alfred C. Lane, State Geologist.
- 1914, Mine water composition an index to the course of ore-bearing currents: Economic Geology, v. 9, no. 3, p. 239-263.


Larson, R. W., Allen, W. B., and Hanson, S. D., 1975, Water resources of the Huron River basin, southeastern Michigan, scale 1:250,000.


Lawler, T. L., 1962, A field study of local magnetic disturbances from glacial drift in Michigan, MS: Michigan State University.


Legall, F. D., 2002, Geochemical and isotopic characteristics associated with high soil conductivities in a shallow hydrocarbon-contaminated aquifer, PhD: Western Michigan University.


Leja, S. L., 1983, A magnetic and resistivity survey of Cork Street landfill, MS: Western Michigan University.


- , 1892b, On the correlation of moraines with raised beaches of Lake Erie: Wisconsin Academy of Sciences Transactions, v. 8, p. 233-240.


Lichy, C. M., 2006, Quaternary geology of the southern portion of the Northville, Michigan 7.5 minute quadrangle, MS: Wayne State University.


Lingle, D., 2013, High levels of Ammonium originating from the decay of in situ organic material in a confined aquifer, Ottawa County, Michigan, MS: Western Michigan University.


Loope, W. L., Loope, H. M., Goble, R. J., Fisher, T. G., Lytle, D. E., Legg, R. J., Wysocki, D. A., Hanson, P. R., and Young, A. R., 2012, Drought drove forest decline and dune building in eastern upper Michigan, USA, as the upper Great Lakes became closed basins: Geology, v. 40, no. 4, p. 315-318.


Lovan, N. A., 1977, Analysis of an interlobe boundary in the Wisconsin drift of Kalamazoo County and adjacent areas in southwestern Michigan, MS: Western Michigan University, 129 p.

Lovato, J., 1979, The geohydrologic characteristics of the glacial drift within the Water Quality Management Project Site, Michigan State University, MS: University of Michigan, 136 p.


Lovett, C., 1995, A wellhead protection study of a small agricultural community in glaciated terrain, as a model for wellhead protection efforts by similar communities, PhD: Western Michigan University.


Luehmann, M. D., 2011, Characterizing, mapping, and interpreting thin loess deposits in the western Upper Peninsula of Michigan, MS: Michigan State University.


Luscz, E. C., 2013, Modeling nutrient loading to watersheds in the Great Lakes Basin: A detailed source model at the regional scale, MS: Michigan State University.


Luukkonen, C. L., Grannemann, N. G., and Holtschlag, D. J., 1997a, Ground-Water Flow in the Saginaw Aquifer in the Vicinity of the North Lansing Well Field, Lansing, Michigan--


MacLachlan, D. B., 1939, Warren shoreline in Ontario and in the thumb of Michigan, and its deformation, PhD: University of Michigan.

MacLean, W. F., 1962, Post glacial uplift in the Great Lakes region, PhD: University of Michigan.


Mahjoory, R., 1971, Clay mineralogy of some lithosequences and toposequences of soils in Michigan, PhD: Michigan State University.


Malanchak, J. E., 1973, Geology of Atwater well field, Kalamazoo County, Michigan, MA: Western Michigan University.


Marschner, A. W., 1952, A method for the size analysis of sand on a frequency basis, MS: Wayne State University.


-, 1944, More about our most important resource - water: Michigan Conservation, v. 13, no. 4, p. 6-7.


Matty, J. M., 1992, Influence of early diagenesis on the geochemical cycling of arsenic and mercury, PhD: Michigan State University, 156 p.

Mayotte, T. J., 1988, An investigation of a soil gas sampling technique and its applicability for detecting gaseous PCE and TCA over an unconfined granular aquifer, MS: Western Michigan University.

McCallum, M. L., 1949, A petrographic investigation of vertical deposition within the Mason esker relative to its origin, MS: Michigan State University, 39 p.


McIntosh, J. C., 2004, Impact of Pleistocene glaciation on midcontinent sedimentary basin fluids: Reorganization of salinity structure and generation of microbial gas, PhD: University of Michigan.


McKee, J. D., 1990, Geochemical cycling of heavy metals in profundal sediments of Lake Superior, MS: Michigan State University, 85 p.


McNeil, J., 1994, Problems associated with using ground penetrating radar to locate a LNAPL plume, MS: Western Michigan University, 55 p.


Meisel, K. E., 1985, The use of electrical resistivity to delineate a brine contamination plume in the Walker Oilfield, Kent County, Michigan, MS: Western Michigan University, 167 p.

Meissner, B. D., 1993, The geochemistry and source for solutes in ground water from the Pennsylvanian bedrock sequence in the Michigan Basin, MS: Michigan State University, 126 p.


Melbardis, V. V., 1990, Hydrogeology and hydrogeochemistry of the Tekonsha Moraine and adjacent interlobate deposits in Charleston Township, Kalamazoo County, Michigan, MS: Western Michigan University.


Mencenberg, F. E., 1963, Groundwater geology of the (Pennsylvanian) Saginaw Group in the Lansing area, Michigan, MS: Michigan State University, 38 p.


-, 1955, Water resource conditions and uses in the Au Sable River basin.

-, 1956, Water resource conditions and uses in the Flint River basin.

-, 1957, Water resource conditions and uses in the Huron River basin.

-, 1960, Water resource conditions and uses in the Au Sable River basin.


-, 1963, Water resource conditions and uses in the Shiawassee River basin.

-, 1964, Water resource conditions and uses in the Maumee River basin.

-, 1966, Water resource conditions and uses in the Au Sable River basin.


Mikesell, L. R., 2002, Hornblende etching as an indicator of soil development and relative weathering among spodosols, MS: Michigan State University, 134 p.


Minchin, B. A., 1940, Geology of the basins of Lake Michigan and Lake Huron, MA: University of Wisconsin.


Moaddel, H., 1989, Resistivity and seismic refraction surveys applied to a groundwater investigation in Richland Township, Kalamazoo County, Michigan, MS: Western Michigan University.

Moffett, J. L., 1980, Distribution of certain heavy metals in cores from Lake St. Clair and western Lake Erie, MS: Wayne State University, 82 p.


Molaroni, S., 2010, Modeling ambient air quality in the Detroit-Windsor airshed, MS: Wayne State University, 158 p.

Monaghan, G. W., 1984, Late Wisconsinan drift stratigraphy of the Saginaw and Lake Michigan ice lobes in Southwestern Michigan, MS: Michigan State University, 123 p.


Moore, J. E., 1958, Petrography of Late Wisconsinan tills in the northern part of the Southern Peninsula of Michigan, MS: University of Illinois.

-, 1960, Petrography of northeastern Lake Michigan bottom sediments, PhD: University of Illinois.

Moore, R. K., 1959, Pre-Pleistocene topography, lithology and glacial drift thickness of Livingston and Shiawassee Counties, Michigan, MS: Michigan State University, 39 p.


Mortenson, M. E., 1975, Granulometry and morphology of the Defiance and Fort Wayne moraines in Lenawee County and vicinity, Michigan, MS: University of Michigan, 34 p.


Moss, J. D., 2004, Quantifying the specific conductivity of contaminated groundwater using ground-penetrating radar at the former Wurtsmith Air Force Base, Oscoda, Michigan, MS: Michigan State University.

Mozola, A. J., 1953, A survey of groundwater resources in Oakland County, Michigan, PhD: Syracuse University.

Mudbidre, R., 2009, Distributions of PCBs in the Clinton River watershed and implications to its fate using polonium-210 and lead-210 as tracers, PhD: Oakland University.


Musselman, G. H., 1953, Ground-water resources of the Ann Arbor area, MS: University of Michigan, 21 p.


Naeve, V. A., 1979, Postglacial environmental history of a marl lake site in Kalamazoo County, southwestern Michigan, MS: Western Michigan University.

Nash, M. S., 1997, Geophysical investigation of anomalous conductivity associated with a hydrocarbon contamination site, MS: Western Michigan University, 78 p.

Ndenga, N. T., 2005, Seasonal variability in trace metal speciation and vertical redox stratification of freshwater lake and marsh sediments in the Kalamazoo River Watershed (MI, USA), MS: Western Michigan University, 182 p.

Ndenga, N. T., 2005, Seasonal variability in trace metal speciation and vertical redox stratification of freshwater lake and marsh sediments in the Kalamazoo River Watershed (MI, USA), MS: Western Michigan University, 182 p.


Nordeng, S. C., 1975, Glacial overburden study in the northern part of Michigan's Upper Peninsula, MS: Michigan Technological University, 79 p.


Norman, W. R., 1982, Nitrate levels in the groundwater of Kalamazoo County, Michigan, MS: Western Michigan University.


Nwachukwu, S. O. O., 1964, The geologic significance of geomagnetic measurements over the Lake Huron basin and adjacent areas, PhD: University of Toronto.


Obiadzaie, A. C., 2011, Application of geophysical methods to locate buried tunnel channels beneath the Glacial drift deposits in Texas Township, Kalamazoo County, MI, PhD: Western Michigan University, 82 p.


Olson, F. C. W., 1950, The currents of western Lake Erie, PhD: Ohio State University.


Parker, J., 1964, Sublacustrine topography of Eastern Lake Superior, MS: Michigan Technological University.

Pare, P., 1995, A study on the causes of variations in transmissivity and storativity during pump tests at Asylum Lake, MA: Western Michigan University.


280

- 2010, Soil Survey of Gogebic County, Michigan.
Perry, S. H., 1939, The Seneca Township meteorite: Popular Astronomy, v. 47, no. 4, p. 183-
193.
Person, M., McIntosh, J., Bense, V., and Remenda, V. H., 2007, Pleistocene hydrology of North
America: The role of ice sheets in reorganizing groundwater flow systems: Reviews of
Peterman, J. F., 1978, Artesian recharge areas of the eastern Upper Peninsula: Eastern Upper
Peninsula Regional Planning and Development Commission, p. 1-23.
Peters, B. C., 1973, Changing Ideas About The Use Of Vegetation As An Indicator Of Soil
Peters, C. A., Robertson, D. M., Saad, D. A., Sullivan, D. J., Scudder, B. C., Fitzpatrick, F. A.,
Peterson, W. L., 1982, Preliminary surficial geologic map of the Iron River 1° x 2° quadrangle,
Pettijohn, F. J., 1931, Petrography of the beach sands of southern Lake Michigan: Journal of
Geology, v. 39, no. 5, p. 432-455.
ridge development along the northern shore of Lake Michigan, USA: Journal of
Peverly, A. A., Salamova, A., and Hites, R. A., 2014, Air is Still Contaminated 40 Years after the
Michigan Chemical Plant Disaster in St. Louis, Michigan: Environmental Science &
Technology, v. 48, no. 19, p. 11154-11160.
Pfeiffer, E. L., and Rossmann, R., 2010, Lead in Lake Michigan and Green Bay surficial
Phillips, B. A. M., 1993, A time-space model for the distribution of shoreline archaeological sites
in the lake superior basin: Geoarchaeology, v. 8, no. 2, p. 87-107.
induced by a controlled, mine collapse at White Pine, Michigan: International Journal of
Rock Mechanics and Mining Sciences, v. 34, no. 3–4, p. 246.e241-246.e214.
Pierce, D. M., 1973, Hydro-geological evaluations essential to effective land disposal of
wastewaters, in Straw, W. T., and Chambers, R. L., eds., Geology and the Environment,
Pierce, J., 1825, Notice of the peninsula of Michigan, in relation to its topography, scenery
agriculture, population, resources, etc.: American Journal of Science, v. 10, p. 304-319.
Piggit, A. R., and Neff, B. P., 2005, Calculation of Streamflow Statistics for Ontario and the
Pilant, A. N., 1996, Satellite and ground passive microwave remote sensing studies of ice and
snow on and near Lake Superior, PhD: Michigan Technological University.
distribution and correlation with other man-made materials: Environmental Pollution:
Environmental Pollution, v. 10, no. 1, p. 19-34.
Classifying and Forecasting Coastal Upwellings in Lake Michigan Using Satellite Derived
Temperature Images and Buoy Data: Journal of Great Lakes Research, v. 32, no. 1, p. 63-76.

Pogoncheff, N. C., 1982, The effects of precipitation on the quality of ground water and leachate seeps at a stabilizing landfill, MS: Western Michigan University.


-, 1940a, Ground water table at 5-year low: Michigan Conservation, v. 9, no. 8.

-, 1940b, Michigan's highlands - a geologist looks at a relief map: Michigan Conservation, v. 9, no. 4.

-, 1943, Water is a vital resource: Michigan Conservation, v. 12, no. 2.


Potzger, J. E., and Wilson, I. T., 1941, Post-Pleistocene forest migration as indicated by sediments from three deep inland lakes: American Midland Naturalist, v. 25, no. 2, p. 270-289.


Preston, H. L., 1903a, Reed City meteorite: Rochester Academy of Science Proceedings, v. 4, p. 89-91.


Prosen, B. J., 1988, Natural brine contamination of groundwater in the western Upper Peninsula, Michigan: Michigan Technological University.


Radfar, S., 1979, Determination of recharge areas from ground-water quality data, Ingham County, Michigan, MS: Michigan State University.


Rawling, J. E., III, and Hanson, P. R., 2014, Dune formation on late Holocene sandy bay barriers along Lake Michigan's Door Peninsula: The importance of increased sediment supply following the Nipissing and Algoma high lake-level phases, in Fisher, T. G., and Hansen, E. C., eds., Coastline and Dune Evolution along the Great Lakes, Volume 508: Boulder, Geological Society of America, p. 65-84.


Regis, R. S., 1997, Late Pleistocene glacial history of Central Marquette and Northern Dickinson Counties, Michigan, PhD: Michigan Technological University.

Reid, J. R., Jr., 1957, Geology of Burt Lake, Cheboygan County, Michigan, MS: University of Michigan.


Reuss, R. J., 1962, An investigation of the use of seismic methods to track meteorological disturbances over Lake Superior and to locate strain releases taking place in the Houghton-Hancock areas, MS: Michigan College of Mining and Technology.


Rhodehamel, E. C., 1951, An interpretation of the pre-Pleistocene geomorphology of a portion of the Saginaw lowland, MS: Michigan State University, 163 p.

Rhodehamel, E. C., 1951, An interpretation of the pre-Pleistocene geomorphology of a portion of the Saginaw lowland, MS: Michigan State University, 163 p.


Rindfleisch, P. R., 1999, Lithologic discontinuities and multiple parent materials in some soils of the Northport Drumlin Field, Michigan, MA: Michigan State University, 275 p.


Rogers, J. R., 1959, Deep water sediments of northwestern Lake Huron, MS: University of Illinois.


Rominger, C. L., 1862, Description of Calamoparae found in the gravel deposits near Ann Arbor, Michigan, with some introductory remarks: American Journal of Science, v. 84, no. 102, p. 389-400.


Ross, A. R., 1950, Pleistocene and Recent sediments in western Lake Erie, PhD: University of Michigan.

Roth, E. A., 1992, The geochemical evolution of groundwater and surface water in a small glaciated basin involving effluents from iron mining: hydrologic and geochemical constraints, MS: Michigan State University, 123 p.
Rubin, M., 1956, A radiocarbon chronology of glacial events during Wisconsin time, PhD: University of Chicago.
-, 1905b, A geological reconnaissance along the north shores of lakes Huron and Michigan, in Lane, A. C., ed., Report on the State Board of Geological Survey of Michigan for the year 1904, being the report of Alfred C. Lane, State Geologist.
Sachdev, S. C., 1969, Size analysis of the pan fraction and mineral analysis of the sediments of the Muscamoot Bay, Michigan, MS: Wayne State University, 91 p.


Sampath, P. V., 2014, Understanding fen hydrology - a hierarchical, multi-scale groundwater modeling approach, PhD: Michigan State University.


Schaetzl, R. J., and Loope, W. L., 2008b, Evidence for an eolian origin for the silt-enriched soil mantles on the glaciated uplands of eastern Upper Michigan, USA: Geomorphology, v. 100, no. 3-4, p. 285-295.


Scharenbroch, B. C., 2007, Soils and biogeochemical cycling in gaps of old growth northern hardwood-hemlock forests, PhD: University of Wisconsin.


-., 2013, Soil Survey of Alger County, Michigan.


Selinger, C. E., 1994, Groundwater flux into a portion of eastern Lake Michigan, MS: University of Michigan.


Shaver, R. B., 1975, Nitrate enrichment of ground water in Shelby Township, Michigan, MS: Wayne State University, 109 p.


Shea, J. H., 1964, Petrology and stratigraphy of sediments from southern and central Lake Michigan, PhD: University of Illinois.


Shoshani, J., and Smith, G. J., 1996, Late Pleistocene fishes from the Shelton Mastodon Site (Oakland County, Michigan) and their ecological context: Contributions from the Museum of Paleontology The University of Michigan, v. 29, no. 16, p. 419-433.


Shwetz, J. V., 2005, Trace metal partitioning and concentration in sediment from the St. Clair Delta, Lake St. Clair and the Detroit River, Ontario, Canada, MS: University of Windsor.

Sibert, R. J., 2012, The Effects of Road Salt Influx on the Geochemical Cycling of Woods Lake, Kalamazoo, Michigan, MS: Western Michigan University.


-, 2007, Predicting groundwater flow and transport using Michigan's statewide Wellogic database, PhD: Michigan State University.


Sledzinski, G., 1994, Geochemical behavior of lead in an Alfisol and an Ultisol at very high levels of contamination MS: Wayne State University, 62 p.


Smith, H. C., Jr., 1952, Sedimentary fabrics in unconsolidated sands, MS: Michigan State University, 28 p.


Smith, J., 2012, Large scale landslide on the Ontonagon River, Michigan, MS: Michigan Technological University.


Stanley, G. M., 1932, Abandoned strands of Isle Royale and northeastern Lake Superior, PhD: University of Michigan.


Steiner, W. W., 1952, An interpretation of size analyses of a beach sand, Sterling State Park, Monroe County, Michigan, MS: Wayne State University, 40 p.
Steward, D. P., 1948, The surface geology of Wexford County, Michigan, MS: Michigan State University.


Straw, W. T., 1976, Some Aspects of the Glacial Geology in the Kalamazoo Area, Field Trip Guidebook, North-Central section of the Geological Society of America and Western Michigan University, 29 p.


Stuk, M., 1992, A study of ground-water quality in a priority agricultural and livestock watershed, Cass County, Michigan, MS: Western Michigan University.


Swanson, D. E., 1970, Ground water in Ionia County, Michigan, MS: Michigan State University.


Szramek, K. J., 2006, Carbonate mineral weathering in mid-latitude watersheds: Importance of calcite and dolomite dissolution on dissolved inorganic carbon acquisition and transport, PhD: University of Michigan.


-, 1943, The postglacial geology of the Grand Marias embayment, Berrien County, Michigan, PhD: University of Michigan.


Talicksa, M., 1999, Effects of roadside salt on nearby soils in NW Lower Michigan, MS: Michigan State University.


Tangtong, C., 2014, Environmental processes controlling the fate and transport of aristolochic acid in agricultural soil and copper in contaminated lake sediment, PhD: Michigan State University, 305 p.


-, 1894b, A reconnaissance of the abandoned shore lines of the south coast of Lake Superior: American Geologist, v. 13, no. 6, p. 365-383.
Taylor, L. D., 1990, Evidence for high glacial-lake levels in the northeastern Lake Michigan basin and their relation to the Glenwood and Calumet phases of glacial Lake Chicago, in
Terwilliger, F. W., 1952, The glacial geology and ground-water resources of Van Buren County, Michigan, MS: Michigan State University, 103 p.
Thomason, J. F., 2006, Laboratory studies of till deformation with implications for the motion and sediment transport of the Lake Michigan Lobe, PhD: Iowa State University.


Thomsen, F. H., 1969, Hydrology of the glacial section along the Manistee River, Kalkaska, Grand Traverse, Wexford, and Missaukee Counties, Michigan, MS: Michigan Technological University.


Tinklepaugh, B. M., 1952, A sedimentary, petrographic and statistical study of certain glacial clays of northern Michigan as an aid in correlation MS: Michigan State University.


Tolliver, R. L., 1992, Calcite cementation of Pleistocene glacial deposits in southwest Michigan, MS: Western Michigan University.

Tomczak, D., 2000, Micrometeorology and its effect on thermo-hydrologic properties of cultivated and forested soils, Saginaw County, Michigan, MS: Michigan State University.


Unterreiner, G. A., 2002, Chemical, Isotopic, and Hydrogeologic investigations of an agriculturally impacted watershed, Calhoun County, Michigan, PhD: Western Michigan University.


foredune, in Fisher, T. G., and Hansen, E. C., eds., Coastline and Dune Evolution along
Domanski, P., Martz, D., and Schweitzer, L., 2010, Distribution, sources, and behavior of
trace elements in the Clinton River Watershed, Michigan: Journal of Great Lakes
Research, v. 36, no. 4, p. 606-617.
Van Luven, D. M., 1995, Determination of the influence of wind on the Keweenaw Current in the
Lake Superior Basin as constrained by Advanced Very High Resolution Radiometer
(AVHRR) imagery, MS: Michigan Technological University.
of Massive Parabolic Dunes, Van Buren State Park, Van Buren County, Michigan:
Michigan Academician, v. 33, no. 2, p. 175-188.
Van Til, R. L., and Scott, G., 1986, Water use for thermoelectric power generation in Michigan:
Michigan Department of Natural Resources, Engineering and Water Management
Division, p. 1-42.
Vanlier, K. E., 1958, Reconnaissance of the Ground-Water Resources of Mackinac County,
-, 1959, Reconnaissance of the Ground-Water Resources of Luce County, Michigan: Michigan
-, 1962, Ground-water conditions in the Elsie area, Michigan: Michigan Geological Survey
-, 1963a, Ground-water resources of the Alma area, Michigan: U.S. Geological Survey Water-
-, 1963b, Ground water in Menominee County: Michigan Geological Survey Division, Water
-, 1963c, Reconnaissance of the ground-water resources of Alger County, Michigan: Michigan
-, 1965, Ground-water resources of the Battle Creek area, Michigan: Michigan Geological
-, 1968, Comprehensive planning study of the Grand River basin, Michigan, Appendix E,
Ground-water resources and geology of the Grand River basin, Michigan: U.S. Army
Corps of Engineers, Detroit District, p. 1-82.
Vanlier, K. E., and Deutsch, M., 1958a, Reconnaissance of the Ground-Water Resources of
81.
-, 1958b, Reconnaissance of the ground-water resources of Mackinac County, Michigan:
Vanlier, K. E., and Wheeler, M. L., 1968a, Analog simulation of ground-water developments of
the Saginaw Formation, Lansing Metropolitan Area, Michigan: Tri-County Planning
-, 1968b, Ground-water potential of the Saginaw Formation in the Lansing metropolitan area,
Vanlier, K. E., Wood, W. W., and Brunett, J. O., 1973, Water supply development and
management alternatives for Clinton, Eaton and Ingham Counties, Michigan: U.S.
Landscapes, PhD: Michigan State University, 177 p.
VanWyckhouse, R. J., 1966, A study of test borings from the Pleistocene of the southeastern
Michigan glacial lake plain, Wayne County, Michigan, MS: Wayne State University, 85 p.


Vitorello, I., 1975, Paleomagnetic studies of Late Pleistocene and Holocene sediments from Lake Michigan cores, MS: University of Michigan.


Wadsworth, J. R., 1975, Transport mechanisms operating on a recurved spit, Tawas Point, Michigan, MS: University of Michigan.


Walch, D., 1977, Chemical analysis of selected water wells: Genesee County Health Department, no. 1-20.


Walston, G. M., 1967, Bedrock topography and glacial drift thickness of Macomb County and the south half of St. Clair County, Michigan, MS: Wayne State University, 76 p.


Wan, H., 2003, Satellite observations of physical and biological variability in the Laurentian Great Lakes, MS: Michigan Technological University.


Welsh, J. P., Jr., 1971, Patterns of compositional variation in some glaciofluvial sediments in the Lower Peninsula of Michigan, MS: Michigan State University.


Werkema, D., 1998, A generic multi-electrode automated/semi-automated field resistivity system, MS: Western Michigan University, 64 p.


Wernette, P. A., 2012, Coastline change at four sites in Lower Michigan, MS: Michigan State University.


- 1926, Soil Survey of Manistee County, Michigan.
Whittlesey, C., 1851, On the "superficial deposits" of the northwestern part of the United States: American Association for the Advancement of Science Proceedings, v. 5, p. 54-57.
-, 1962, Floods in Mount Clemens, Michigan, scale 1:18,000.
William, F. E., 1910, Recent sedimentation in the western Great Lakes, MS: University of Wisconsin.
Wilson, L. M., 1955, Surficial glacial deposits of the Michigan-Saginaw lobes in the Grand Rapids area, a study of relationships, MS: Michigan State University.
308


-, 1865b, The soils and subsoils of Michigan, Lansing, 30 p.

-, 1865c, Some indications of a northward transportation of drift materials in the Lower Peninsula of Michigan: American Journal of Science, v. 90, no. 120, p. 331-338.


-, 1869, Outline of a proposed final report of a survey of the State of Michigan, Ann Arbor, 8 p.


Wingard, N. E., 1969, Economic and petrographic evaluation of gravel resources in southern Michigan, PhD: Michigan State University, 124 p.


Winslow, D. C., 1952, Laboratory study of lake ice, MS: University of Michigan, 36 p.


Wireman, M., 1987, Nitrate pollution of ground water in glacial sediments underlying a fertigated site in Kalamazoo County, Michigan, MS: Western Michigan University.


Wong, S. A., 2002, Stratigraphic analysis of diamicton units in southern Allegan County, Michigan, MS: Western Michigan University.


Wyman, D., 2014, Effects of Road Salt on Asylum Lake Geochemistry, MS: Western Michigan University, 106 p.


Zumberge, J. H., and Wilson, J. T., 1953, Quantitative studies on thermal expansion and contraction of lake ice: Journal of Geology, v. 61, no. 4, p. 374-383.

Other Michigan Geology References


-, 1968, Bedrock of Michigan, scale 1:2,500,000.
-, 1977, Bedrock of Michigan, scale 1:2,500,000.
Lane, A. C., and Seaman, A. E., 1909, Notes on the geological section of Michigan for geologists, teachers and drillers, in Lane, A. C., ed., Report on the State Board of Geological Survey of Michigan for the year 1908, being the report of Alfred C. Lane, State Geologist.

317


-, 1942a, They need not vanish: a discussion of the natural resources of Michigan, p. 294.


-, 1946, R. A. Smith is retiring on August 1: Michigan Conservation, v. 15, no. 6, p. 5, 14.


-, 1957g, Outline of the Geologic History of Ogemaw County: Michigan Department of Conservation, Geological Survey Division.
-
-
-, 1958b, Outline of the Geologic History of Ingham County: Michigan Department of Conservation, Geological Survey Division.
-
-
-
-
-
-, 1958g, Outline of the Geologic History of Roscommon County: Michigan Department of Conservation, Geological Survey Division.
-
-


Mattice, A. E., 1900a, How Michigan was made: Michigan Miner, v. 2, no. 1, p. 15-17.
-
-
-, 1900c, How Michigan was made: Michigan Miner, v. 2, no. 3, p. 13-17.
-
-, 1900d, How Michigan was made: Michigan Miner, v. 2, no. 4, p. 20-22.
-
-, 1900e, How Michigan was made: Michigan Miner, v. 2, no. 5, p. 9-9.


-
-
-

-
-
-

-
-
-


Stevens, A. H., 1971, Study of subsurface analysis of the proposed outdoor instruction area, Michigan Technological University, Houghton County Michigan [MS: Michigan Technological University.

Wender, C., 1946, Those "Lake-bottom" leases: Michigan Conservation, v. 15, no. 3.
-, 1881, Annual report of the commissioner of mineral statistics of the State of Michigan for 1880.
The Michigan Geological Repository for Research and Education hosts the Michigan Section of the Petroleum Technology Transfer Council. Michigan PTTC runs 1-day workshops on aspects of Michigan Geology and on New and Emerging Techniques in the Oil Industry. The workshops run 1-2 times per year. Inquiries on the availability of workshop workbooks should be directed to the MGRRE Staff.

**1991: Antrim Shale Core Workshop**

**December 13, 1991, Kalamazoo, MI**

Harrison, W. B., III, with Contributions from Twynham, M., Maness, T., Carlton, B., and Cain, B., Antrim Shale Core Workshop

**1997: Horizontal Drilling: A Workshop for the Michigan Basin**

**December 8, 1997, Mount Pleasant, MI**

Harrison, W. B., III, and Foley, M., Part 2 – Completed and Current Michigan Horizontal Drilling Activity: Data Set

Harrison, W. B., III, Wood, J. R., Huntoon, J. E., Pennington, W., Tester, C., and Taylor, E., Improved Recovery Using Horizontal Drilling in the Dundee Formation, Michigan Basin (Part 1: Horizontal Drilling Project Case History – Crystal Field, Montcalm County)

**1998: Internet for the Petroleum Industry**

**August 28, 1998, Kalamazoo, MI**

Anonymous, The Internet Explored for the Petroleum Professional

**1999: Wireline Logging Applications for the Michigan Basin**

**February 18, 1999, Mount Pleasant, MI**

Cowen, T. and Wood, J., Acquiring Digital Logs by Scanning and Image Processing Using Logscan and Neuralog

Guy, W., Michigan and Kansas Case Studies

Harrison, W. B., III, Introduction

Maness, T., Maness Petroleum Digital Log Library

Moss, K., New Wireline Logging Technology for Michigan – Baker Atlas

Sutton, T., New Wireline Logging Technology for Michigan – Schlumberger

Watney, L., Demonstration of PfEFFER Ver. 2.0 Professional Real Time Interactive Log Analysis and Display Software

Way, G., Using Spreadsheets for Log Analysis
1999: Surface Exploration for Oil and Gas in Mature Basins: Assumptions, Applications and Recent Advances

December 10, 1999, Lansing, MI

Schumacher, D., Surface Exploration for Oil and Gas in Mature Basins: Assumptions, Applications, and Recent Advances; A Short Course

2000: New Techniques for Handling Water During Production: Downhole Oil or Gas/Water Separators

July 14, 2000, Lansing, MI

Harrison, W. B., III, Technology Transfer and Improving Oil and Gas Recovery in Michigan’s Fields

Langhus, B. G., Down-Hole Oil/Water Separators

2001: Keys to Optimized Exploitation in Marginal Settings

March 28, 2001

Knoll, R. G., Keys to Optimized Exploitation in Marginal Settings: A Short Course

2001: Improving Recovery from Old Fields Using Geochemical and High Resolution Seismic Techniques

September 26, 2001, Kalamazoo, MI

Clark, J., Prospecting for Oil and Gas with High Definition Seismic Surveys

Schumacher, D., Geochemical Exploration to find By-passed Oil and Gas in Mature Basins

2002 Well Cuttings Analysis Seminar and Workshop

November 22, 2002, Kalamazoo Michigan

Jordan, C., Well Cuttings Analysis Seminar and Workshop

2003: Horizontal Drilling – Real Michigan Field Experiences

March 20, 2003 Mount Pleasant, Michigan

Bomar, B., Six Lakes Gas Storage Field

De Werff, R., Horizontal Well Downhole Rod Pump Recommendations

Fairbanks, M., Shell’s Niagara Horizontal Drilling Results

Godbold, T. and Wellman, T., Permiting, bonding and Other Aspects of Horizontal Wells in Michigan

Howland, K., Successes and Failures, with Drilling Horizontal Wells in Michigan

Mesbergen, M., Horizontal Drilling in the Kawkawlin Dundee Field
Moss, K., Options for Horizontal Well Logging

Palmer, M., Economically Evaluating a Horizontal Before you Drill

Schmude, D., Case Histories of Horizontal Wells – Problems and Solutions, Where to Look Inside a Reef Complex, and the Future of Horizontal Development

Wood, C., Development of the SOMOCO 29 Oil Reservoir in Wayne County, Using Directional and Horizontal Wells

2003: Produced Water – Reducing Problems and Costs

July 11, 2003, Mount Pleasant, Michigan

Henderson, R., Overview of Part 615, Supervisor of Wells and Administrative Rules

Reynolds, R. R., with Contributions from Kiker, R. D., Produced Water and Associated Issues: Reducing Problems and Costs

2003: Trenton/Black River Core Workshop and Case Studies: Possibilities with the Michigan Basin and Similarities Outside the Basin

October 23, 2003, Mount Pleasant, MI

Guoynes, J., Trenton/Black River Reservoir Evaluation Solutions

Harrison, W. B., III, Trenton/Black River Oil and Gas Reservoirs in Michigan

Loucks, R. G., Origin of Lower Ordovician Carbonate Brecciated and Fractured Reservoirs


Roth, B. L., Trenton/Black River Seismic Anomalies [Slides not in Workbook]

Sallee, D., Utilizing Chemical to Increase Profits While Reducing Operational Problems in the Trenton/Black River Formation


2004: Michigan Field Experiences – Focus on the Niagaran

March 19, 2004 Mount Pleasant, MI

Harrison, W. B., III, History of Horizontal Drilling in the Niagaran: Relationship to Production, Remaining Potential
Wylie, A. S., and Wood, J., Using Well Log Tomography and 3D Visualization to Image Niagaran Pinnacle Reefs and Show Distribution of Permeability and Porosity

Barratt, M., Economics and Practical Aspects of Risk Evaluation to Compare Different Drilling Opportunities

Harrison, W. B., III, Core Lab Resources, Update on New Building

Metzger, F., and Dereniewski, E., Horizontals Proven to Reduce Costs and Increase Production in Six Lakes Gas Storage Complex

Elenbaas, D., Use of Production Logging to Identify Highly Productive Intervals in Gas Storage Wells

Brock, T., Performance and Productive History of Dover 33 and 36 Fields Since Commencement of CO₂ Injection

Sweezey, C., USGS – Introduces Current Assessment of Remaining Oil and Gas Reserves in Michigan

Fowler, J., and Schaefer, S., Attempted Redevelopment of a Niagaran Reef Reservoir Using 3D Seismic and Horizontal Drilling

Coy, A., Underbalanced Drilling Results in Production Rates Exceeding Expectations

Goodman, W., and Maness, T., Niagaran Pinnacle Reef Development in Mason and Oceana Counties; Recommendations for Successful Approach

Moodro, A., Niagaran Reef Seismic Proves More Complicated than You Think: Keys to Successful Exploration

Harrison, W. B., III, and Sandomierski, A., Core Workshop with 600’ Niagaran Reef Core from Oceana County Displayed With Core Analysis Information

2004: Petroleum Systems of the Michigan Basin – A Look at Remaining and Undiscovered Oil and Gas Resources

September 23, 2004, Grand Rapids

Duszynski, J., The History of Petroleum Production in Michigan

Harrison, W. B., III, Michigan Basin Core Research Laboratory: Today and Tomorrow

Hatch, J. R., Review of the Geochemistry of Michigan Basin Natural Gases, Oils and Hydrocarbon Source Rocks

Hayba, D. O., Stratigraphic Thermal Modeling of the Michigan Basin

Repetski, J. E., Conodonts Applied to Thermal Maturation and Stratigraphic Studies in the Ordovician of the Michigan Basin

Sullivan, C., Marfurt, K., Blumentritt, C., and al Dossary, S., Geometric Attributes Applied to Fracture, Karst, and Hydrothermal Overprints

Sweezey, C., The U.S. Geological Survey Oil and Gas Assessment of the Michigan Basin
Wylie, A. S., Views of Existing and Prospective Producing Formations in Michigan

2005: Michigan Field Experiences: Focus on the Antrim

March 18, 2005, Mount Pleasant, MI

Black, T. J., Mapping the Base of the Drift and Antrim Subcrop
Brock, T., Analysis of the Bagley Otsego Infill Program for 2004 – A Case History
Goodman, W., Goodman, M., and Harrison, W. B., III, Antrim Core Studies – Key to Deciphering Results and Predicting Performance
Harrison, W. B., III, Results of Horizontal Drilling in the Antrim Shale
Kohler, S. P., How Much Gas is Left?
Maness, T., Antrim Production Trends in Time and Space
McIntosh, J. C., Hydrology, Geochemistry, and Microbiology of the Antrim Shale Gas Play, Michigan Basin
Murray, F., Update on Monitoring O₂ for the Antrim Transmission Lines and Plant Processing
Myers, R., Low Gel-load Fracturing Fluids Reduce Formation Damage
Tipton, K., Corrosion/Erosion Inspection for System Integrity
Weber, J., Real-time Biogenesis in Coals of the Powder River Basin
Williamson, J., Practical Use of Core and Natural Fracture Data in the Antrim Shale
Yohe, B. N., Effective Field Operations
Zarian, P., Moss, K., Reinmiller, R., Added Value from Your CBIL Image Data

2006: Michigan Field Experiences – Carbonate Reservoirs

March 23, 2006 Mount Pleasant, MI

Eberli, G. P., Difficulties of Predicting Porosity and Permeability in Carbonates from Seismic Data
Grammer, G. M., Carbonate Reservoir Characterization – A New Look at a Niagaran Pinnacle Reef
Harrison, W. B., III, Michigan Carbonate Reservoirs: Facies and Reservoir Properties
Huber, J. S., and Maness, T. R., Rosebush Field: Viability for Waterflooding
Jarman, P. K., Cementrite, Inc.: Cementing, Acidizing, and Coiled Tubing Specialists
Johnston, M., Shallow Seismic Raypath Anomalies and Effects on Niagaran and Trenton Seismic Reflection Character
Mesbergen, M., Kawkawlin Dundee Field: Secondary Recovery
Myles, J., The Albion-Scipio Trend: A View from Afar
Pearce, L. A., Horizontal Drilling in the Northern Reef Trend of the Michigan Basin
Perarnau, A., Advantages of Nuclear Magnetic Resonance Logs
Quinlan, W. C., Springdale 15/16 Field Non-reefal Niagaran Exploration and Production
Rowe, A., Downhole Fluidics, Inc.

2006: Well Stimulation and Increased Production Technology

May 18, 2006, Traverse City, MI

Rowe, A., Well Stimulation and Increased Production Technology: A Short Course


March 22, 2007, Mount Pleasant, MI

Barnes, D. A., Hydrothermal Dolomite (HTD): Occurrence and Possible Mechanisms in the Michigan Basin, USA

Barratt, M. W., Results of Two Horizontal Holes Drilled in a Salt-Plugged Niagaran Reef in St. Clair Co., Michigan


Crisp, J., (POSTER), Sequence Stratigraphy and 3-D Reservoir Characterization of the Ray Reef, Macomb County, Michigan

Fairchild, N., Michigan Antrim Shale Horizontal Re-Entry Program


Harrison, W. B., III, Shallow Gas Production in the Michigan Basin – Is the Antrim All There Is?

Kirschner, J. P., and Barnes, D. A., (POSTER), Subsurface Stratigraphy of the Devonian Dundee Formation, Michigan Basin, USA – A Log-Based Approach

Kohler, S. P., Victory 20 Production Overview: Mason County, MI

Laun, L., Michigan Gas Storage Wells Drilled Under Balanced with Coiled Tubing

Murray, L., The Structural Geology of the Reading Field, Hillsdale County, Michigan


2007: Carbonate Reservoir Characterization Workshop and Short Course

May 4, 2007

Harrison, W. B., III, and Grammer, G. M., Carbonate Reservoir Characterization Workshop and Short Course

2007: Seizing Opportunities in a Mature Basin

October 18, 2007, Gaylord, MI

Barnes, D., An Overview of Digital Subsurface Data Analysis: Examples Using MDEQ-OGS Subsurface Data and Various Software Applications

Bols, R., Michigan Wells and Production

Brock, T., and Moss, K., Horizontal Well Production Enhancement – A Case History

Coleman, J. L., Oil and Gas Resources Underlying the U.S. Portions of the Great Lakes

Evans, A., An Overview on Why Seismic Data Doesn’t Have to Cost You Anything

Harrison, W. B., III, and Barnes, D., Data Mining at the Michigan Geological Repository for Research and Education

Ohanian, M., Baker Hughes INTEQ Presents: Directional Drilling Answers for Coiled Tubing Applications

Poli, P., Michigan Public Service Commission: On-line Information and How to Access It

Wilson, S. E., Office of the Geological Survey Homepage

2008: Michigan Field Experiences – Focus on the Trenton-Black River

March 20, 2008, Mount Pleasant, MI

Bauman, W., Behind Pipe Reserves and Untested Pay Zones in Old Devonian Fields in Michigan

Clark, J., and Kurtzweil, L., 3-D Seismic: Design, Logistical Considerations, Applications

Collins, J., and Andreason, M., High-rate/High-volume Fracture Stimulation, Sterling Field, Arenac Co.

Gay, S. P., Jr., Basement Fault Control on Black River-Trenton Oil and Gas Production in Michigan, West Virginia and New York

Grammer, G. M., Update on Reservoir Characterization Research at MGRRE/WMU: Trenton/Black River Hydrothermal Dolomite Reservoirs and Silurian (Niagaran) Reef Reservoirs
Harrison, W. B., III, Michigan’s Trenton/Black River Data and Resources at MGRRE-Western Michigan University

Jennings, J., and Snow, M., Michigan Oil and Gas Regulations – Spacing Then and Now

Knox, C., The Lima-Indiana Oil and Gas Field

Mesbergen, M., and Maness, T., Muskegon Development Company’s Williams Berea Waterflood

Moodro, A., Examples of “Flower Structures”

O’Brien, T. P., and Klimetz, S., Presented a Brief Overview of BLM’s Involvement with Oil and Gas Development in the Eastern United States [Note no slides in Workbook]

Quirein, J., Exact Frac®

Smith, L., Nyahay, R., and Reservoir Characterization Group at the New York State Museum, Widespread Hydrothermal Dolomitization of Trenton and Black River Groups, Eastern North America

2008: Trenton-Black River Core Workshop and Reservoir Characterization Symposium

September 25-26, 2008, Kalamazoo, MI

[Note Workbook also includes an overview of the Trenton/Black River Cores and Thin Sections available at MGRRE as well as drillers reports and wireline log data for selected cores displayed during the workshop and an extract from Grammer, G. M. 2007, DOE Final Scientific/Technical Report: DE-FC26-04NT15513]

Gillespie, R., Albion-Scipio Field, Michigan: Overview


Harrison, W. B., III, Trenton/Black River Oil and Gas Reservoirs in Michigan

2009: Michigan Field Experiences

March 26, 2009, Mount Pleasant, MI

Brock, T., J., Playing the Edge of the Antrim is a function of …

Canter, L., Role of Primary Depositional Facies on Reservoir Development and Distribution, Ordovician Red River Formation, Williston Basin


Kirschner, J., Geologic Controls on Dundee Reservoirs

Knox, C., The Fort Wayne and Moore Fields
Kulka, D., The Last Drop
McDaniel, H., Shale Log Analysis: A New Way of Looking at an Old Formation
Murray, L., Recent Activity in the Trenton/Black River Formation and the Relationship between the Van Wert Zone of the Black River and Hydrothermal Reservoirs
Schaefer, S., and Philo, J., Lyon 20 Niagaran Reef Gas Storage Conversion: A Seismic Case Study
Schmude, D., and Schmude, P., The Keys to Successful Redrilling of Niagaran Reefs in Northern Michigan

2009: Computer Mapping for Petroleum Exploration
November 5, 2009, Mount Pleasant, MI
Leetaru, H. E., Computer Mapping for Exploration and Production: A Short Course

2010: Michigan Basin Insights and Field Experiences
March 25, 2010, Mount Pleasant, MI

Barratt, M. W., Fort Knox Military Reservation New Albany Gas Development Project, Meade, Hardin, and Bullitt Counties, Kentucky and Antrim-New Albany Shale Comparison
Esch, J., Free GIS Data Viewers, and Free Petroleum, Geological and Base GIS Datasets for Petroleum Exploration
Fowler, J., Matson, M., and Van Sickel, W., Field Evaluations of Trenton and Black River Reservoirs
Harrison, W. B., III, Michigan Geological Repository for Research and Education (MGRRE), Geosciences Department, Western Michigan University
Learn, M., An Overview of Drilling Experiences in Karsted Formations in Huron County
Rock, F., and Barnes, D., Application of Oil Field Reservoir Characterization Methodology to Geosequestrion Studies
Stewart, R., Tilden: Improved Oil Recovery Strategies in Micro-fractured Silurian Reef Using Nitrogen Gas
Strunk, K., Jointing, Fracturing, Faulting, Structural Patterns, and Stress Fields in the Southern Portions of the Michigan Basin
Thompson, P., Lost Circulation Solutions
2010: Characteristics of Evaporites and Restricted Carbonates for the Petroleum Geologist

April 26, 2010

Schreiber, C. and Harrison, W. B., III, Characteristics of Evaporites and Restricted Carbonates for the Petroleum Geologist: A Short Course

2010: Trenton and Black River Core Workshop [Eastern Section AAPG Meeting]

September 25, 2010, Kalamazoo, MI

Grammer, G. M., Harrison, W. B., III, Schulz, J., Thornton, J., Robinson, M., and Feutz, P., Trenton and Black River Core Workshop


September 29, 2010, Kalamazoo, MI

Harrison, W. B., III, Organic Shales and Fine-grained Organic Carbonates of the Michigan Basin (Collingwood Shale, Antrim Shale, and A-1 Carbonate): A Short Course

2011: Michigan Basin Insights and Field Experiences

March 31, 2011, Mount Pleasant MI

Astore, C., Lipid Biomarkers in Assessing Biogenic Reservoirs


Fowler, J., Rice Creek Pool, Albion-Scipio field – A New Discovery in the Trenton and Black River of Southern Michigan

Harrison, W. B., III, The Collingwood/Utica Shale in Michigan

Henderson, R., and Jankowski, P., Regulatory Issues Related to the Utica/Collingwood Development

Hinks, A., Gravity Anomalies Associated with Michigan Basin Dundee Formation: Fractured Hydrothermal Dolomite Reservoirs and Implications for Exploration

Knox, C., The Trenton Gas Field of Indiana

Kohler, S., Out and About the Prairie du Chien

Kohler, S., What Does the Mature Antrim Play Look Like?

McCloskey, S., Harrison, W. B., III, and Grammer, G. M., [POSTER] Sequence Stratigraphy and 3-D Reservoir Characterization of the South Buckeye Field, Dundee Formation (Devonian), Michigan Basin, USA

Mesbergen, M., and Bach, R., Enhancing Production and Improving Lift Efficiency in Low Pressure Wells with Liquid Loading Conditions Using a Sequential Lift System

Solow, J., HyperScratcher, Well Rejuvenation Overview


Trout, J. L., Harrison, W. B., III, and Grammer, G. M., [POSTER], Faunal Distribution and Relative Abundance in a Silurian (Wenlock) Pinnacle Reef Complex – Ray Reef, Macomb County, Michigan

2012: Michigan Basin Insights and Field Experiences: Focus on the Trenton/Black River
March 30, 2012, Mount Pleasant, MI

Augustine, J., Horizontal Completion Options for the Trenton/Black River Region

Brock, T. J., Analysis of BHP Data and Production in TBR Reservoirs

Budros, R., Hydrothermal Dolomite Reservoir Pore Types Observed in the full diameter core from the West Bay Exploration Co. West Bay 1-22 Wellbore, Napoleon Field, Jackson County, Michigan [Slides not in Workbook]

Esch, J., GeoWebFace Introduction

Feutz, P., [POSTER], Evaluating the Effects of Lithofacies and Thin Shales on the Later Distribution of Hydrothermal Dolomite Reservoirs in the Michigan Basin

Fowler, J., Geology of the Napoleon Field, Jackson County, Michigan


Harrison, W. B., III, Trenton/Black River Oil Field Production History

Johnston, M., and Schaefer, S., Seismic Evolution of the Napoleon Field, Jackson Co., Mi [Slides not in Workbook]

Knox, C., Elshoff #3H, The Trenton Horizontal: Drilled in March of 2010 by Innex Oil and Gas Co. at St. Marys, Ohio

Prezbindowski, D. R., Depositional Sequences and Reservoir Development in the Black River Group of Eastern Indiana

334

Van Sickel, W., A Stratigraphic Model of HTD (Hydrothermal Dolomite) Occurrences in the Napoleon Field, Jackson County, MI

2012: Office of Oil, Gas, and Minerals Staff Meeting and Core Workshop
August 23, 2012
Harrison, W. B., III, Office of Oil, Gas, and Minerals Staff Meeting and Core Workshop

2013: Michigan Basin Insights and Field Experiences
March 21, 2013, Mount Pleasant, MI

Abduslam, A., Harrison, W. B., III, and Barnes, D. A., Reservoir Characterization and Enhanced Oil Recovery Potential in Middle Devonian Dundee Limestone

Esch, J., Bedrock Topography, Glacial Drift Thickness, Bedrock Outcrops, Bedrock Valleys, and Potential Structural Features Reflected up Through the Bedrock Surface of Michigan


Harrison, W. B., III, Facies, Fabrics and Organic Geochemistry of the A-1 Carbonate in Michigan

Kohler, S. P., Production Declines of Hot Plays [Slides not in Workbook]

Maness, T., Drilling of a Dundee Well in Isabella County [No slides – Video Presentation]

Patterson, D., Mekic, N., Bolshakov, A., Harrison, C., and Tang, X., Conventional and Unconventional Reservoir Fracture Evaluation Utilizing Deep Shear Wave Imaging

Paul, W., Utica/Collingwood Play in Northern Michigan

Quinlan, W. C., The Dual Lift System: Artificial Lift for Horizontal Wells

Snow, M., Michigan’s Regulatory Response to High Volume Hydraulic Fracturing and Update of Current Activities


2013: How to Find Bypassed Pay in Old Wells Using DST Data
October 15-17, 2013, Traverse City, MI

Reid, H. W., How to Find Bypassed Pay in Old Wells Using DST Data: A Short Course
2014: Michigan Basin Field Experience and Devonian Carbonate Reservoir Core Workshop

March 20, 2014

Volume 1:

Brock, T. J., A Review of Selected Michigan Niagara Reef Waterfloods to Estimate the Fractional Flow Behavior During Flooding and Hysteresis Effects After Flooding

Donham, C., and Dennen, C., Post Water Flood Development


Quinlan, W. C., The Dual Lift System: Trenton-Black River Production Application

Schmude, D. R., and Schmude, P. D., The Value of Seismic Attributes in Oil Exploration: Case Study of the Allis 24 Reef

Wygant, A., Hydraulic Fracturing Proposed Rules

Volume 2:

Adducci, J., Currie, B., Farag, A. Z. A, The Middle Devonian Dundee and Rogers City Formations: A Brief Stratigraphic Overview, Michigan Basin, USA


Harrison, W. B., III, and Voice, P. J., Devonian Carbonate Reservoirs of the Michigan Basin: A Core Workshop

Manche, C. J., Mohamed, K. B, and Voice, P. J., The Geological Context of the Late Silurian to Early Devonian Units in the St. Charlton #4-30 Well: Otsego County, Michigan

Panyard, N. R., and Aljammaz, A. I., Parasequences and Facies Identifications of the Detroit River Group, Amherstburg Formation and Lucas Formation, Richfield Member, Benchley #1-29, Clare County, Michigan Basin, USA


Sattler, F., and Suhaimi, A. A., Middle Devonian Traverse Group, Michigan Basin, USA: A Core Description and Environmental Interpretation

Voice, P. J., Interpretation of the Depositional Environments of the Dundee-Bell Shale Interval in the Central Michigan Basin

2015: Michigan Basin Field Experience and Carbonate and Shale Reservoir Core Workshop

March 26, 2015, Mount Pleasant, MI

Bohjanen, D., What is an Anomaly?
Crumrine, C. C., III, and Beckett, D., The Use of Micro-CT Scanner to Characterize Pore Size Distribution

Esch, J., Bedrock Depth Determination Using the HVSR Passive Seismic Method

Esch, J., GeoWebFace Enhancements

Gould, J. H., Water Conformance


Matson, M., The Origin of Natural Fractures in the Antrim Shale, Michigan

Rine, M. J., Petrophysical and Stratigraphic Characterization of Michigan Silurian Reefs

Updyke, B. S., Electronic Flow Measurement for Natural Gas Storage Field Optimization

Voice, P. J., Revising the Basement Map of the Lower Peninsula: New Constraints from Cores and Cuttings.

2015: Pathways of Exploration in the Michigan Basin Petroleum Systems and Examination of Cores from Prospective Strata

November 12, 2015, Kalamazoo, MI


Sweezey, C. S., Petroleum Systems of the Michigan Basin

Sweezey, C. S., Stratigraphic Settings of Organic-Rich Shale in the Eastern United States

2016: Michigan Basin Going Forward – Future Development Potential and Lessons Learned from the Past

March 16, 2016, Mount Pleasant, MI

Bohjanen, D., Money Ideas Oil


Currie, B. J., [POSTER], Review of the Upper Devonian-Lower Mississippian Stratigraphy with an emphasis on the Ellsworth Shale Petroleum System Michigan Basin, USA

Fowler, J., The Mid-Continent Gravity High

337


Manche, C. J., [POSTER] Diagenetic Influence on Dolomitization and the Development of Porosity in the Richfield Member of the Lucas Formation (Detroit River Group), Michigan Basin

Rine, M. J. [POSTER] - Using a combination of chemo-, bio-, and sequence stratigraphy to resolve the chronostratigraphic relationships of Niagara-Lower Salina Reef Complexes throughout the Michigan Basin

Sweezey, C., Petroleum Systems of the Michigan Basin

Sweezey, C., Stratigraphic Settings of Petroleum Source Rocks in the Eastern United States

Voice, P. J., Central Basin Burnt Bluff Group Deposits: A Review of their Production History and Reservoir Properties


Publications of the Groundwater Education in Michigan Center, Institute for Water Sciences, Western Michigan University

The GEM Center and the Institute for Water Sciences were long running programs in Western Michigan University’s Department of Geology. Their missions were to produce resources and publications on the nature, quality and distribution of Michigan’s Groundwater for the general public, for teachers and for state officials. The list below represents some of the documents produced by these programs. In addition, journal articles and other peer-reviewed documents were generated by the staff of the Institute for Water Sciences - these are cited in the Quaternary section.


Anonymous, 1995, A Collection of Groundwater Protection Activities and Actions Undertaken by Local Communities within the State of Michigan, Western Michigan University Department of Geology.


Ruawerda, L. A., 1996, Groundwater Protection Education Models: Grades 7-12, Western Michigan University, Department of Geology.
