Balaban's copy

MINNESOTA GEOLOGICAL SURVEY
PRISCILLA C. GREW, DIRECTOR

BULLETIN 47

BIBLIOGRAPHY OF MINNESOTA GEOLOGY 1981-1985

COMPILED BY
LYNN SWANSON, N.H. BALABAN, AND G.B. MOREY

UNIVERSITY OF MINNESOTA
ST. PAUL • 1987

ISSN 0076-9169 • ISBN 0-934938-02-04

PREFACE

This bibliography contains references to the geologic literature on the State of Minnesota issued from 1981 through 1985, as well as omissions from the previous two bibliographies of Minnesota geology: Bulletin 34 (published in 1951), with coverage through 1950; and Bulletin 46 (published in 1981), with coverage for 1951-1980.

The references in the bibliography section cover most geologic topics but exclude those confined to the last 10,000 years, to surface hydrology, and to mining and metallurgy. Most unpublished maps and reports were excluded from this bibliography, because they are not readily available to users. Notable exceptions are theses and dissertations and open-file reports issued in established and accessible series, such as the U.S. Geological Survey's Open-File Report series. An effort was made in the bibliography section to preserve the spelling, capitalization, and punctuation of the original sources; usage in the index reflects current Minnesota Geological Survey style.

The last bibliography, Bulletin 46, covered 30 years. Bulletin 47 covers only 5 years, but contains nearly 1,100 references, more than half the number in its predecessor. Much of this inflation may reflect the increased number of abstracts published in recent years. The next bibliography (for 1986-1990) will differentiate between abstracts and more substantive work.

The index section, with a few minor changes, closely follows the design of the index in Bulletin 46. It has in one alphabetical listing topical (Ground Water; Petrology; Sedimentation), geographic (Mesabi range; Lake County; Southwestern Minnesota), lithostratigraphic (Duluth Complex; Lake Vermilion Formation), and chronostratigraphic (Paleozoic; Quaternary) indexing. Care was taken to index references to the closest applicable index classifications. For this reason, users of the index are encouraged to search flexibly, to check both broader and narrower index classifications. For example, someone wanting references for Aitkin County may also wish to search a narrower index classification— Cuyuna range, as well as the broader East-central Minnesota. The increased number of cross references in this index should help users with this type of search.

Several of the Survey staff were especially helpful in the preparation of the index, and also reviewed the entries in their respective fields: M.J.P. Kuhns and S.J. Mills (economic geology and Duluth Complex); P.L. McSwiggen (petrology and uranium); H.C. Hobbs (glacial geology); and D.J. Bergstrom (Paleozoic rocks and Sioux Quartzite). V.W. Chandler reviewed the geophysics entries; D.R. Setterholm, Cretaceous rocks; R.S. Lively, geochemistry and geochronology; and M.C. Hoyer, ATES. Linda McDonald typed and updated the bibliography through most of its existence. Denise Fletcher typed the index and inserted the typesetting codes. J.F. Splettstoesser proofread the final typescript. Type was set from the word-processor disks, under the direction of Hazel White at the University of Minnesota Printing Department.

The compilers hope that any errors or omissions discovered by users of the bibliography will be brought to our attention.


KITTSON
ROSEAU
LAKE OF THE WOODS
MARSHALL
KOOCHICHING
PENNINGTON
RED LAKE
BELTRAMI
CLEARWATER
CASS
ITASCA
ST. LOUIS
LAKE
COOK
NORMAN
MAHNOMEN
HUBBARD
BECKER
CLAY
WADENA
AITKIN
CARLTON
OTTER TAIL
WILKIN
PINE
TODD
MORRISON
DOUGLAS
GRANT
TRAVERSE
BENTON
ISANTI
STEVENS
POPE
STEARNS
SHERBURNE
SWIFT
ANOKA
KANDIYOHI
MEEKER
WRIGHT
HENNEPIN
MINNEAPOLIS
CHIPPEWA
ST. PAUL
MC LEOD
CARVER
YELLOW MEDICINE
RENVILLE
SIBLEY
SCOTT
DAKOTA
LINCOLN
LYON
REDWOOD
NICOLLET
LE SUEUR
RICE
GOODHUE
BROWN
WABASHA
PIPESTONE
MURRAY
COTTONWOOD
WATONWAN
BLUE EARTH
WASECA
STEELE
DODGE
OLMSTED
WINONA
NOBLES
JACKSON
MARTIN
FARIBAULT
FREEBORN
MOWER
FILLMORE
HOUSTON
ROCK
48°
46°
44°
96°
94°
92°
90°

BIBLIOGRAPHY OF MINNESOTA GEOLOGY
1981-1985

Aase, J.H.

1. 1982, The mineral industry of Minnesota, *in* Area reports: Domestic, v. 2 *of* Minerals yearbook, 1980: U.S. Bureau of Mines, p. 275-289.
2. 1983, The mineral industry of Minnesota, *in* Area reports: Domestic, v. 2 *of* Minerals yearbook, 1981: U.S. Bureau of Mines, p. 267-279.
3. 1984, The mineral industry of Minnesota, *in* Area reports: Domestic, v. 2 *of* Minerals yearbook, 1982: U.S. Bureau of Mines, p. 283-295.
4. 1985, The mineral industry of Minnesota, *in* Area reports: Domestic, v. 2 *of* Minerals yearbook, 1983: U.S. Bureau of Mines, p. 293-304.
5. (West, W.J.). 1981, The mineral industry of Minnesota, *in* Area reports: Domestic, v. 2 *of* Minerals yearbook, 1978-79: U.S. Bureau of Mines, p. 277-290.

Adolphson, D.G. See also Ruhl, J.F., 2-3; Wolf, R.J., 2.

1. 1983, Availability and chemical quality of water from surficial aquifers in southwest Minnesota: U.S. Geological Survey Water-Resources Investigations Report 83-4030, 37 p.
2. (Ruhl, J.F.; Wolf, R.J.). 1981 [1982], Designation of principal water-supply aquifers in Minnesota: U.S. Geological Survey Water-Resources Investigations 81-51, 23 p.

Aero Service Division Western Geophysical Company of America.

1. 1981, Airborne gamma-ray spectrometer and magnetometer survey, Bemidji quadrangle, Minnesota; final report: U.S. Department of Energy Open-File Report GJBX-331(81), 2 v.
2. 1981, Airborne gamma-ray spectrometer and magnetometer survey, Brainerd quadrangle, Minnesota; final report: U.S. Department of Energy Open-File Report GJBX-332(81), 2 v.
3. 1981, Airborne gamma-ray spectrometer and magnetometer survey, Duluth quadrangle, Minnesota; final report: U.S. Department of Energy Open-File Report GJBX-330(81), 2 v.
4. 1981, Airborne gamma-ray spectrometer and magnetometer survey, Hibbing quadrangle, Minnesota; final report: U.S. Department of Energy Open-File Report GJBX-355(81), 2 v.
5. 1981, Airborne gamma-ray spectrometer and magnetometer survey, International Falls quadrangle, Minnesota; final report: U.S. Department of Energy Open-File Report GJBX-356(81), 2 v.
6. 1981, Airborne gamma-ray spectrometer and magnetometer survey, Kenora quadrangle, Minnesota; final report: U.S. Department of Energy Open-File Report GJBX-328(81), 2 v.
7. 1981, Airborne gamma-ray spectrometer and magnetometer survey, Quetico quadrangle, Minnesota; final report: U.S. Department of Energy Open-File Report GJBX-335(81), 2 v.
8. 1981, Airborne gamma-ray spectrometer and magnetometer survey, Roseau quadrangle, Minnesota; final report: U.S. Department of Energy Open-File Report GJBX-329(81), 2 v.
9. 1981, Airborne gamma-ray spectrometer and magnetometer survey, Saint Paul quadrangle, Minnesota; final report: U.S. Department of Energy Open-File Report GJBX-333(81), 2 v.
10. 1981, Airborne gamma-ray spectrometer and magnetometer survey, Stillwater quadrangle, Minnesota; final report: U.S. Department of Energy Open-File Report GJBX-334(81), 2 v.
11. 1981, Airborne gamma-ray spectrometer and magnetometer survey, Two Harbors quadrangle, Minnesota; final report: U.S. Department of Energy Open-File Report GJBX-336(81), 2 v.

Ahrens, L.H. See Pinson, W.H.

Alexander, E.C., Jr. See also Book, P.R.; Dalgleish, J.B., 2-3; Evans, J.E.; Groschen, G.E., 2; Lively, R.S., 7-8; Milske, J.A., 2-4; Mohring, E.H., 2; St. Ores, Jeffrey.

1. 1981, Minor caves near the Altura Waste Treatment Lagoon: Minnesota Speleology Monthly, v. 13, no. 1, p. 3-5.

2. 1981, Surficial Geology Cave, Fillmore County: Minnesota Speleology Monthly, v. 13, no. 2, p. 16-19.
3. 1982, Minnesota caves: Rocks and Minerals, v. 57, no. 3, p. 118-122.
4. 1983, Corn Feed field trip—August 20, 1983: Minnesota Speleology Monthly, v. 15, no. 11, p. 128-129.
5. 1983, Echo Chamber, Wabasha County: Minnesota Speleology Monthly, v. 15, no. 2, p. 27-29.
6. 1983, Hog Hollow Cave, Winona County: Minnesota Speleology Monthly, v. 15, no. 7, p. 81-82.
7. 1983, Skunk Hollow Cave, Winona County: Minnesota Speleology Monthly, v. 15, no. 2, p. 30-31.
8. 1984, Spring Valley Caverns; survey trip of January 14, 1984: Minnesota Speleology Monthly, v. 16, no. 2, p. 26-28.
9. 1984, Troy Sink, Big Room Cave and Hiawatha Caverns: Minnesota Speleology Monthly, v. 16, no. 7, p. 104-105.
10. 1985, Karst in the Upper Mississippi valley [abs.], *in* Lively, R.S., coordinator, Pleistocene geology and evolution of the Upper Mississippi valley—Winona, Minnesota, August 13-16, 1985, Abstracts and field trip guide: Minnesota Geological Survey, p. 3-4.
11. (Book, P.R.). 1984, Altura Minnesota lagoon collapses, *in* Beck, B.F., ed., Sinkholes: Their geology, engineering and environmental impact—Multidisciplinary Conference on Sinkholes, 1st, Orlando, Florida, October 15-17, 1984, Proceedings: Boston, A.A. Balkema, p. 311-318.
12. (Siegel, D.I.; Milske, J.A.). 1983, Isotopic studies of the Mt. Simon aquifer, southern Minnesota [abs.]: Eos (American Geophysical Union Transactions), v. 64, no. 18, p. 225.

Algermissen, S.T. See also Stover, C.W., 1-2.
(Perkins, D.M.; Thenhaus, P.C.; Hanson, S.L; Bender, B.L.). 1982, Probabilistic estimates of maximum acceleration and velocity in rock in the contiguous United States: U.S. Geological Survey Open-File Report 82-1033, 99 p., 6 pls.

Allègre, C.J. See Manhes, Gérald; Michard-Vitrac, Annie.

Alminas, H.V. See Grimes, D.J.

American Association of Petroleum Geologists.
(compiler). 1984, Geological highway map of the northern Great Plains region—North Dakota, South Dakota, Iowa, Nebraska, Minnesota: Tulsa, Okla., United States Geological Highway Map Series 12, scale 1inch = approx. 30 miles.

American Geophysical Union.
(U.S. Geological Survey). 1964, Bouguer gravity anomaly map of the United States (exclusive of Alaska and Hawaii): U.S. Geological Survey, scale 1:2,500,000, 2 pls.

Amstutz, G.C. See Schmidt, S.T.

Anderson, D.H. See Morey, G.B., 25.

Anderson, G.G. See Ronnei, D.M.; Scott, Deanna.

Anderson, H.W., Jr.
(Ruhl, J.F.). 1984, Geohydrology and hydrochemistry of aquifers in Cretaceous rocks, Minnesota, *in* Jorgensen, D.G., and others, eds., Geohydrology of the Dakota aquifer: Worthington, Ohio, National Water Well Association, p. 27-37.

Anderson, R.R.
(Black, R.A.). 1983, Early Proterozoic development of the southern Archean boundary of the Superior Province in the Lake Superior region [abs.]: Geological Society of America Abstracts with Programs, v. 15, no. 6, p. 515.

Anderson, R.Y.
(Dean, W.E.; Bradbury, J.P.; Love, David). 1985, Meromictic lakes and varved lake sediments in North America: U.S. Geological Survey Bulletin 1607, 19 p.

Anderson, S.L.
(Burke, Kevin). 1983, A Wilson Cycle approach to some Proterozoic problems in eastern North America, *in* Medaris, L.G., Jr., and others, eds., Proterozoic geology: Selected papers from an International Proterozoic Symposium: Geological Society of America Memoir 161, p. 75-93.

Anderson, Steven. See Chandler, V.W., 18.

Andrews, M.S. See Ripley, E.M., 4.

Aronow, Saul.
(Hobbs, H.C.). 1982, Surficial geologic map, pl. 2 *of* Balaban, N.H., and McSwiggen, P.L., eds., Geologic atlas, Scott County, Minnesota: Minnesota Geological Survey County Atlas Series C-1, scale 1:100,000.

Arvidson, R.E.
(Bindschadler, D.; Bowring, S.; Eddy, M.; Guinness, E.; Leff, C.). 1984, Bouguer images of the North American craton and its structural evolution: Nature, v. 311, no. 5983, p. 241-243.

Aschenbrenner, Stanley. See Rapp, G.R., Jr.

Ashwal, L.D. See Morrison, D.A., 1-2.

Ashworth, A.C. See also Morgan, A.V.; Schwert, D.P.
1. 1982, Late Wisconsinan *Coleopterous* faunas from midcontinental North America [abs.]: Journal of Paleontology, v. 56, suppl. to no. 2, pt. 2, p. 2.
2. (Cvancara, A.M.). 1982, Paleoecology of the southern part of the Lake Agassiz Basin [abs.]: Geological Association of Canada-Mineralogical Association of Canada Program with Abstracts, v. 7, p. 37.
3. (Cvancara, A.M.). 1983, Paleoecology of the southern part of the Lake Agassiz basin, *in* Teller, J.T., and Clayton, Lee, eds., Glacial Lake Agassiz: Geological Association of Canada Special Paper 26, p. 133-156.
4. (Schwert, D.P.; Watts, W.A.; Wright, H.E., Jr.). 1981, Plant and insect fossils at Norwood in south-central Minnesota: A record of late-glacial succession: Quaternary Research, v. 16, no. 1, p. 66-79.

Attig, J.W.
(Clayton, Lee; Mickelson, D.M.). 1985, Correlation of late Wisconsin glacial phases in the western Great Lakes area: Geological Society of America Bulletin, v. 96, no. 12, p. 1585-1593.

Austin, G.S.
[1966?] A teacher's guide for geologic field investigations in southwestern Minnesota, *in* Phinney, W.C., ed., A teacher's guide for geologic field investigations in Minnesota: Minnesota Department of Education with the cooperation of the Minnesota Geological Survey, 10 p.

Bagdadi, K.A.

1. 1981, Tectonic studies of the midcontinent gravity high in east-central Minnesota and western Wisconsin— part I: Gravity field and crustal structure; part II: Application of phase transition models to the Precambrian vertical motion history: Unpublished Ph.D. dissertation, University of Minnesota, Minneapolis, 196 p.
2. 1981, Tectonic studies of the midcontinent gravity high in east-central Minnesota and western Wisconsin— part I: Gravity field and crustal structure; part II: Application of phase transition models to the Precambrian vertical motion history [abs., University of Minnesota Ph.D. dissertation]: Dissertation Abstracts International, 1982, v. 42, no. 7, p. 2750B-2751B.

Baker, R.W.

1985, Contrasting age of the Mississippi River valley in east-central Minnesota and its tributaries in west-central Wisconsin [abs.], *in* Lively, R.S., coordinator, Pleistocene geology and evolution of the Upper Mississippi valley— Winona, Minnesota, August 13-16, 1985, Abstracts and field trip guide: Minnesota Geological Survey, p. 20.

Balaban, N.H. See also Morey, G.B., 13.

1. (McSwiggen, P.L., editors). 1982, Geologic atlas, Scott County, Minnesota: Minnesota Geological Survey County Atlas Series C-1, scale 1:100,000 and smaller, 6 pls.
2. (Olsen, B.M., editors). 1984, Geologic atlas of Winona County, Minnesota: Minnesota Geological Survey County Atlas Series C-2, scale 1:100,000 and smaller, 8 pls.

Banerjee, S.K. See King, J.W., 1-3; Lund, S.P., 4-6; Sprowl, D.R., 2-5.

Bannatyne, B.B.

(Zoltai, S.C.; Tamplin, M.J.). 1970, Annotated bibliography of the Quaternary in Manitoba and the adjacent Lake Agassiz region (including archaeology of Manitoba): Manitoba Geological Survey Geological Paper 2/70, 142 p.

Bansal, B. See Wooden, J.L.

Baragar, W.R.A.

(Scoates, R.F.J.). 1981, The Circum-Superior Belt: A Proterozoic plate margin?, chap. 12 *of* Kröner, A., ed., Precambrian plate tectonics: Developments in Precambrian Geology 4; New York, Elsevier, p. 297-330.

Baranowski, S.

1969, Some remarks on the origin of drumlins: Geographia Polonica, v. 17, p. 197-208.

Barghoorn, E.S. See Tyler, S.A.

Barrick, J.E. See Klapper, Gilbert.

Basaltic Volcanism Study Project.

1981, Pre-Tertiary continental flood basalts, sec. 1.2.2 *of* Basaltic Volcanism Study Project, Basaltic volcanism on the terrestrial planets: New York, Pergamon, p. 30-77.

Bassou, Oulgout. See also Gabanski, Gilbert.

1984, Preliminary groundwater study and use of resistivity sounding for determining some hydrologic parameters of glacial outwash in Clear Lake, Sherburne County, MN: Unpublished M.S. thesis, University of Minnesota, Minneapolis, 114 p.

Basu, Abhijit.
1981, Weathering before the advent of land plants: Evidence from unaltered detrital K-feldspars in Cambrian-Ordovician arenites: Geology, v. 9, no. 3, p. 132-133.

Bath, G.D.
1960, Magnetization of volcanic rocks in the Lake Superior geosyncline, *in* Geological Survey research 1960—short papers in the geological sciences: U.S. Geological Survey Professional Paper 400-B, p. B212-B214.

Battelle Project Management Division, Office of Crystalline Repository Development.
1. 1983, A national survey of crystalline rocks and recommendations of regions to be explored for high-level radioactive waste repository sites; technical report: OCRD-1, Columbus, Ohio, Battelle Memorial Institute, 110 p.
2. 1985, North Central Regional geologic characterization report: Final: DOE/CH-8, Argonne, Ill., prepared for the U.S. Department of Energy, Crystalline Repository Project Office, 2 v.; v. 1, text, approx. 500 p.; v. 2, 13 pls. [Plate 1 is the Geologic map of the Lake Superior region, by Morey, Sims, Cannon, Mudrey, and Southwick, 1982: Minnesota Geological Survey State Map Series S-13.].

Batten, L.G. See Goebel, J.E., 2; Southwick, D.L., 6.

Bauer, R.L. See also McCall, G.W.; Sheehan, T.J.
1. 1981, The petrology and structural geology of the western Lake Vermilion area, northeastern Minnesota: Unpublished Ph.D. dissertation, University of Minnesota, Minneapolis, 204 p.
2. 1981, The petrology and structural geology of the western Lake Vermilion area, northeastern Minnesota [abs., University of Minnesota Ph.D. dissertation]: Dissertation Abstracts International, 1982, v. 42, no. 10, p. 3986B-3987B.
3. 1981, Retrograde prehnite-pumpellyite facies metamorphism in the southern Vermilion Granitic Complex, northern Minnesota [abs.], *in* Institute on Lake Superior Geology, 27th Annual Meeting, East Lansing, Michigan, 1981, Abstracts and Proceedings: Sponsored by the Dept. of Geology, Michigan State University, East Lansing, and the Michigan Dept. of Natural Resources, Geological Survey, Lansing, unpaged.
4. 1985, Correlation of early recumbent and younger upright folding across the boundary between an Archean gneiss belt and greenstone terrane, northeastern Minnesota: Geology, v. 13, no. 9, p. 657-660.
5. 1985, Geologic map of Norwegian Bay quadrangle, St. Louis County, Minnesota: Minnesota Geological Survey Miscellaneous Map Series M-59, scale 1:24,000.
6. 1985, Multiphase fold geometry along the southeastern margin of the Vermilion Granitic Complex, northeastern Minnesota [abs.], *in* Institute on Lake Superior Geology, 31st Annual Meeting, Kenora, Ontario, 1985, Technical Sessions and Abstracts: Organized by the Resident Geologist Office, Kenora, and the Ontario Geological Survey, p. 3.
7. (Hudleston, P.J.). 1982, Early recumbent folding across the boundary between the Vermilion Granitic Complex and the Vermilion district, NE Minnesota [abs.]: Eos (American Geophysical Union Transactions), v. 63, no. 33, p. 614.
8. (Hudleston, P.J.). 1982, F_1 recumbent folding in the western Vermilion greenstone-granite terrane, NE Minnesota [abs.], *in* Institute on Lake Superior Geology, 28th Annual Meeting, International Falls, Minnesota, 1982, Proceedings: Sponsored by the Minnesota Geological Survey, p. 4.

Bayfield, H.W.
1829, Outlines of the geology of Lake Superior: Literary and Historical Society of Quebec Transactions, v. 1, p. 1-43.

Bayley, R.W.
(Muehlberger, W.R., compilers). 1968, Basement map of the United States exclusive of Alaska and Hawaii: U.S. Geological Survey, scale 1:2,500,000, 2 pls.

Beck, Warren.
1. (Murthy, V. Rama). 1982, Rb-Sr and Sm-Nd isotope studies of Proterozoic mafic dikes in northeastern Minnesota [abs.], *in* Institute on Lake Superior Geology, 28th Annual Meeting, International Falls, Minnesota, 1982, Proceedings: Sponsored by the Minnesota Geological Survey, p. 5.
2. (Murthy, V. Rama). 1982, Rb-Sr isotopic study of a Proterozoic mafic dike, N.E. Minnesota [abs.]: Eos (American Geophysical Union Transactions), v. 63, no. 33, p. 614.
3. (Murthy, V. Rama). 1983, Mafic dikes of the Canadian Shield: A Rb/Sr, Sm/Nd study [abs.]: Geological Society of America Abstracts with Programs, v. 15, no. 4, p. 266.

Beckwith, D.W.
(Clark, R.C.). 1985, Reconnaissance scale well water geochemical survey of central Minnesota: Minnesota Department of Natural Resources, Division of Minerals Report 236-2, 36 p.

Bednarek, A.R.
(Meyer, R.P.). 1966, Comparison of time term and P_n residual methods of interpreting first arrivals from the Lake Superior experiments, *in* Steinhart, J.S., and Smith, T.J., eds., The Earth beneath the continents: American Geophysical Union Geophysical Monograph 10, p. 276-289.

Beikman, H.M. See King, P.B., 2.

Beltrame, R.J. See also Chandler, V.W., 14; Morey, G.B., 23; Southwick, D.L., 8.
1. (Chandler, V.W.; Gulbranson, B.L.). 1982, Geophysical investigation of the Cedar Mountain Complex, Redwood County, Minnesota: Minnesota Geological Survey Report of Investigations 27, 20 p.
2. (Holtzman, R.C.; Wahl, T.E.). 1981, Cuyuna range manganese resources: Society of Mining Engineers of AIME Preprint 81-343, 7 p.
3. (Holtzman, R.C.; Wahl, T.E.). 1981, Cuyuna range manganese resources [abs.]: SME-AIME, Fall Meeting and Exhibit, Denver, Colorado, 1981, Pocket Program, p. 33.
4. (Holtzman, R.C.; Wahl, T.E.). 1981, Manganese resources of the Cuyuna range, east-central Minnesota: Minnesota Geological Survey Report of Investigations 24, 22 p.

Bence, A.E. See Hanson, G.N.

Bender, B.L. See Algermissen, S.T.

Bendix Field Engineering Corporation.
1. 1982, [Machine-processed magnetic anomaly contour map and profiles,] Ashland, Wisconsin/Minnesota/Michigan: U.S. Department of Energy Open-File Report GJM-252(82), scale 1:250,000, 4 pls.
2. 1982, [Machine-processed magnetic anomaly contour map and profiles,] Bemidji, Minnesota: U.S. Department of Energy Open-File Report GJM-268(82), scale 1:250,000, 4 pls.
3. 1982, [Machine-processed magnetic anomaly contour map and profiles,] Brainerd, Minnesota: U.S. Department of Energy Open-File Report GJM-269(82), scale 1:250,000, 4 pls.
4. 1982, [Machine-processed magnetic anomaly contour map and profiles,] Duluth, Minnesota/Wisconsin: U.S. Department of Energy Open-File Report GJM-260(82), scale 1:250,000, 4 pls.

5. 1982, [Machine-processed magnetic anomaly contour map and profiles,] Eau Claire, Wisconsin/Minnesota: U.S. Department of Energy Open-File Report GJM-254(82), scale 1:250,000, 4 pls.
6. 1982, [Machine-processed magnetic anomaly contour map and profiles,] Fairmont, Minnesota/Iowa: U.S. Department of Energy Open-File Report GJM-272(82), scale 1:250,000, 4 pls.
7. 1982, [Machine-processed magnetic anomaly contour map and profiles,] Fargo, North Dakota/Minnesota: U.S. Department of Energy Open-File Report GJM-278(82), scale 1:250,000, 4 pls.
8. 1982, [Machine-processed magnetic anomaly contour map and profiles,] Grand Forks, North Dakota/Minnesota: U.S. Department of Energy Open-File Report GJM-277(82), scale 1:250,000, 4 pls.
9. 1982, [Machine-processed magnetic anomaly contour map and profiles,] Hancock, Michigan/Minnesota: U.S. Department of Energy Open-File Report GJM-243(82), scale 1:250,000, 4 pls.
10. 1982, [Machine-processed magnetic anomaly contour map and profiles,] Hibbing, Minnesota: U.S. Department of Energy Open-File Report GJM-259(82), scale 1:250,000, 4 pls.
11. 1982, [Machine-processed magnetic anomaly contour map and profiles,] International Falls, Minnesota: U.S. Department of Energy Open-File Report GJM-258(82), scale 1:250,000, 4 pls.
12. 1982, [Machine-processed magnetic anomaly contour map and profiles,] Kenora, Minnesota: U.S. Department of Energy Open-File Report GJM-266(82), scale 1:250,000, 4 pls.
13. 1982, [Machine-processed magnetic anomaly contour map and profiles,] La Crosse, Wisconsin/Minnesota/Iowa: U.S. Department of Energy Open-File Report GJM-255(82), scale 1:250,000, 4 pls.
14. 1982, [Machine-processed magnetic anomaly contour map and profiles,] Mason City, Iowa/Minnesota: U.S. Department of Energy Open-File Report GJM-263(82), scale 1:250,000, 4 pls.
15. 1982, [Machine-processed magnetic anomaly contour map and profiles,] Milbank, North Dakota/Minnesota: U.S. Department of Energy Open-File Report GJM-279(82), scale 1:250,000, 4 pls.
16. 1982, [Machine-processed magnetic anomaly contour map and profiles,] New Ulm, Minnesota: U.S. Department of Energy Open-File Report GJM-271(82), scale 1:250,000, 4 pls.
17. 1982, [Machine-processed magnetic anomaly contour map and profiles,] Quetico, Minnesota: U.S. Department of Energy Open-File Report GJM-250(82), scale 1:250,000, 4 pls.
18. 1982, [Machine-processed magnetic anomaly contour map and profiles,] Roseau, Minnesota: U.S. Department of Energy Open-File Report GJM-267(82), scale 1:250,000, 4 pls.
19. 1982, [Machine-processed magnetic anomaly contour map and profiles,] St. Cloud, Minnesota: U.S. Department of Energy Open-File Report GJM-270(82), scale 1:250,000, 4 pls.
20. 1982, [Machine-processed magnetic anomaly contour map and profiles,] St. Paul, Minnesota: U.S. Department of Energy Open-File Report GJM-262(82), scale 1:250,000, 4 pls.
21. 1982, [Machine-processed magnetic anomaly contour map and profiles,] Sioux Falls, South Dakota/Iowa/Minnesota: U.S. Department of Energy Open-File Report GJM-281(82), scale 1:250,000, 4 pls.
22. 1982, [Machine-processed magnetic anomaly contour map and profiles,] Stillwater, Minnesota/Wisconsin: U.S. Department of Energy Open-File Report GJM-261(82), scale 1:250,000, 4 pls.
23. 1982, [Machine-processed magnetic anomaly contour map and profiles,] Thief River Falls, North Dakota/Minnesota: U.S. Department of Energy Open-File Report GJM-276(82), scale 1:250,000, 4 pls.
24. 1982, [Machine-processed magnetic anomaly contour map and profiles,] Two Harbors, Minnesota/Michigan/Wisconsin: U.S. Department of Energy Open-File Report GJM-251(82), scale 1:250,000, 4 pls.
25. 1982, [Machine-processed magnetic anomaly contour map and profiles,] Watertown, South Dakota/Minnesota: U.S. Department of Energy Open-File Report GJM-280(82), scale 1:250,000, 4 pls.

Bergstrom, D.J.
(Morey, G.B., coordinators). 1985, Correlation of stratigraphic units in North America— northern mid-continent region correlation chart: Tulsa, Okla., American Association of Petroleum Geologists.

Berkley, J.L. See Ripley, E.M., 8.

Berry, M.J.
(West, G.F.). 1966, A time-term interpretation of the first-arrival data of the 1963 Lake Superior experiment, *in* Steinhart, J.S., and Smith, T.J., eds., The Earth beneath the continents: American Geophysical Union Geophysical Monograph 10, p. 166-180.

Bickel, K.L. See Nater, Edward.

Bickford, M.E. See Van Schmus, W.R., 5.

Bindschadler, D. See Arvidson, R.E.

Birks, H.J.B.
1. 1976, Late-Wisconsinan vegetational history at Wolf Creek, central Minnesota: Ecological Monographs, v. 46, no. 4, p. 395-429.
2. 1981, Late Wisconsin vegetational and climatic history at Kylen Lake, northeastern Minnesota: Quaternary Research, v. 16, no. 3, p. 322-355.
3. 1981, Long-distance pollen in late Wisconsin sediments of Minnesota, U.S.A.— a quantitative analysis: New Phytologist, v. 87, no. 3, p. 631-661.

Björck, Svante.
(Keister, C.M.). 1983, The Emerson Phase of Lake Agassiz, independently registered in northwestern Minnesota and northwestern Ontario: Canadian Journal of Earth Sciences, v. 20, no. 10, p. 1536-1542.

Black, L.P. See Williams, I.S.

Black, R.A. See Anderson, R.R.

Blair, S.C. See also Mitchell, P.J.
1. 1985, Permeability of Ironton-Galesville sandstone at elevated temperature and pressure, *in* ENERSTOCK 85— International Conference on Energy Storage for Building Heating and Cooling, 3rd, Toronto, Canada, 1985, Proceedings/Communications: Ottawa, organized for Public Works Canada by Intertask Ltd., p. 33-37.
2. 1985, Permeability of Ironton-Galesville sandstone at elevated temperature and pressure/Perméabilité du grès de Ironton-Galesville à température et pression élevées [abs.], *in* ENERSTOCK 85— International Conference on Energy Storage for Building Heating and Cooling, 3rd, Toronto, Canada, 1985, Abstracts/Résumés: Ottawa, organized for Public Works Canada by Intertask Ltd., p. 9.
3. (Deutsch, W.J.). 1983, Characterization of important physicochemical processes occurring at the St. Paul Field Test Facility: An interim report, *in* DOE Physical and Chemical Energy Storage Annual Contractors' Review Meeting, Arlington, Virginia, 1983, Proceedings: CONF-830974, Washington, D.C., prepared for the U.S. Department of Energy, Division of Energy Storage Technology, p. 248-252.

4. (Deutsch, W.J.). 1983, Determination of important physicochemical processes at an aquifer thermal energy storage site in Minnesota using both laboratory and field techniques, *in* International Conference on Subsurface Heat Storage in Theory and Practice, Stockholm, June 6-8, 1983, Proceedings, Appendix 2: Stockholm, Swedish Council for Building Research, p. 800-804.
5. (Deutsch, W.J.; Kannberg, L.D.). 1984, Laboratory permeability measurements in support of an aquifer thermal energy storage site in Minnesota, *in* Dowding, C.H., and others, eds., Rock mechanics in productivity and protection—Symposium on Rock Mechanics, 25th, Evanston, Illinois, 1984, Proceedings, p. 296-303.
6. (Petrie, G.M.). 1984, Use of digital image analysis to describe temperature-induced changes in pore structure [abs]: Geological Society of America Abstracts with Programs, v. 16, no. 6, p. 446.

Blomquist, R.V.
(Pfannkuch, H.O.; Clark, T.P.; Johnston, R.; Sielaff, B.). 1983, Hydrogeologic evaluation of six selected waste management facilities in Minnesota: Soil Mechanics and Foundation Engineering Conference, 31st Annual, St. Paul, Minnesota, 1983, Proceedings, p. 263-279.

Bloomgren, B.A.
1985, Bedrock geologic and topographic maps of the Minneapolis-St. Paul urban area, Minnesota: Minnesota Geological Survey Miscellaneous Map Series M-57, scale 1:48,000, 2 pls.

Bluemle, J.P. See Brophy, J.A.; Teller, J.T., 3-5.

Boelter, D.H. See Nicols, D.S.

Boerngen, J.G. See Shacklette, H.T.

Bogart, L.E. See Delaney, H.J.

Bogden, D. See Sprowl, D.R., 6.

Boldt, D.R. See also Siegel, D.I., 8.
(Siegel, D.I.). 1985, Numerical simulation of groundwater flow through peat [abs.]: Eos (American Geophysical Union Transactions), v. 66, no. 18, p. 264.

Bonnichsen, Bill. See also Tyson, R.M., 4.
(Fukui, L.M.; Chang, L.L.Y.). 1980, Geologic setting, mineralogy, and geochemistry of magmatic sulfides, South Kawishiwi intrusion, Duluth Complex, Minnesota, *in* Ridge, J.D., ed., International Association on the Genesis of Ore Deposits (IAGOD), 5th Quadrennial Symposium, Snowbird, Utah, 1978, Proceedings: Stuttgart, West Germany, E. Schweizerbart'sche Verlagsbuchhandlung, v. 1, p. 545-565.

Book, P.R. See also Alexander, E.C., Jr., 11; Mohring, E.H., 2; Mossler, J.H., 4.
(Dalgleish, J.B.; Alexander, E.C., Jr.). 1983, Semiquantitative tracing of groundwater flow through fractured karst and jointed sandstone aquifers [abs.]: Eos (American Geophysical Union Transactions), v. 64, no. 18, p. 229.

Bornhorst, T.J. See Green, J.C., 9.

Borns, H.W., Jr. See Mickelson, D.M.

Borovsky, J.P. See Nater, Edward.

Borradaile, G.J.
(Poulsen, K.H.). 1981, Tectonic deformation of pillow lava: Tectonophysics, v. 79, nos. 1/2, p. T17-T26.

Bowman, P.L. See Chandler, V.W., 15.

Bowring, S. See Arvidson, R.E.

Bradbury, J.P. See Anderson, R.Y.

Braile, L.W. See Keller, G.R.; Sexton, J.L.

Brandsma, Dan. See Lund, S.P., 7.

Brannon, J.C. See also Green, J.C., 10.
1. 1984, Geochemistry of successive lava flows of the Keweenawan North Shore Volcanic Group: Unpublished Ph.D. dissertation, Washington University, St. Louis, Mo., 328 p.
2. 1984, Geochemistry of successive lava flows of the Keweenawan North Shore Volcanic Group [abs., Washington University Ph.D. dissertation]: Dissertation Abstracts International, 1985, v. 45, no. 12, pt. 1, p. 3747B.
3. (Haskin, L.A.; Green, J.C.). 1981, Fractional crystallization in NSVG [abs.]: Geological Society of America Abstracts with Programs, v. 13, no. 6, p. 271.

Bray, E.C.
1985, Ancient valleys/modern rivers: What the glaciers did: St. Paul, Science Museum of Minnesota, 32 p.

Bretz, R.F.
1981, Geology of the Sioux Falls, South Dakota area, *in* Cretaceous stratigraphy and sedimentation in northwest Iowa, northeast Nebraska, and southeast South Dakota: Iowa Geological Survey Guidebook Series 4, p. 129-147.

Brice, W.C.
1. 1981, An analysis technique for mineral resource planning: Unpublished Ph.D. dissertation, University of Minnesota, Minneapolis, 774 p.
2. 1981, An analysis technique for mineral resource planning [abs., University of Minnesota Ph.D. dissertation]: Dissertation Abstracts International, 1981, v. 42, no. 6, p. 2483B.

Briggs, R.C.
(West, W.J.). 1981, The mineral industry of Minnesota, *in* Area reports: Domestic, v. 2 *of* Minerals yearbook, 1977: U.S. Bureau of Mines, p. 313-330.

Brill, K.G., Jr.
(Nuttli, O.W.). 1983, Seismicity of the Colorado Lineament: Geology, v. 11, no. 1, p. 20-24.

Brockett, B.O.
1976, Minnesota's Lake Superior agates: Lapidary Journal, v. 30, no. 1, p. 174-180.

Brophy, J.A.
(Bluemle, J.P.). 1983, The Sheyenne River: Its geological history and effects on Lake Agassiz, *in* Teller, J.T., and Clayton, Lee, eds., Glacial Lake Agassiz: Geological Association of Canada Special Paper 26, p. 173-186.

Brower, J.C.
1. (Strimple, H.L.). 1983, Ordovician calceocrinids from northern Iowa and southern Minnesota: Journal of Paleontology, v. 57, no. 6, p. 1261-1281.
2. (Veinus, Julia). 1978, Middle Ordovician crinoids from the Twin Cities area of Minnesota: Bulletins of American Paleontology, v. 74, no. 304, p. 369-506.

Brown, B.A. See Greenberg, J.K.

Brown, L.D. See Gibbs, A.K., 1-2.

Brown, R.G.
1. 1984, Hydrologic effects of impoundments in Sherburne National Wildlife Refuge, Minnesota: U.S. Geological Survey Water-Resources Investigations Report 84-4175, 20 p.
2. 1985, Hydrologic factors affecting lake-level fluctuations in Big Marine Lake, Washington County, Minnesota: U.S. Geological Survey Water-Resources Investigations Report 85-4176, 23 p.

Bruemmer, L.B.
1. 1983, Dealing with ground-water protection in southeastern Minnesota: National Ground-Water Quality Symposium, 6th, Atlanta, Georgia, September 22-24, 1982, Proceedings, p. 193-197.
2. (Clark, T.P.). 1984, Ground water in Minnesota: A user's guide to understanding Minnesota's ground water resource: Prepared jointly by the Minnesota Pollution Control Agency and the Minnesota State Planning Agency, 64 p.

Brugam, R.B.
1981, Chemistry of lake water and groundwater in areas of contrasting glacial drifts in eastern Minnesota: Hydrobiologia, v. 80, no. 1, p. 47-62.

Brummer, J.J.
1. 1980, Agate collecting around Lake Superior: Lapidary Journal, v. 33, no. 11, p. 2368-2379.
2. 1985, Agate collecting around Lake Superior, *in* VanLandingham, S.L., ed., Geology of the world gem deposits: New York, Van Nostrand Reinhold Co., p. 150-158. [This is a reprint of J.J. Brummer's 1980 Lapidary Journal article.]

Brunfelt, A.O. See Seifert, K.E., 3.

Bunker, B.J. See also Witzke, B.J., 4.
1. 1981, The tectonic history of the Transcontinental Arch and Nemaha Uplift and their relationship to the Cretaceous rocks of the central midcontinent region, *in* Cretaceous stratigraphy and sedimentation in northwest Iowa, northeast Nebraska, and southeast South Dakota: Iowa Geological Survey Guidebook Series 4, p. 1-23.
2. (Klapper, Gilbert; Witzke, B.J.). 1983, New stratigraphic interpretations of the Middle Devonian rocks of Winneshiek and Fayette Counties, northeastern Iowa: Geological Society of Iowa Field Trip Guidebook 39, 38 p.

Burke, Kevin. See Anderson, S.L.

Byers, C.W. See Winfree, K.E., 2.

Cahow, Adam. See Goebel, J.E., 1.

Calvin, M.
1965, Chemical evolution: Royal Society of London Proceedings, Series A, v. 288, no. 1415, p. 441-466.

Cameron, C.C.
[1981,] Variety in United States peat deposits: International Peat Congress, 6th, Duluth, Minnesota, August 17-23, 1980, Proceedings, p. 12-15.

Cannon, W.F. See also Klasner, J.S.; Morey, G.B., 21.
1. (Force, E.R.). 1983, Potential for high-grade shallow-marine manganese deposits in North America, *in* Shanks, W.C., III, ed., Cameron volume on unconventional mineral deposits: New York, Society of Mining Engineers of the American Institute of Mining, Metallurgical, and Petroleum Engineers, p. 175-189.
2. (Klasner, J.S.; King, E.R.). 1982, Geology of buried Precambrian rocks in the northern midcontinent inferred from geophysical data [abs.]: Geological Society of America Abstracts with Programs, v. 14, no. 7, p. 458.

Card, K.D. See also Sims, P.K., 6.
(and others). 1972, The Southern Province, *in* Price, R.A., and Douglas, R.J.W., eds., Variations in tectonic styles in Canada: Geological Association of Canada Special Paper 11, p. 335-380.

Carlson, K.E.
1985, A combined analysis of gravity and magnetic anomalies in east-central Minnesota: Unpublished M.S. thesis, University of Minnesota, Minneapolis, 138 p.

Carpenter, M.A.
(McConnell, J.D.C.). 1984, Experimental delineation of the $C\bar{1} \rightleftharpoons I\bar{1}$ transformation in intermediate plagioclase feldspars: American Mineralogist, v. 69, nos. 1-2, p. 112-121.

Carr, M.S.
(Guild, P.W.; Wright, W.B.). 1967, Iron in the United States (exclusive of Alaska and Hawaii): U.S. Geological Survey Mineral Investigations Resource Map MR-51, scale 1:3,168,000, accompanying discussion, 20 p.

Cavanaugh, M.D.
1. 1983, A paleomagnetic study of post-Penokean intrusions from the Minnesota River Valley and apparent polar wander for the interval 2800-1400 Ma for North America: Unpublished Ph.D. dissertation, University of South Carolina, Columbia, 79 p.
2. 1983, A paleomagnetic study of post-Penokean intrusions from the Minnesota River Valley and apparent polar wander for the interval 2800-1400 Ma for North America [abs., University of South Carolina Ph.D. dissertation]: Dissertation Abstracts International, 1983, v. 44, no. 4, p. 1036B.
3. (Nairn, A.E.M.). 1980, The role of the geologic province in Precambrian paleomagnetism: Earth-Science Reviews, v. 16, no. 2/3, p. 257-276. [This paper is also included as part of M.D. Cavanaugh's 1983 Ph.D. dissertation.]

Cawthorn, R.G.
1982, An origin of small-scale fluctuations in orthopyroxene composition in the lower and critical zones of the Bushveld Complex, South Africa: Chemical Geology, v. 36, no. 3/4, p. 227-236.

Chalokwu, C.I. See also Ripley, E.M., 5.
1. 1985, A geochemical, petrological, and compositional study of the Partridge River intrusion, Duluth Complex, Minnesota: Unpublished Ph.D. dissertation, Miami University, Oxford, Ohio, 251 p.
2. 1985, A geochemical, petrological, and compositional study of the Partridge River intrusion, Duluth Complex, Minnesota [abs., Miami University Ph.D. dissertation]: Dissertation Abstracts International, 1986, v. 46, no. 7, p. 2235B-2236B.
3. (Grant, N.K.). 1983, The importance of trapped liquid abundances to the re-equilibration of primary mineral compositions in the Partridge River Troctolite, Duluth Complex, Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 15, no. 6, p. 541.
4. (Grant, N.K.). 1984, Modal and density variations in the Partridge River intrusion (PRI) of the Duluth Complex, and an estimate of the trapped liquid density [abs.]: Eos (American Geophysical Union Transactions), v. 65, no. 16, p. 294.
5. (Grant, N.K.). 1985, The geochemistry of the Partridge River intrusion, Duluth Complex, Minnesota [abs]: Geological Society of America Abstracts with Programs, v. 17, no. 2, p. 83.
6. (Yau, Yu-Chyi). 1985, Hydroxyapophyllite in hornfels beneath the Duluth Complex, northeastern Minnesota: Canadian Mineralogist, v. 23, pt. 3, p. 489-490.

Chandler, V.W. See also Beltrame, R.J., 1; Ervin, C.P.; Ferderer, R.J., 2; Green, J.C., 9, 11-12; Southwick, D.L., 3.
1. 1981, Aeromagnetic anomaly map of Minnesota: Minnesota Geological Survey State Map Series S-11, scale 1:3,168,000.
2. 1981, Detailed aeromagnetic surveying program in Minnesota [abs.]: Minnesota Academy of Science, 49th Annual Spring Meeting, Minneapolis, Minnesota, 1981, Abstracts of Papers, p. 11.
3. 1981, Simple Bouguer gravity anomaly map of Minnesota: Minnesota Geological Survey State Map Series S-12, scale 1:3,168,000.
4. 1982, Interpretation of high-resolution aeromagnetic data in northeastern Minnesota, *in* Society of Exploration Geophysicists, 52nd Annual International Meeting and Exposition, Dallas, Texas, 1982, Technical Program Abstracts & Biographies, p. 288-291.
5. 1983, Aeromagnetic map of Minnesota, Carlton and Pine Counties: Minnesota Geological Survey Aeromagnetic Map Series A-3, scale 1:250,000, 2 pls.
6. 1983, Aeromagnetic map of Minnesota, Cook and Lake Counties: Minnesota Geological Survey Aeromagnetic Map Series A-1, scale 1:250,000, 2 pls.
7. 1983, Aeromagnetic map of Minnesota, east-central region: Minnesota Geological Survey Aeromagnetic Map Series A-4, scale 1:250,000, 2 pls.
8. 1983, Aeromagnetic map of Minnesota, St. Louis County: Minnesota Geological Survey Aeromagnetic Map Series A-2, scale 1:250,000, 2 pls.
9. 1983, Correlation of magnetic anomalies in east-central Minnesota and northwestern Wisconsin: Constraints on magnitude and direction of Keweenawan rifting: Geology, v. 11, no. 3, p. 174-176.
10. 1983, Interpretation of high-resolution aeromagnetic data in northeastern Minnesota [abs.]: Geophysics, v. 48, no. 4, p. 451-452.
11. 1983, Paleomagnetic and magnetic anomaly studies of the northwestern Duluth Complex, Lake County, Minnesota [abs.], *in* Institute on Lake Superior Geology, 29th Annual Meeting, Houghton, Michigan, 1983, Proceedings: Houghton, Mich., organized by the Dept. of Geology and Geological Engineering in cooperation with the Div. of Education and Public Services, Michigan Technological University, p. 7.

12. 1985, Aeromagnetic map of Minnesota, central region: Minnesota Geological Survey Aeromagnetic Map Series A-5, scale 1:250,000, 2 pls.
13. 1985, Interpretation of Precambrian geology in Minnesota using low-altitude, high-resolution aeromagnetic data, *in* Hinze, W.J., ed., The utility of regional gravity and magnetic anomaly maps: Tulsa, Okla., Society of Exploration Geophysicists, p. 375-391.
14. (Beltrame, R.J.; Gulbranson, B.L.). 1982, A geophysical study of the Cedar Mountain Complex, southwestern Minnesota [abs.]: Eos (American Geophysical Union Transactions), v. 63, no. 33, p. 614.
15. (Bowman, P.L.; Hinze, W.J.; O'Hara, N.W.). 1982, Long-wavelength gravity and magnetic anomalies of the Lake Superior region, *in* Wold, R.J., and Hinze, W.J., eds., Geology and tectonics of the Lake Superior Basin: Geological Society of America Memoir 156, p. 223-237.
16. (Ferderer, R.J.). 1984, Interpretation of aeromagnetic data over the southern Duluth Complex, northeastern Minnesota [abs.]: Eos (American Geophysical Union Transactions), v. 65, no. 16, p. 199.
17. (Jirsa, M.A.; Ikola, R.J.). 1985, Simple Bouguer gravity map of Minnesota, Hibbing sheet: Minnesota Geological Survey Miscellaneous Map Series M-56, scale 1:250,000. [This map supersedes Miscellaneous Map Series M-3, 1968, by R.J. Ikola.]
18. (Nordstrand, Earl; Anderson, Steven). 1984, Shaded-relief aeromagnetic anomaly map of northeastern and east-central Minnesota: Minnesota Geological Survey Miscellaneous Map Series M-53, scale 1:1,000,000.
19. (Southwick, D.L.). 1985, Regional characteristics of the Kenora-Kabetogama dike swarm, Minnesota and Ontario [abs.], *in* Mafic dyke swarms—International Conference, University of Toronto, Canada, June 4-7, 1985, Abstracts: Sponsored by the Internat. Lithosphere Programme, IUGS Comm. on Tectonics, Geol. Survey of Canada, Canadian Geol. Foundation, Geol. Assoc. of Canada, and Canadian Geophys. Union, p. 29.
20. (Watts, A.B.; Gulbranson, B.L.). 1982, Magnetic anomaly studies of the northern Animikie basin [abs.], *in* Institute on Lake Superior Geology, 28th Annual Meeting, International Falls, Minnesota, 1982, Proceedings: Sponsored by the Minnesota Geological Survey, p. 7.

Chang, L.L.Y. See Bonnichsen, Bill; Tyson, R.M., 5.

Chason, D.B. See Siegel, D.I., 8.

Cheney, E.S.
1981, The hunt for giant uranium deposits: American Scientist, v. 69, no. 1, p. 37-48.

Chernicoff, S.E.
1. 1980, The Superior-lobe and Grantsburg-sublobe tills: Their compositional variability in east-central Minnesota [abs., University of Minnesota Ph.D. dissertation]: Dissertation Abstracts International, 1981, v. 41, no. 11, p. 4040B.
2. 1982, Areal variability of till composition: Evidence of differential erosion and glacial character [abs.]: International Congress on Sedimentology, 11th, Hamilton, Ontario, 1982, Abstracts of Papers, p. 77.
3. 1982, Deducing the glacial character of Pleistocene ice lobes from their tills [abs.]: American Quaternary Association, 7th Biennial Conference, Seattle, Washington, 1982, Program and Abstracts, p. 79.
4. 1983, Glacial characteristics of a Pleistocene ice lobe in east-central Minnesota: Geological Society of America Bulletin, v. 94, no. 12, p. 1401-1414.
5. 1984, Using isotropic magnetic susceptibility to delineate glacial tills: Journal of Geology, v. 92, no. 1, p. 113-118.

Chipera, S.J. See Perkins, D., III.

Christiansen, R.G. See Mishra, C.P.

Cisne, J.L.
(Gildner, R.F.; Rabe, B.D.). 1984, Epeiric sedimentation and sea level: Synthetic ecostratigraphy: Lethaia, v. 17, no. 4, p. 267-288.

Clark, K.F. See Yaghubpur, Abdolmajid.

Clark, R.C. See also Beckwith, D.W.
1. 1984, Microstructures in the multiply deformed slate of the Thomson Formation, east-central Minnesota [abs.], *in* Institute on Lake Superior Geology, 30th Annual Meeting, Wausau, Wisconsin, 1984, Abstracts: Sponsored by the Geology Dept., University of Wisconsin-Oshkosh, p. 7-8.
2. 1985, The structural geology of the Thomson Formation: Cloquet and Esko quadrangles, east-central Minnesota: Unpublished M.S. thesis, University of Minnesota, Duluth, 114 p., 2 pls.

Clark, T.P. See Blomquist, R.V.; Bruemmer, L.B., 2.

Clayton, Lee. See also Attig, J.W.; Fenton, M.M., 1-2; Goebel, J.E., 1; Mickelson, D.M.; Moran, S.R., 1; Teller, J.T., 6-7.
1. 1982, Chronology of drainage of Lake Agassiz into Lake Superior [abs.]: Geological Association of Canada-Mineralogical Association of Canada Program with Abstracts, v. 7, p. 43.
2. 1982, Influence of Agassiz and Superior drainage on the Mississippi River, *in* Knox, J.C., chairperson, Quaternary history of the Driftless Area, with special papers: Wisconsin Geological and Natural History Survey Field Trip Guide Book 5, p. 83-87.
3. 1983, Chronology of Lake Agassiz drainage to Lake Superior, *in* Teller, J.T., and Clayton, Lee, eds., Glacial Lake Agassiz: Geological Association of Canada Special Paper 26, p. 291-307.
4. 1984, Pleistocene geology of the Superior region, Wisconsin: Wisconsin Geological and Natural History Survey Information Circular 46, 40 p.
5. (Moran, S.R.). 1982, Chronology of late Wisconsinan glaciation in middle North America: Quaternary Science Reviews, v. 1, no. 1, p. 55-82.

Clow, G.D. See Evernden, J.F.

Cobban, W.A. See also Merewether, E.A., 2.
1. 1983, Molluscan fossil record from the northeastern part of the Upper Cretaceous seaway, Western Interior, *in* Cobban, W.A., and Merewether, E.A., Stratigraphy and paleontology of mid-Cretaceous rocks in Minnesota and contiguous areas: U.S. Geological Survey Professional Paper 1253-A, p. 1-25, 15 pls.
2. (Merewether, E.A.). 1983, Stratigraphy and paleontology of mid-Cretaceous rocks in Minnesota and contiguous areas: U.S. Geological Survey Professional Paper 1253, 52 p.

Compston, W. See Williams, I.S.

Connolly, M.R.
1981, The geology of the Middle Precambrian Thomson Formation in southern Carlton County, east-central Minnesota: Unpublished M.S. thesis, University of Minnesota, Duluth, 133 p.

Cooper, R.W. See also Foose, M.P., 7-9.
1. 1978, Lineament and structural analysis of the Duluth Complex, Hoyt Lakes-Kawishiwi area, northeastern Minnesota [abs., University of Minnesota Ph.D. dissertation]: Dissertation Abstracts International, 1978, v. 39, no. 6, p. 2709B.

2. (Morey, G.B.; Weiblen, P.W.). 1977, Lineament and structural analysis of Precambrian rocks in northeastern Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 9, no. 7, p. 934-935.
3. (Morey, G.B.; Weiblen, P.W.). 1981, Topographic and aeromagnetic lineaments and their relationship to bedrock geology in a glaciated Precambrian terrane, northeastern Minnesota, *in* O'Leary, D.W., and Earle, J.L., eds., International Conference on Basement Tectonics, 3rd, Durango, Colorado, May 15-19, 1978, Proceedings: Denver, Colo., Basement Tectonics Committee, Inc., p. 137-148.

Cowan, C.A. See Vick, T.D., 1.

Cowan, W.R. See Farrand, W.R., 2.

Cowdery, T.K.
(Savina, M.E.). 1983, Deformation of till block inclusions [abs.]: Geological Society of America Abstracts with Programs, v. 15, no. 6, p. 549.

Craddock, Campbell.
(Mudrey, M.G., Jr.; Holst, T.B.). 1983, Precambrian geology south of Lake Superior (field trip 4), *in* Shaver, R.H., and Sunderman, J.A., eds., Field trips in midwestern geology, v. 1: Geological Society of America, 96th Annual Meeting, Indianapolis, Indiana, 1983, p. 77-104.

Crews, A.L.
1982, Petrographic evidence on the origin of "brassy oolites" and its paleographic implications, Ordovician Decorah Shale, Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 14, no. 5, p. 257.

Crouse, G. See Wirth, K.

Crum, J.R. See also Giencke, A.G.
1. 1984, Soils and till stratigraphy of west-central Minnesota: Unpublished Ph.D. dissertation, University of Minnesota, Minneapolis, 250 p.
2. 1984, Soils and till stratigraphy of west-central Minnesota [abs., University of Minnesota Ph.D. dissertation]: Dissertation Abstracts International, 1985, v. 45, no. 8, p. 2370B.

Cushing, E.J. See Wright, H.E., Jr., 5.

Cutler, Bruce.
(Sloan, R.E.). 1983, Chitinozoa from the Glenwood and Platteville formations (mid Ordovician) [abs.]: Geological Society of America Abstracts with Programs, v. 15, no. 4, p. 260.

Cvancara, A.M. See Ashworth, A.C., 2-3.

Dacre, G.J.
1. 1981, Granulite facies metamorphism, east-central Minnesota: Unpublished M.A. thesis, University of Missouri, Columbia, 112 p.
2. (Himmelberg, G.R.; Morey, G.B.). 1984, Pre-Penokean igneous and metamorphic rocks, Benton and Stearns Counties, central Minnesota: Minnesota Geological Survey Report of Investigations 31, 16 p.

Daemen, Jaak. See South, D.L.

Daggett, M.D.
1981, Early Proterozoic gabbroic, dioritic, and quartz monzonitic intrusions in the Minnesota River Valley: Petrology and significance [abs.], *in* Institute on Lake Superior Geology, 27th Annual Meeting, East Lansing, Michigan, 1981, Abstracts and Proceedings: Sponsored by the Dept. of Geology, Michigan State University, East Lansing, and the Michigan Dept. of Natural Resources, Geological Survey, Lansing, unpaged.

Dahlberg, E.H. See Sellner, J.M., 2.

Dahlberg, J.C.
1977, Hunt rocks in the land of many waters: Lapidary Journal, v. 31, no. 1, p. 432-435.

Dalgleish, J.B. See also Book, P.R.
1. 1985, Sinkhole distribution in Winona County, Minnesota: Unpublished M.S. thesis, University of Minnesota, Minneapolis, 95 p., 3 pls.
2. (Alexander, E.C., Jr.). 1984, Sinkhole distribution in Winona County, Minnesota, *in* Beck, B.F., ed., Sinkholes: Their geology, engineering and environmetnal impact—Multidisciplinary Conference on Sinkholes, 1st, Orlando, Florida, October 15-17, 1984, Proceedings: Boston, A.A. Balkema, p. 79-85.
3. (Alexander, E.C., Jr.). 1984, Sinkholes and sinkhole probability, pl. 5 *of* Balaban, N.H., and Olsen, B.M., eds., Geologic atlas of Winona County, Minnesota: Minnesota Geological Survey County Atlas Series C-2, scale 1:100,000.

D'Andrea, R.F., Jr. See Shettel, D.L., Jr.

Davidson, D.M., Jr.
1. 1982, Evaluating models of diapirism in Archean batholiths using paleostrain analysis [abs.], *in* Mueller, P.A., and others, compilers, Precambrian geology of the Beartooth Mountains, Montana and Wyoming: Montana Bureau of Mines and Geology Special Publication 84, p. 159.
2. 1982, Geological evidence relating to interpretation of the Lake Superior Basin structure, *in* Wold, R.J., and Hinze, W.J., eds., Geology and tectonics of the Lake Superior Basin: Geological Society of America Memoir 156, p. 5-14.

Davis, R.A., Jr.
1970, Prairie du Chien Group in the Upper Mississippi Valley, *in* Field trip guidebook for Cambrian-Ordovician geology of western Wisconsin: Wisconsin Geological and Natural History Survey Information Circular 11, p. 35-44.

Davis, R.B. See Jacobson, G.L.

Day, W.C. See also Ojakangas, R.W., 7; Southwick, D.L., 4-5.
1. 1983, Petrology and geochemistry of the Vermilion Granitic Complex, northern Minnesota: Unpublished Ph.D. dissertation, University of Minnesota, Minneapolis, 192 p.
2. 1983, Petrology and geochemistry of the Vermilion Granitic Complex, northern Minnesota [abs., University of Minnesota Ph.D. dissertation]: Dissertation Abstracts International, 1984, v. 44, no. 9, p. 2685B.
3. 1983, Ultrametamorphism and migmatite generation in the Vermilion Granite Complex, northern Minnesota [abs.], *in* Institute on Lake Superior Geology, 29th Annual Meeting, Houghton, Michigan, 1983, Proceedings: Houghton, organized by the Dept. of Geology and Geological Engineering in cooperation with the Div. of Education and Public Services, Michigan Technological University, p. 10-11.

4. 1984, Geology of Rainy Lake area, northern Minnesota—revisited [abs.], *in* Institute on Lake Superior Geology, 30th Annual Meeting, Wausau, Wisconsin, 1984, Abstracts: Sponsored by the Geology Dept., University of Wisconsin-Oshkosh, p. 9-10.
5. 1985, Bedrock geologic map of the Rainy Lake area, northern Minnesota: U.S. Geological Survey Open-File Report 85-246, scale 1:24,000.
6. 1985, Late Archean mafic volcanism in the Rainy Lake area, Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 17, no. 7, p. 560.
7. (Sims, P.K.). 1984, Tectonic evolution of the Rainy Lake area, northern Minnesota [abs.]: Geological Association of Canada-Mineralogical Association of Canada Program with Abstracts, v. 9, p. 57.
8. (Weiblen, P.W.). 1982, Granitic phases in the northern border zone of the Vermilion Granitic Complex [abs.], *in* Institute on Lake Superior Geology, 28th Annual Meeting, International Falls, Minnesota, 1982, Proceedings: Sponsored by the Minnesota Geological Survey, p. 8.
9. (Weiblen, P.W.). 1983, Origin of high-K granite in Archean migmatite terranes [abs.]: Geological Society of America Abstracts with Programs, v. 15, no. 6, p. 554.
10. (Weiblen, P.W.). 1983, Ultrametamorphism of biotite schist in the Vermilion Granitic Complex, northern Minnesota [abs.]: Geological Association of Canada-Mineralogical Association of Canada Program with Abstracts, v. 8, p. A16.

Dean, W.E. See Anderson, R.Y.; Gorham, Eville.

De Giacomo, D.L. See Mishra, C.P.

Delaney, H.J.
(Fitzsimonds, M.R.; Bogart, L.E.; Silling, R.M.; Readdy, L.A.). 1982, National Uranium Resource Evaluation, Eau Claire Quadrangle, Wisconsin and Minnesota: U.S. Department of Energy Open-File Report PGJ/F-71(82), 34 p., 1 fiche, 22 pls.

Delgado, D.J.
1983, Deposition and diagenesis of the Galena Group in the Upper Mississippi Valley, *in* Delgado, D.J., ed., Ordovician Galena Group of the Upper Mississippi Valley—deposition, diagenesis, and paleoecology: Society of Economic Paleontologists and Mineralogists, Great Lakes Section, 13th Annual Field Conference, 1983, Guidebook, p. A1-A17.

Delin, G.N. See also Woodward, D.G., 5.
(Woodward, D.G.). 1984, Hydrogeologic setting and the potentiometric surfaces of regional aquifers in the Hollandale embayment, southeastern Minnesota, 1970-80: U.S. Geological Survey Water-Supply Paper 2219, 56 p.

Dell, C.I. See Farrand, W.R., 1.

De Mott, L.L.
1963, Middle Ordovician trilobites of the Upper Mississippi Valley: Unpublished Ph.D. dissertation, Harvard University, Cambridge, Mass., 214 p.

Denechaud, E.B.
1969, Rare-earth activation analysis: Development and application to the Stretishorn dike and Duluth Complex: Unpublished Ph.D. dissertation, University of Wisconsin, Madison, 159 p.

Denison, R.E. See Muehlberger, W.R.

Deutsch, W.J. See Blair, S.C., 3-5.

Dickas, A.B.
1. 1984, Midcontinent rift system: Precambrian hydrocarbon target: Oil and Gas Journal, v. 82, no. 42, p. 151-155, 158-159.
2. 1985, Comparative Precambrian stratigraphy along Mid-Continent rift trend [abs.]: American Association of Petroleum Geologists Bulletin, v. 69, no. 8, p. 1317.
3. 1985, Comparative Precambrian stratigraphy along the Midcontinent Rift trend [abs.]: Geological Society of America Abstracts with Programs, v. 17, no. 5, p. 284.

Diment, W.H.
(Urban, T.C.). 1981, Average elevation map of the conterminous United States (Gilluly averaging method): U.S. Geological Survey Geophysical Investigations Map GP-933, scale 1:2,500,000, 2 pls.

Din, V.K. See Nawaz, Rab.

Dosso, Laure.
1. 1984, The nature of the Precambrian subcontinental mantle: Isotopic study (Sr, Pb, Nd) of the Keweenawan volcanism of the North Shore of Lake Superior: Unpublished Ph.D. dissertation, University of Minnesota, Minneapolis, 221 p.
2. 1984, The nature of the Precambrian subcontinental mantle: Isotopic study (Sr, Pb, Nd) of the Keweenawan volcanism of the North Shore of Lake Superior [abs., University of Minnesota Ph.D. dissertation]: Dissertation Abstracts International, 1984, v. 45, no. 3, p. 801B.
3. (Murthy, V. Rama). 1982, Keweenawan volcanism of the north shore of Lake Superior: Implications for continental mantle evolution [abs.]: Eos (American Geophysical Union Transactions), v. 63, no. 18, p. 461.
4. (Murthy, V. Rama). 1983, Sr and Nd isotopic evidence for depleted and enriched mantle sources in the development of a Precambrian continental rift [abs.]: Eos (American Geophysical Union Transactions), v. 64, no. 18, p. 330.

Dott, R.H., Jr. See also Winfree, K.E., 2.
1. 1983, The Proterozoic red quartzite enigma in the north-central United States: Resolved by plate collision? *in* Medaris, L.G., Jr., ed., Early Proterozoic geology of the Lake Superior region: Geological Society of America Memoir 160, p. 129-141.
2. (Mattis, A.F.). 1972, A post-Animikean-pre-Keweenawan transgressive sand blanket over the Lake Superior region [abs.]: Geological Society of America Abstracts with Programs, v. 4, no. 7, p. 490.

Douglas, R.J.W.
1980, Proposals for time classification and correlation of Precambrian rocks and events in Canada and adjacent areas of the Canadian Shield—part 2: A provisional standard for correlating Precambrian rocks: Canada Geological Survey Paper 80-24, 19 p., 1 pl.

Douthitt, C.B. See also Mainwaring, P.R., 2.
1982, Precambrian coal or anthraxolite: A source for graphite in high-grade schists and gneisses—a discussion: Economic Geology, v. 77, no. 5, p. 1247-1249.

Dowding, C.H. See Labuz, J.F.

Downes, Diana.
1982, The Dempewolfe's temporary sinkhole: Minnesota Speleology Monthly, v. 14, no. 8, p. 69-70.

Dredge, L.A. See Teller, J.T., 10.

Drexler, C.W. See also Farrand, W.R., 1.

(Farrand, W.R.). 1982, Correlation of glacial lakes in the Superior basin with eastward discharge events from Lake Agassiz [abs.]: Geological Association of Canada-Mineralogical Association of Canada Program with Abstracts, v. 7, p. 46.

Duffy, K.A.

1983, On the origin of the coquinas in the Decorah Shale: An analysis of ostracod abundance [abs.]: Geological Society of America Abstracts with Programs, v. 15, no. 4, p. 214.

Duke, J.M.

(Naldrett, A.J.). 1983, Lower grade nickel sulfide resources, *in* Shanks, W.C., III, ed., Cameron volume on unconventional mineral deposits: New York, Society of Mining Engineers of the American Institute of Mining, Metallurgical, and Petroleum Engineers, p. 23-34.

Dunlavey, J.T.

1982, A detailed study of a basalt inclusion in the Duluth Complex, near Babbitt, Minnesota: Unpublished M.S. thesis, University of Minnesota, Minneapolis, 118 p.

Dupré, Bernard. See Manhes, Gérald.

Dutch, S.I.

1. 1979, Discussion *on* The Colorado Lineament: A Middle Precambrian wrench fault system, by L.A. Warner, 1978 (*in* Geological Society of America Bulletin, v. 89, no. 2, p. 161-171): Geological Society of America Bulletin, Part I, v. 90, no. 3, p. 313-314.
2. 1981, Isostasy, epeirogeny, and the highland rim of Lake Superior: Zeitschrift für Geomorphologie, Suppl., v. 40, p. 27-41.
3. 1981, Lineaments and faults of Wisconsin, Minnesota and the western part of the Northern Peninsula of Michigan: U.S. Geological Survey Open-File Report 81-977, 29 p., 4 pls., scales 1:2,500,000 and 1:1,000,000.
4. 1981, Post-Cretaceous vertical motions in the eastern Midcontinent, U.S.A.: Zeitschrift für Geomorphologie, Suppl., v. 40, p. 13-25.
5. 1983, Proterozoic structural provinces in the north-central United States: Geology, v. 11, no. 8, p. 478-481.

Eames, Valerie.

1982, Influence of water saturation on oil retention under field and laboratory conditions: Unpublished M.S. thesis, University of Minnesota, Minneapolis, 181 p.

Eastman, Walter.

1980, Defining the Minnamax orebody: E&MJ; Engineering & Mining Journal, v. 181, no. 2, p. 72-78.

Eddy, M. See Arvidson, R.E.

Ehrlich, G.G.

(Goerlitz, D.F.; Godsy, E.M.; Hult, M.F.). 1982, Degradation of phenolic contaminants in ground water by anaerobic bacteria: St. Louis Park, Minnesota: Ground Water, v. 20, no. 6, p. 703-710.

Ehrlich, Robert. See Mazzullo, J.M., 3-4.

Eichler, Juergen.
1976, Origin of the Precambrian banded iron-formations, *in* Wolf, K.H., eds., Handbook of strata-bound and stratiform ore deposits: New York, Elsevier, v. 7, p. 157-201.

Eisenreich, S.J. See Evans, J.E.; Johnson, T.C., 2.

Eister, M.F. See McIntosh, W.L.

Ela, Dan.
(Hudleston, P.J.). 1985, The significance of strain patterns in deciphering the deformational history of Archean rocks in the Vermilion district, Minnesota [abs.], *in* Institute on Lake Superior Geology, 31st Annual Meeting, Kenora, Ontario, 1985, Technical Sessions and Abstracts: Organized by the Resident Geologist Office, Kenora, and the Ontario Geological Survey, p. 24-25.

Eldougdoug, A.A.
1. 1983, Geological and geochemical characteristics of the volcano-sedimentary Glen Township Formation, east-central Minnesota [abs.], *in* Institute on Lake Superior Geology, 29th Annual Meeting, Houghton, Michigan, 1983, Proceedings: Houghton, organized by the Dept. of Geology and Geological Engineering in cooperation with the Div. of Education and Public Services, Michigan Technological University, p. 12.
2. 1984, Petrology and geochemistry of the volcano-sedimentary Glen Township Formation, Aitkin County, East-Central Minnesota: Implications for gold exploration: Unpublished Ph.D. dissertation, University of Minnesota, Minneapolis, 199 p.
3. 1984, Petrology and geochemistry of the volcano-sedimentary Glen Township Formation, Aitkin County, East-Central Minnesota [abs., University of Minnesota Ph.D. dissertation]: Dissertation Abstracts International, 1985, v. 45, no. 11, p. 3449B.
4. (Weiblen, P.W.; Sawkins, F.J.). 1984, Anomalous gold contents of Proterozoic iron formations in east central Minnesota: A potential environment for Homestake-type gold deposits? [abs.]: Geological Society of America Abstracts with Programs, v. 16, no. 6, p. 500.

Elson, J.A.
1983, Glacial Lake Agassiz—discovery and a century of research, *in* Teller, J.T., and Clayton, Lee, eds., Glacial Lake Agassiz: Geological Association of Canada Special Paper 26, p. 21-41.

Eng, M.T.
1. 19—?, An evaluation of the surficial geology and bog patterns of the Red Lake bog, Beltrami and Lake of the Woods Counties, Minnesota: Minnesota Department of Natural Resources, Division of Minerals, scale 1 inch = 2 miles.
2. 1980, Surficial geology, Koochiching County, Minnesota: Minnesota Department of Natural Resources, Division of Minerals, Peat Inventory Project, scale approx. 1:125,000. [This map is one of two accompanying the report on the peat resources of Koochiching County by Severson, Mooers, and Malterer, 1980.]

Erdmann, J.B. See Hickok, E.A.

Erickson, B.R. See also Webers, G.F., 1.
1. 1968, A claw of *Megalonyx* (ground sloth) from Minnesota: St. Paul, Science Museum Scientific Publications, New Series, v. 1, no. 3, 6 p.
2. 1969, A new species of crocodile, *Teleorhinus mesabiensis*, from the iron range Cretaceous: St. Paul, Science Museum Scientific Publications, New Series, v. 1, no. 4, 8 p.
3. 1970, Minnesota's little known fossil faunas: Earth Science, v. 23, p. 166-169.

Erickson, D.R.

1. 1981, A study of littoral groundwater seepage at Williams Lake, Minnesota using seepage meters and wells: Unpublished M.S. thesis, University of Minnesota, Minneapolis, 135 p.
2. (Pfannkuch, H.O.). 1981, Nearfield interaction of groundwater-lake systems [abs.]: Geological Society of America Abstracts with Programs, v. 13, no. 7, p. 447.

Ervin, C.P.

(Van De Voorde, B.W.; Chandler, V.W.). 1982, Simple Bouguer gravity map of Minnesota, St. Paul sheet: Minnesota Geological Survey Miscellaneous Map Series M-48, scale 1:250,000.

Evans, J.E. See also Johnson, T.C., 2.

(Johnson, T.C.; Alexander, E.C., Jr.; Lively, R.S.; Eisenreich, S.J.). 1981, Sedimentation rates and depositional processes in Lake Superior from ^{210}Pb geochronology: Journal of Great Lakes Research, v. 7, no. 3, p. 299-310.

Evernden, J.F.

(Kohler, W.M.; Clow, G.D.). 1981, Seismic intensities of earthquakes of conterminous United States—their prediction and interpretation: U.S. Geological Survey Professional Paper 1223, 56 p.

Farrand, W.R. See also Drexler, C.W.; Goebel, J.E., 1.

1. (Drexler, C.W.; Dell, C.I.). 1984, The late Quaternary evolution of the Lake Superior basin [abs.]: Geological Association of Canada-Mineralogical Association of Canada Program with Abstracts, v. 9, p. 61.
2. (Mickelson, D.M.; Cowan, W.R.; Goebel, J.E.). 1984, Quaternary geologic map of the Lake Superior 4° by 6° quadrangle, United States and Canada, state and provincial compilations, sheet NL-16 *of* Richmond, G.M., and Fullerton, D.S., eds., Quaternary geologic atlas of the United States: U.S. Geological Survey Miscellaneous Investigations Series Map I-1420 (NL-16), scale 1:1,000,000.

Fax, J.G.

(Rongitsch, B.A.). 1983, Ground-water hydrology of Lac qui Parle County, Minnesota; a preliminary investigation and summary: Minnesota Department of Natural Resources, Division of Waters Bulletin 29, 56 p.

Fenton, M.M.

1. (Moran, S.R.; Teller, J.T.; Clayton, Lee). 1983, Quaternary stratigraphy and history in the southern part of the Lake Agassiz basin, *in* Teller, J.T., and Clayton, Lee, eds., Glacial Lake Agassiz: Geological Association of Canada Special Paper 26, p. 49-74.
2. (Teller, J.T.; Moran, S.R.; Clayton, Lee). 1982, Quaternary stratigraphy and history in the southern part of the Lake Agassiz basin [abs.]: Geological Association of Canada-Mineralogical Association of Canada Program with Abstracts, v. 7, p. 48.

Ferderer, R.J. See also Chandler, V.W., 16.

1. 1982, Gravity and magnetic modeling of the southern half of the Duluth Complex, northeastern Minnesota: Unpublished M.A. thesis, Indiana University, Bloomington, 93 p.
2. (Chandler, V.W.; Mead, Judson). 1983, Gravity and magnetic model studies of the southern Duluth Complex, northeastern Minnesota [abs.], *in* Institute on Lake Superior Geology, 29th Annual Meeting, Houghton, Michigan, 1983, Proceedings: Houghton, organized by the Dept. of Geology and Geological Engineering in cooperation with Div. of Education and Public Services, Michigan Technological University, p. 15-16.

Ferguson, R.R.
1981, An investigation of lake level fluctuations for the Minneapolis Chain of Lakes: Unpublished M.S. thesis, University of Minnesota, Minneapolis, 210 p.

Fields, Jeffrey. See Johnson, T.C., 3.

Fitts, C.R.
1. 1985, Modeling aquifer inhomogeneities with analytic elements: Unpublished M.S.C.E. thesis, University of Minnesota, Minneapolis, 79 p.
2. (Strack, O.D.L.). 1985, Modeling aquifer inhomogeneities with analytic elements with application in a model of flow at the St. Croix Rest Area storm runoff pond: St. Paul, Minnesota Department of Transportation, 64 p.

Fitz, Thomas.
(Green, J.C.). 1985, Large ignimbrites in the Keweenawan North Shore Volcanic Group in Cook County, Minnesota [abs.], *in* Institute on Lake Superior Geology, 31st Annual Meeting, Kenora, Ontario, 1985, Technical Sessions and Abstracts: Organized by the Resident Geologist Office, Kenora, and the Ontario Geological Survey, p. 26.

Fitzsimonds, M.R. See Delaney, H.J.

Flock, M.A.
1983, The late Wisconsinan Savanna Terrace in tributaries to the upper Mississippi River: Quaternary Research, v. 20, no. 2, p. 165-176.

Flood, T.P.
1. 1981, Aspects of the geology of the Hanson, Cypress and South Arm of Knife Lake Area, BWCA, northeast MN [abs.]: Minnesota Academy of Science Journal, v. 47, no. 3, p. 11.
2. 1981, Geology of the Cypress, Hanson and South Arm of Knife Lake Area, Boundary Waters Canoe Area: Eastern Vermilion district, northeastern Minnesota: Unpublished M.S. thesis, University of Minnesota, Duluth, 142 p.
3. 1982, Geology of the Cypress, Hanson and South Arm of Knife Lake area, B.W.C.A., northeast Minnesota [abs.], *in* Institute on Lake Superior Geology, 28th Annual Meeting, International Falls, Minnesota, 1982, Proceedings: Sponsored by the Minnesota Geological Survey, p. 9-10.

Flower, M. See Harrison, W., 1.

Foose, M.P.
1. 1982, The stratigraphic and structural setting of the South Kawishiwi intrusion, Duluth Complex, Minnesota, U.S.A. [abs.]: Sulfide deposits in mafic and ultramafic rocks—Nickel Sulfide Field Conference, Perth, Australia, May 23, 1982, Abstracts Volume, p. 17-18.
2. 1982, Structural, stratigraphic, and geochemical features of the South Kawishiwi intrusion, Duluth Complex, Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 14, no. 7, p. 490.
3. 1984, Genesis of sulfide ores in the Duluth Complex [abs.], *in* Geological Survey research, fiscal year 1981: U.S. Geological Survey Professional Paper 1375, p. 5.
4. 1984, Logs and correlation of drill holes within the South Kawishiwi Intrusion, Duluth Complex, northeastern Minnesota: U.S. Geological Survey Open-File Report 84-14, 229 p., 1 pl.
5. 1984, Physical and chemical setting of copper-nickel sulfides in part of the Duluth Complex, Minnesota, USA [abs.]: International Geological Congress, 27th, Moscow, 1984, Abstracts, v. 6, p. 104.

6. 1985, The setting and distribution of copper-nickel sulfides in the South Kawishiwi intrusion, Duluth Complex, Minnesota [abs.], *in* Krafft, K., ed., USGS research on mineral resources, 1985—V.E. McKelvey Forum on Mineral and Energy Resources, 1st, Program and Abstracts: U.S. Geological Survey Circular 949, p. 12-13.
7. (Cooper, R.W.). 1978, Faulting in the Duluth Complex in Minnesota [abs], *in* Geological Survey research 1978: U.S. Geological Survey Professional Paper 1100, p. 6.
8. (Cooper, R.W.). 1979, Faulting in the Duluth Complex [abs.], *in* Geological Survey research 1979: U.S. Geological Survey Professional Paper 1150, p. 66.
9. (Cooper, R.W.). 1981, Faulting and fracturing in part of the Duluth complex, northeastern Minnesota: Canadian Journal of Earth Sciences, v. 18, no. 4, p. 810-814.

Force, E.R. See also Cannon, W.F., 1.
(Lynd, L.E.). 1984, Titanium mineral resources of the United States—definitions and documentation, chap. B *of* Contributions to the geology of mineral deposits: U.S. Geological Survey Bulletin 1558-A, B, 11 p.

Foster, M.E.
1981, Analysis of small-scale structures in the Duluth Complex at Bardon Peak, St. Louis County, Minnesota: Unpublished M.S. thesis, University of Minnesota, Minneapolis, 144 p.

Franck, M.L. See Pinson, W.H.

Franklin, J.M.
(Pearson, W.N.). 1982, Metallogeny of the Keweenawan (mid continent) rift zone in the Lake Superior region [abs.]: Geological Association of Canada-Mineralogical Association of Canada Program with Abstracts, v. 7, p. 50.

Frey, B.A. See Sellner, J.M., 2.

Frey, F.A.
(Haskin, M.A.; Poetz, J.A.; Haskin, L.A.). 1968, Rare earth abundances in some basic rocks: Journal of Geophysical Research, v. 73, no. 18, p. 6085-6098.

Frost, J.K. See Huff, W.D.; Kolata, D.R., 1-2.

Froude, D.O. See Williams, I.S.

Fukui, L.M. See Bonnichsen, Bill.

Fullerton, D.S. See Mickelson, D.M.

Gabanski, Gilbert.
(Julik, Joe; Bassou, Oulgout). 1984, Assessment of buried aquifers in Minnesota using computer-generated Wenner electric sounding curves, *in* NWWA/EPA Conference on Surface and Borehole Geophysical Methods in Ground Water Investigations, San Antonio, Texas, February 7-9, 1984: Worthington, Ohio, National Water Well Association, p. 107-127.

Gable, D.J.
(Hatton, Tom). 1983, Maps of vertical crustal movements in the conterminous United States over the last 10 million years: U.S. Geological Survey Miscellaneous Investigations Series Map I-1315, scales 1:5,000,000 and 1:10,000,000, 2 pls., explanatory notes, 25 p.

geoMetrics.
1. 1978, Aerial gamma ray and magnetic survey: Peninsula portion, Hancock quadrangle, Michigan; Ashland quadrangle, Wisconsin, Minnesota, Michigan; Iron River quadrangle, Michigan, Wisconsin; and Marquette quadrangle, Michigan; final report: U.S. Department of Energy Open-File Report GJBX-50(78), 2 v.; v. 2 comprises four separate volumes, one for each quadrangle.
2. 1981, Aerial gamma ray and magnetic survey, Fairmont Quadrangle, Minnesota and Iowa: U.S. Department of Energy Open-File Report GJBX-63(81), 81 p., 8 fiche.
3. 1981, Aerial gamma ray and magnetic survey, La Crosse Quadrangle, Iowa, Minnesota, and Wisconsin: U.S. Department of Energy Open-File Report GJBX-60(81), 125 p., 8 fiche.
4. 1981, Aerial gamma ray and magnetic survey, Mason City Quadrangle, Iowa and Minnesota: U.S. Department of Energy Open-File Report GJBX-65(81), 134 p., 8 fiche.

Gerk, A.J. See Levorson, C.O.

Giangrande, P.A.
1982, Geology and sulfide mineralization of the Skeleton Lake prospect, St. Louis County, Minnesota: Unpublished M.S. thesis, University of Minnesota, Duluth, 116 p., 3 pls.

Gibbs, A.K.
1. (Payne, Barton; Setzer, Thomas; Brown, L.D.; Oliver, J.E.; Kaufman, Sidney). 1982, Seismic reflection study of the Precambrian crust of central Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 14, no. 7, p. 495.
2. (Payne, Barton; Setzer, Thomas; Brown, L.D.; Oliver, J.E.; Kaufman, Sidney). 1984, Seismic-reflection study of the Precambrian crust of central Minnesota: Geological Society of America Bulletin, v. 95, no. 3, p. 280-294.

Giencke, A.G.
(Paulson, R.O.; Crum, J.R.). 1983/1984, Identification and characterization of three glacial tills in Kandiyohi County, Minnesota: Minnesota Academy of Science Journal, v. 49, no. 1, p. 7-9.

Gilgosch, M.A. See Meineke, D.G., 1, 5.

Gillies, D.C. See Guswa, J.H.; Soukup, W.G.

Gladen, L.W. See Vadis, M.K., 1.

Glascock, M.D. See McCall, G.W.; Sheehan, T.J.

Glaser, P.H. See also Janssens, J.A.; Wright, H.E., Jr., 3-4.
(Wheeler, G.A.; Gorham, Eville; Wright, H.E., Jr.). 1981, The patterned mires of the Red Lake Peatland, northern Minnesota: Vegetation, water chemistry and landforms: Journal of Ecology, v. 69, p. 575-599.

Godson, R.H. See also Hildenbrand, T.G., 2.
1981, Digital terrain map of the United States: U.S. Geological Survey Miscellaneous Investigations Series Map I-1318, scale approx. 1:7,500,000.

Godsy, E.M. See Ehrlich, G.G.

Goebel, J.E. See also Farrand, W.R., 2; Hobbs, H.C., 7; Southwick, D.L., 6.

1. (Mickelson, D.M.; Farrand, W.R.; Clayton, Lee; Knox, J.C.; Cahow, Adam; Hobbs, H.C.; Walton, Matt, compilers). 1983, Quaternary geologic map of the Minneapolis 4° x 6° quadrangle, United States, sheet NL-15 *of* Richmond, G.M., and Fullerton, D.S., eds., Quaternary geologic atlas of the United States: U.S. Geological Survey Miscellaneous Investigations Series Map I-1420 (NL-15), scale 1:1,000,000.
2. (Walton, Matt; Batten, L.G.). 1980, Synergistic relationships among remote-sensing and geophysical media: Geological and hydrological applications, Sec. C *of* A study of Minnesota land and water resources using remote sensing—progress report, December 31, 1979: NASA Grant 24-005-263 Vol. 13; Minneapolis, University of Minnesota, Space Science Center, 43 p.

Goerlitz, D.F. See Ehrlich, G.G.

Goldich, S.S. See also Morey, G.B., 14.

1. 1981, The Penokean orogeny [abs.], *in* Institute on Lake Superior Geology, 27th Annual Meeting, East Lansing, Michigan, 1981, Abstracts and Proceedings: Sponsored by the Dept. of Geology, Michigan State University, East Lansing, and the Michigan Dept. of Natural Resources, Geological Survey, Lansing, unpaged.
2. 1984, Precambrian geochronology in Minnesota [abs.], *in* Institute on Lake Superior Geology, 30th Annual Meeting, Wausau, Wisconsin, 1984, Abstracts: Sponsored by the Geology Dept., University of Wisconsin-Wausau, p. 12.

Goldstein, B.S.

1. 1985, Sedimentology and genesis of the Wadena drumlin field, central Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 17, no. 5, p. 332.
2. 1985, Stratigraphy, sedimentology, and late-Quaternary history of the Wadena drumlin region, central Minnesota: Unpublished Ph.D. dissertation, University of Minnesota, Minneapolis, 216 p.

Gole, M.J.

(Klein, Cornelis). 1981, Banded iron-formations through much of Precambrian time: Journal of Geology, v. 89, no. 2, p. 169-183.

Goodacre, A.K. See Weber, J.R.

Gorham, Eville. See also Glaser, P.H.

(Dean, W.E.; Sanger, J.E.). 1982, The chemical composition of lakes in the north-central United States: U.S. Geological Survey Open-File Report 82-149, 64 p.

Goudreault, P.R.

1985, A two-dimensional, finite-difference groundwater flow model of the Minneapolis Chain of Lakes and surrounding surficial water table aquifer: Unpublished M.S. thesis, University of Minnesota, Minneapolis, 139 p.

Grant, J.A. See also Parham, W.E.

(Weiblen, P.W.). 1971, Retrograde zoning in garnet near the second sillimanite isograd: American Journal of Science, v. 270, no. 4, p. 281-296.

Grant, N.K. See also Chalokwu, C.I., 3-5; Ripley, E.M., 5.

(Molling, P.A.). 1981, A strontium isotope and trace element profile through the Partridge River Troctolite, Duluth Complex, Minnesota: Contributions to Mineralogy and Petrology, v. 77, no. 3, p. 296-305.

Green, J.C. See also Brannon, J.C., 3; Fitz, Thomas; Holst, T.B., 14; Morey, G.B., 15; Mullenmeister, E.E., 1; Van Schmus, W.R., 6.

1. 1980, Keweenawan volcanism and the nature of Keweenawan rift tectonics [abs.], *in* Institute on Lake Superior Geology, 26th Annual Meeting, Eau Claire, Wisconsin, 1980, Proceedings and Abstracts: Sponsored by the Geology Dept., University of Wisconsin-Eau Claire, p. 35-36.
2. 1981, Keweenawan dikes at Grand Portage, Minnesota: Geochemistry and geologic setting [abs.]: Geological Society of America Abstracts with Programs, v. 13, no. 6, p. 279.
3. 1982, Geologic map of Minnesota, Two Harbors sheet: Minnesota Geological Survey, scale 1:250,000.
4. 1982, Geology of Keweenawan extrusive rocks, *in* Wold, R.J., and Hinze, W.J., eds., Geology and tectonics of the Lake Superior Basin: Geological Society of America Memoir 156, p. 47-55.
5. 1982, Geology of the Milepost 7 area, Lake County, Minnesota: Minnesota Geological Survey Report of Investigations 26, 12 p.
6. 1983, Composition, origin and evolution of Keweenawan magmas—a review [abs.], *in* Institute on Lake Superior Geology, 29th Annual Meeting, Houghton, Michigan, 1983, Proceedings: Houghton, organized by the Dept. of Geology and Geological Engineering in cooperation with the Div. of Education and Public Services, Michigan Technological University, p. 17.
7. 1983, Geologic and geochemical evidence for the nature and development of the Middle Proterozoic (Keweenawan) Midcontinent Rift of North America: Tectonophysics, v. 94, nos. 1-4, p. 413-437.
8. 1983, Physical volcanology of the Keweenawan North Shore Volcanics [abs.], *in* Institute on Lake Superior Geology, 29th Annual Meeting, Houghton, Michigan, 1983, Proceedings: Houghton, organized by the Dept. of Geology and Geological Engineering in cooperation with the Div. of Education and Public Services, Michigan Technological University, p. 18.
9. (Bornhorst, T.J.; Chandler, V.W.; Mudrey, M.G., Jr.; Myers, P.E.; Pesonen, L.J.; Wilband, J.T.). 1985, Late-Middle Proterozoic (Keweenawan) dykes of the western Lake Superior region: Evidence for evolution of the North American Midcontinent Rift [abs.], *in* Mafic dyke swarms—International Conference, University of Toronto, Canada, June 4-7, 1985, Abstracts: Sponsored by the Internat. Lithosphere Programme, IUGS Comm. on Tectonics, Geol. Survey of Canada, Canadian Geol. Foundation, Geol. Assoc. of Canada, and Canadian Geophys. Union, p. 59-61.
10. (Brannon, J.C.). 1983, Physical volcanology of a Proterozoic continental rift: The Keweenawan North Shore Volcanics, Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 15, no. 6, p. 586.
11. (Chandler, V.W.). 1985, Diabase dikes of the Midcontinent Rift in Minnesota: A record of Keweenawan magmatism and tectonic development [abs.]: Geological Society of America Abstracts with Programs, v. 17, no. 7, p. 597.
12. (Chandler, V.W.). 1985, Keweenawan dikes of Minnesota [abs.], *in* Institute on Lake Superior Geology, 31st Annual Meeting, Kenora, Ontario, 1985, Technical Sessions and Abstracts: Organized by the Resident Geologist Office, Kenora, and the Ontario Geological Survey, p. 31-32.
13. (Schulz, K.J.). 1982, Geologic map of the Ely quadrangle, St. Louis and Lake Counties, Minnesota: Minnesota Geological Survey Miscellaneous Map Series M-50, scale 1:24,000.
14. (Weiblen, P.W.). [1966?] A teacher's guide for geologic field investigations in northeastern Minnesota, *in* Phinney, W.C., ed., A teacher's guide for geologic field investigations in Minnesota: Minnesota Department of Education with the cooperation of the Minnesota Geological Survey, 21 p.

Greenberg, J.K.

(Brown, B.A.). 1984, Cratonic sedimentation during the Proterozoic: An anorogenic connection in Wisconsin and the upper midwest: Journal of Geology, v. 92, no. 2, p. 159-171.

Greenhalgh, S.A.
1. 1981, Seismic investigations of crustal structure in east-central Minnesota: Physics of the Earth and Planetary Interiors, v. 25, no. 4, p. 372-389.
2. (Mosher, C.C.; Mooney, H.M.). 1981, Magnitude calibration of the Central Minnesota Seismic Array: Seismological Society of America Bulletin, v. 71, no. 4, p. 1089-1103.

Greilich, Glenn. See Vick, T.D., 2.

Gries, J.P.
1983, Geometry and stratigraphic relations of the Sioux Quartzite: South Dakota Academy of Science Proceedings, v. 62, p. 64-74.

Griffin, K.O.
1977, Paleoecological aspects of the Red Lake Peatland, northern Minnesota: Canadian Journal of Botany, v. 55, no. 2, p. 172-192.

Grimes, D.J.
(Siems, D.F.; Alminas, H.V.). 1981, Analyses of A-horizon soil and outcrop samples from the Vermillion [sic] District, Northeastern Minnesota: U.S. Geological Survey Open-File Report 81-999, 58 p.

Grimm, E.C.
1. 1981, An ecological and paleoecological study of the vegetation in the Big Woods region of Minnesota: Unpublished Ph.D. dissertation, University of Minnesota, Minneapolis, 379 p.
2. 1981, An ecological and paleoecological study of the vegetation in the Big Woods region, Minnesota [abs., University of Minnesota Ph.D. dissertation]: Dissertation Abstracts International, 1981, v. 42, no. 6, p. 2206B.

Groschen, G.E. See also LaBaugh, J.W.
1. 1981, Geochemistry of Williams Lake, Hubbard County, Minnesota: Unpublished M.S. thesis, University of Minnesota, Minneapolis, 136 p.
2. (Alexander, E.C., Jr.). 1982, Geochemistry of Williams Lake, Hubbard County, Minnesota [abs.]: Eos (American Geophysical Union Transactions), v. 63, no. 33, p. 613.

Gross, L.B.
1. 1982, The stratigraphy and lithology of the glaciogenic sediments of the Two Harbors area, northeastern Minnesota: Unpublished M.S. thesis, University of Minnesota, Duluth, 151 p.
2. 1982, Stratigraphy and lithology of the glaciogenic sediments of the Two Harbors area, northeastern Minnesota [abs.], *in* Institute on Lake Superior Geology, 28th Annual Meeting, International Falls, Minnesota, 1982, Proceedings: Sponsored by the Minnesota Geological Survey, p. 12-13.

Guild, P.W. See Carr, M.S.

Guinness, E. See Arvidson, R.E.

Gulbranson, B.L. See Beltrame, R.J., 1; Chandler, V.W., 14, 20.

Gundersen, J.N.
1. 1982, Triclinic pyrophyllites of Kansas and Minnesota pipestones [abs.]: Geological Society of America Abstracts with Programs, v. 14, no. 3, p. 112.
2. 1984, Provenance analysis of Plains pipestone argillites [abs.]: Geological Society of America Abstracts with Programs, v. 16, no. 6, p. 526.

Guswa, J.H. See also Schoenberg, M.E., 3-4.
(Siegel, D.I.; Gillies, D.C.). 1982, Preliminary evaluation of the ground-water-flow system in the Twin Cities metropolitan area, Minnesota: U.S. Geological Survey Water-Resources Investigations 82-44, 65 p.

Hackenmueller, J. See King, J.W., 2.

Halls, H.C. See also Van Schmus, W.R., 6.
1. 1966, A review of the Keweenawan geology of the Lake Superior region, *in* Steinhart, J.S., and Smith, T.J., eds., The Earth beneath the continents: American Geophysical Union Geophysical Monograph 10, p. 3-27.
2. 1982, Crustal thickness in the Lake Superior region, *in* Wold, R.J., and Hinze, W.J., eds., Geology and tectonics of the Lake Superior Basin: Geological Society of America Memoir 156, p. 239-243.
3. 1982, The importance and potential of mafic dike swarms in studies of geodynamic processes: Geoscience Canada, v. 9, no. 3, p. 145-154.
4. 1982, Paleomagnetic investigation of a Precambrian mafic dike swarm from north-central Minnesota [abs.]: Eos (American Geophysical Union Transactions), v. 63, no. 33, p. 614.
5. (Pesonen, L.J.). 1982, Paleomagnetism of Keweenawan rocks, *in* Wold, R.J., and Hinze, W.J., eds., Geology and tectonics of the Lake Superior Basin: Geological Society of America Memoir 156, p. 173-201.

Halsey, C.F. See St. Ores, Jeffrey.

Ham, W.E.
(Wilson, J.L.). 1967, Paleozoic epeirogeny and orogeny in the central United States: American Journal of Science, v. 265, no. 5, p. 332-407.

Hamelin, Bruno. See Manhes, Gérald.

Han, T.M.
1982, Iron formations of Precambrian age: Hematite-magnetite relationships in some Proterozoic iron deposits—a microscopic observation, *in* Amstutz, G.C., and others, eds., Ore genesis: The state of the art: New York, Springer-Verlag, p. 451-459.

Hanson, G.N. See also Morey, G.B., 16; Shirey, S.B.; Spencer, K.J., 1-2.
(Simmons, K.R.; Bence, A.E.). 1975, $^{40}Ar/^{39}Ar$ spectrum ages for biotite, hornblende and muscovite in a contact metamorphic zone: Geochimica et Cosmochimica Acta, v. 39, no. 9, p. 1269-1277.

Hanson, K.J.
1981, A northeast extension of the Turonian Cretaceous System in Minnesota [abs.]: Minnesota Academy of Science Journal, v. 47, no. 3, p. 10.

Hanson, S.L. See Algermissen, S.T.

Harris, Ruth. See Sprowl, D.R., 5.

Harrison, J.E.
(Peterman, Z.E.). 1984, Introduction to correlation of Precambrian rock sequences, chap. A *of* Harrison, J.E., and Peterman, Z.E., eds., Correlation of Precambrian rocks of the United States and Mexico: U.S. Geological Survey Professional Paper 1241-A, 7 p., 1 pl.

Harrison, W.

1. (Sood, M.; Flower, M.; Tisue, M.). 1983, Crystalline rocks of the Lake Superior region, United States: ANL/ES-135, Argonne, Ill., Argonne National Laboratory, Energy and Environmental Systems Division, pt. 1, 281 p., pt. 2, 5 pls. [Plate 1 is the Geologic map of the Lake Superior region, by Morey, Sims, Cannon, Mudrey, and Southwick, 1982: Minnesota Geological Survey State Map Series S-13].
2. (and others). 1983, Geology, hydrology, and mineral resources of crystalline rock areas of the Lake Superior region, United States: ANL/ES-134, Argonne, Ill., Argonne National Laboratory, Energy and Environmental Systems Division, pt. 1, 384 p., pt. 2, 5 pls. [Plate 1 is the Geologic map of the Lake Superior region, by Morey, Sims, Cannon, Mudrey, and Southwick, 1982: Minnesota Geological Survey State Map Series S-13].

Hart, S.R.

(Tilton, G.R.). 1966, The isotope geochemistry of strontium and lead in the Lake Superior sediments and water, *in* Steinhart, J.S., and Smith, T.J., eds., The Earth beneath the continents: American Geophysical Union Geophysical Monograph 10, p. 127-137.

Haskin, L.A. See Brannon, J.C., 3; Frey, F.A.; Wildeman, T.R.

Haskin, M.A. See Frey, F.A.

Hatch, J.R.

1. (Morey, G.B.). 1984, Hydrocarbon source rock evaluation—Solor Church Formation (Middle Proterozoic, Keweenawan Supergroup), southeastern Minnesota: U.S. Geological Survey Open-File Report 84-554, 19 p.
2. (Morey, G.B.). 1985, Hydrocarbon source rock evaluation of Middle Proterozoic Solor Church Formation, North American Mid-Continent rift system, Rice County, Minnesota: American Association of Petroleum Geologists Bulletin, v. 69, no. 8, p. 1208-1216.

Hatton, Tom. See Gable, D.J.

Hay, R.L. See Lee, Mingchou.

Hazel, J.E.

1977, Use of certain multivariate and other techniques in assemblage zonal biostratigraphy: Examples utilizing Cambrian, Cretaceous, and Tertiary benthic invertebrates, *in* Kauffman, E.G., and Hazel, J.E., eds., Concepts and methods of biostratigraphy: Stroudsburg, Penn., Dowden, Hutchinson & Ross, p. 187-212.

Heath, R.C.

1984, Ground-water regions of the United States: U.S. Geological Survey Water-Supply Paper 2242, 78 p.

Henrickson, Eiler. See Rapp, G.R., Jr.

Henyey, T.L. See Lund, S.P., 7.

Heutmaker, J.F. See also Morey, G.B., 17; Southwick, D.L., 6.

(Morey, G.B.). 1982, Lineament map, Hibbing sheet, Minnesota: Minnesota Geological Survey Miscellaneous Map Series M-49, scale 1:250,000.

Heyl, A.V.
(West, W.S.). 1982, Outlying mineral occurrences related to the Upper Mississippi Valley mineral district, Wisconsin, Iowa, Illinois, and Minnesota: Economic Geology, v. 77, no. 8, p. 1803-1817.

Hickok, E.A.
(Erdmann, J.B.). 1983, Well system for control of extensive creosote waste contamination [abs.]: Ground Water, v. 21, no. 4, p. 518.

Hildenbrand, T.G.
1. (Kucks, R.P.; Sweeney, R.E.). 1983, Digital magnetic-anomaly map of central United States: Description of major features: U.S. Geological Survey Geophysical Investigations Map GP-955, scale 1:2,500,000.
2. (Simpson, R.W.; Godson, R.H.; Kane, M.F.). 1982, Digital colored residual and regional Bouguer gravity maps of the conterminous United States with cut-off wavelengths of 250 km and 1000 km: U.S. Geological Survey Geophysical Investigations Map GP-953-A, scale 1:7,500,000, 2 pls.

Himmelberg, G.R. See Dacre, G.J., 2.

Hinze, W.J. See also Chandler, V.W., 15; Keller, G.R.; Sexton, J.L.; Van Schmus, W.R., 7; Wold, R.J., 1.
(Wold, R.J.; O'Hara, N.W.). 1982, Gravity and magnetic anomaly studies of Lake Superior, *in* Wold, R.J., and Hinze, W.J., eds., Geology and tectonics of the Lake Superior Basin: Geological Society of America Memoir 156, p. 203-221.

Hoagberg, R.K. [né Hogberg, R.K.] See also Rajaram, V.
1. (Matsch, C.L.). [1966?] A teacher's guide for geologic field investigations in central Minnesota, *in* Phinney, W.C., ed., A teacher's guide for geologic field investigations in Minnesota: Minnesota Department of Education with the cooperation of the Minnesota Geological Survey, 17 p.
2. (Rajaram, V.). 1981, Minnesota aggregate resource study: LRRB Investigation 652; St. Paul, Local Road Research Board, v. 1: Executive summary, 9 p.; v. 2: Report, 179 p.

Hobbs, H.C. See also Aronow, Saul; Goebel, J.E., 1; Teller, J.T., 10.
1. 1982, Drainage relationships of Glacial Lakes Aitkin, Upham, and early Lake Agassiz in northeastern Minnesota [abs.]: Geological Association of Canada-Mineralogical Association of Canada Program with Abstracts, v. 7, p. 57.
2. 1983, Drainage relationships of glacial Lakes Aitkin and Upham and early Lake Agassiz in northeastern Minnesota, *in* Teller, J.T., and Clayton, Lee, eds., Glacial Lake Agassiz: Geological Association of Canada Special Paper 26, p. 245-259.
3. 1983, Structure and geomorphology of the St. Croix Moraine, Swanville area, Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 15, no. 4, p. 251.
4. 1984, Surficial geology, pl. 3 *of* Balaban, N.H., and Olsen, B.M., eds., Geologic atlas of Winona County, Minnesota: Minnesota Geological Survey County Atlas Series C-2, scale 1:100,000.
5. 1985, Quaternary history of southeastern Minnesota [extended abs.], *in* Lively, R.S., coordinator, Pleistocene geology and evolution of the Upper Mississippi valley—Winona, Minnesota, August 13-16, 1985, Abstracts and field trip guide: Minnesota Geological Survey, p. 11-14.
6. 1985, Surficial geology of Winona County, southeastern Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 17, no. 5, p. 292.
7. (Goebel, J.E.). 1982, Geologic map of Minnesota, Quaternary geology: Minnesota Geological Survey State Map Series S-1, scale 1:500,000.

Hockett, Keith.
1975, Everybody loves the laminated Lakers: Lapidary Journal, v. 29, no. 7, p. 1378-1381.

Hoersch, A.L. See Keller, W.D.

Hofmann, H.J. See Walter, M.R.

Hogberg, R.K. See Hoagberg, R.K.

Holm, T.R. See Hoyer, M.C., 2-3; Kanivetsky, Roman, 6.

Holst, T.B. See also Craddock, Campbell; Mullenmeister, E.E., 1.
1. 1981, Evidence for multiple deformation in the Middle Precambrian Thomson Formation [abs.], *in* Institute on Lake Superior Geology, 27th Annual Meeting, East Lansing, Michigan, 1981, Abstracts and Proceedings: Sponsored by the Dept. of Geology, Michigan State University, East Lansing, and the Michigan Dept. of Natural Resources, Geological Survey, Lansing, unpaged.
2. 1982, Evidence for multiple deformation during the Penokean orogeny in the Middle Precambrian Thomson Formation, Minnesota: Canadian Journal of Earth Sciences, v. 19, no. 10, p. 2043-2047.
3. 1982, Regional jointing in the northern Michigan Basin: Geology, v. 10, no. 5, p. 273-277.
4. 1982, The role of initial fabric on strain determination from deformed ellipsoidal objects: Tectonophysics, v. 82, no. 3/4, p. 329-350.
5. 1983, Evidence for nappe development during the Penokean orogeny from the early Proterozoic Thomson Formation, Minnesota [abs.], *in* Institute on Lake Superior Geology, 29th Annual Meeting, Houghton, Michigan, 1983, Proceedings: Houghton, organized by the Dept. of Geology and Geological Engineering in cooperation with the Division of Education and Public Services, Michigan Technological University, p. 22.
6. 1983, Foliation development and multiple deformation in the Early Proterozoic Thomson Formation, Minnesota [abs.], *in* Leitch, E.C., and others, eds., Bermagui '84—International Conference on Multiple Deformation and Foliation Development, Bermagui, Australia, February 4-10, 1984: Geological Society of Australia, Specialist Group in Tectonics & Structural Geology Newsletter 9, p. 125.
7. 1983, Implications of strain determinations from Early Proterozoic rocks in Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 15, no. 6, p. 598.
8. 1984, The Early Proterozoic Penokean orogeny as a convergent plate boundary: Structural evidence from the Thomson Formation of Minnesota [abs.]: Geological Association of Canada-Mineralogical Association of Canada Program with Abstracts, v. 9, p. 75.
9. 1984, Evidence for nappe development during the early Proterozoic Penokean orogeny, Minnesota: Geology, v. 12, no. 3, p. 135-138.
10. 1984, Penokean tectonics: Constraints from structural geology in east-central Minnesota [abs.], *in* Institute on Lake Superior Geology, 30th Annual Meeting, Wausau, Wisconsin, 1984, Abstracts: Sponsored by the Geology Dept., University of Wisconsin-Wausau, p. 19.
11. 1985, Implications of a large flattening strain for the origin of a bedding-parallel foliation in the Early Proterozoic Thomson Formation, Minnesota: Journal of Structural Geology, v. 7, no. 3/4, p. 375-383.
12. 1985, Reply *to* Comment, by Ruud Weijermars, 1984 (*in* Geology, v. 13, no. 6, p. 443-444), *on* Evidence for nappe development during the early Proterozoic Penokean orogeny, Minnesota, by T.B. Holst, 1984 (*in* Geology, v. 12, no. 3, p. 135-138): Geology, v. 13, no. 6, p. 444-445.

13. 1985, Strain within Early Proterozoic nappes in the Penokean orogenic belt, Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 17, no. 5, p. 293.
14. (Mullenmeister, E.E.; Green, J.C.; Weiblen, P.W.). 1985, Keweenawan structural features at the base of the Duluth Complex in the Dunka Pit near Babbitt, Minnesota [abs.], *in* Institute on Lake Superior Geology, 31st Annual Meeting, Kenora, Ontario, 1985, Technical Sessions and Abstracts: Organized by the Resident Geologist Office, Kenora, and the Ontario Geological Survey, p. 35.

Holtzman, R.C. See Beltrame, R.J., 2-4.

Holzheimer, J.
(Van Alstine, J.B.; Wegscheid, E.). 1981, Upper Cretaceous microfossils from the Greenhorn and Carlile Formations, Traverse County, Minnesota: A preliminary report [abs.]: Minnesota Academy of Science Journal, v. 47, no. 3, p. 10.

Horan, M.F. See Spencer, K.J., 2.

Horn, M.A.
1. 1983, Ground-water-use trends in the Twin Cities metropolitan area, Minnesota, 1880-1980: U.S. Geological Survey Water-Resources Investigations Report 83-4033, 37 p.
2. 1984, Annual ground-water use in the Twin Cities Metropolitan Area, Minnesota, 1970-79: U.S. Geological Survey Open-File Report 84-577, 130 p.

Hosch, J.A. See also Soroka, L.G., 1.
(Soroka, L.G.). 1984, Composition and microstructure of freshwater stromatolites from Eagle Lake, Ottertail Co., Mn [abs.]: Minnesota Academy of Science Journal, v. 49, no. 2, p. 22.

Hoyer, M.C. See also Kanivetsky, Roman, 6; Walton, Matt, 8.
1. (Walton, Matt). 1983, Review of testing at the University of Minnesota Aquifer Thermal Energy Storage field test facility (FTF), St. Paul, Minnesota, *in* DOE Physical and Chemical Energy Storage Annual Contractors' Review Meeting, Arlington, Virginia, 1983, Proceedings: CONF-830974, Washington, D.C., prepared for U.S. Department of Energy, Division of Energy Storage Technology, p. 240-245.
2. (Walton, Matt; Kanivetsky, Roman; Holm, T.R.). 1985, Short-term Aquifer Thermal Energy Storage (ATES) test cycles, St. Paul, Minnesota, U.S.A., *in* ENERSTOCK 85—International Conference on Energy Storage for Building Heating and Cooling, 3rd, Toronto, Canada, 1985, Proceedings/Communications: Ottawa, organized for Public Works Canada by Intertask Ltd., p. 75-79.
3. (Walton, Matt; Kanivetsky, Roman; Holm, T.R.). 1985, Short-term Aquifer Thermal Energy Storage (ATES) test cycles, St. Paul, Minnesota, U.S.A./Stockage d'énergie thermique à court terme en aquifère (ATES) cycles de'essai, St. Paul, Minnesota, États-Unis [abs.], *in* ENERSTOCK 85—International Conference on Energy Storage for Building Heating and Cooling, 3rd, Toronto, Canada, 1985, Abstracts/Résumés: Ottawa, organized for Public Works Canada by Intertask Ltd., p. 22-23.

Hudleston, P.J. See also Bauer, R.L., 7-8; Ela, Dan.
(Southwick, D.L.). 1984, The role of transcurrent shear in deformation of the Archean rocks of the Vermilion district, Minnesota [abs.], *in* Institute on Lake Superior Geology, 30th Annual Meeting, Wausau, Wisconsin, 1984, Abstracts: Sponsored by the Geology Dept., University of Wisconsin-Wausau, p. 20.

Huff, W.D. See also Kolata, D.R., 1-2.

(Kolata, D.R.; Frost, J.K.). 1983, Correlation of Middle Ordovician K-bentonites in the Mississippi Valley region by chemical fingerprinting [abs.]: Geological Society of America Abstracts with Programs, v. 15, no. 4, p. 256.

Hult, M.F. See also Ehrlich, G.G.; Rostad, C.E.; Stark, J.R.

1. 1984, Assessment of ground-water contamination by coal-tar derivatives, St. Louis Park area, Minnesota: U.S. Geological Survey Open-File Report 84-867, 85 p.
2. (editor). 1984, Ground-water contamination by crude oil at the Bemidji, Minnesota, research site: U.S. Geological Survey toxic waste—ground-water contamination study; papers presented at the Toxic-Waste Technical Meeting, Tucson, Arizona, March 20-22, 1984: U.S. Geological Survey Water-Resources Investigations Report 84-4188, 107 p.
3. (Schoenberg, M.E.). 1981, Preliminary evaluation of ground-water contamination by coal-tar derivatives, St. Louis Park area, Minnesota: U.S. Geological Survey Open-File Report 81-72, 52 p., 32 pls.
4. (Schoenberg, M.E.). 1984, Preliminary evaluation of ground-water contamination by coal-tar derivatives, St. Louis Park, Minnesota: U.S. Geological Survey Water-Supply Paper 2211, 53 p., 6 pls.

Hutchinson, D.R. See Wold, R.J., 2.

Hutchison, C.S.

1983, Biwabik-Gunflint Iron Formation, *a section in* Proterozoic-style mineralization, chap. 10 *of* Hutchison, C.S., Economic deposits and their tectonic setting: New York, Wiley, p. 214-217.

Hyrkas, G.L.

1982, The sedimentology and structural geology of the Middle Precambrian Thomson Formation, central Carlton County, Minnesota: Unpublished M.S. thesis, University of Minnesota, Duluth, 164 p.

Ikola, R.J. See Chandler, V.W., 17.

Ireland, T.R. See Williams, I.S.

Isaacs, Patricia.

1. 1982, Modern physiography, *from* Physiography and data base, pl. 1 *of* Balaban, N.H., and McSwiggen, P.L., eds., Geologic atlas, Scott County, Minnesota: Minnesota Geological Survey County Atlas Series C-1, scale 1:100,000.
2. 1982, Physiographic diagram of the bedrock surface, fig. 1 *from* Bedrock topography, pl. 4 *of* Balaban, N.H., and McSwiggen, P.L., eds., Geologic atlas, Scott County, Minnesota: Minnesota Geological Survey County Atlas Series C-1.

Iwasaki, Iwao. See Sabelin, Tatiana, 2.

Jackson, J.L.

(Savina, M.E.). 1984, Dissemination of Superior Lobe materials in Des Moines Lobe diamictons along the eastern margin of the Des Moines Lobe, southeastern Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 16, no. 3, p. 148.

Jackson, M.

(Van der Voo, Rob; Watts, D.R.). 1983, Paleomagnetism of the Lower Ordovician Oneota Dolomite, upper Mississippi River Valley [abs.]: Eos (American Geophysical Union Transactions), v. 64, no. 18, p. 216.

Jacobs, H.D.
1981, Beneficiation of western Mesabi Range oxidized taconites: A comparison of the anionic and cationic flotation systems and an evaluation of potential iron ore reserves: U.S. Bureau of Mines Report of Investigations 8552, 21 p.

Jacobson, G.L.
(Webb, Thompson, III; Davis, R.B.). 1983, Ice-marginal environments from Maine to Minnesota during late-glacial time [abs.]: Geological Society of America Abstracts with Programs, v. 15, no. 6, p. 602.

Jahn, Bor-ming.
1. 1972, Strontium isotope and trace element studies of the lower Precambrian rocks from the Vermilion district, northeastern Minnesota: Unpublished Ph.D. dissertation, University of Minnesota, Minneapolis, 143 p.
2. (Murthy, V. Rama). 1975, Rb-Sr ages of the Archean rocks from the Vermilion district, northeastern Minnesota: Geochimica et Cosmochimica Acta, v. 39, no. 12, p. 1679-1689.

James, H.L.
1983, Distribution of banded iron-formation in space and time, *in* Trendall, A.F., and Morris, R.C., eds., Iron-formation facts and problems: Amsterdam, Elsevier, p. 471-490.

Janks, J.S.
1. 1981, Trace element geochemistry of the Biwabik Iron-Formation: Unpublished M.S. thesis, University of Illinois, Chicago, 77 p.
2. (Matherly, R.M.; Koster van Groos, A.F.). 1985, Free fatty acid analysis of the Early Proterozoic Animikie Group, Minnesota and Ontario: Organic Geochemistry, v. 8, no. 3, p. 215-219.

Janssens, J.A.
(Glaser, P.H.). 1983, Fossil bryophytes and peat stratigraphy in the development of Red Lake Peatland, northern Minnesota [abs]: American Journal of Botany, v. 70, no. 5, pt. 2, p. 3.

al-Jassar, T.J. See Ripley, E.M., 6.

Jaster, M.C. See Rogers, C.L.

Jessberger, E.K.
1. 1981, K-Ar analysis of artificially shocked feldspar [abs.], *in* ECOG VII—European Colloquium of Geochronology, Cosmochronology and Isotope Geology, 7th, Jerusalem, Israel, August 31-September 4, 1981, Abstracts: Israel Academy of Sciences and Humanities, 1 p.
2. (Ostertag, Rolf). 1982, Shock-effects on the K-Ar system of plagioclase feldspar and the age of anorthosite inclusions from North-Eastern Minnesota: Geochimica et Cosmochimica Acta, v. 46, no. 8, p. 1465-1471.

Jirsa, M.A. See also Chandler, V.W., 17; Merk, G.P., 2; Meyer, G.N., 5; Morey, G.B., 18; Walton, Matt, 9.
1. 1984, Interflow sedimentary rocks in the Keweenawan North Shore Volcanic Group, northeastern Minnesota: Minnesota Geological Survey Report of Investigations 30, 20 p.
2. 1985, Influence of structure and rock type on the formation of bedrock valleys in the Twin Cities area, Minnesota [abs.], *in* Lively, R.S., coordinator, Pleistocene geology and evolution of the Upper Mississippi valley—Winona, Minnesota, August 13-16, 1985, Abstracts and field trip guide: Minnesota Geological Survey, p. 25-26.
3. (Meyer, G.N.). 1984, Geologic resources, pl. 8 *of* Balaban, N.H., and Olsen, B.M., eds., Geologic atlas of Winona County, Minnesota: Minnesota Geological Survey County Atlas Series C-2, scale 1:250,000.

Johnson, B.T.
1961, Interpretation of total-intensity magnetic field data by Fourier analysis: Unpublished M.S. thesis, University of Minnesota, Minneapolis, 155 p.

Johnson, L.D.
1974, The geomagnetic secular variation pattern recorded in the stable remanence of recent Wolf Creek, Minnesota sediments: Unpublished M.S. thesis, University of Minnesota, Minneapolis, 63 p.

Johnson, R.A. See Smithson, S.B.

Johnson, R.E.
1978, Preliminary mine planning at the MINNAMAX Project, *in* Productivity in Lake Superior district mining—Mining Symposium, 39th Annual, and American Institute of Mining and Metallurgical Engineers (AIME), 51st Annual Meeting, Duluth, Minnesota, 1978, Proceedings: Minneapolis, University of Minnesota, Dept. of Conferences, Continuing Education & Extension, paper 20, 22 p.

Johnson, T.C. See also Evans, J.E.; Landmesser, C.W.; Thayer, V.L.; Wold, R.J., 2.
1. 1980, Late-glacial and postglacial sedimentation in Lake Superior based on seismic-reflection profiles: Quaternary Research, v. 13, no. 3, p. 380-391.
2. (Evans, J.E.; Eisenreich, S.J.). 1982, Total organic carbon in Lake Superior sediments: Comparisons with hemipelagic and pelagic marine environments: Limnology and Oceanography, v. 27, no. 3, p. 481-491.
3. (Fields, Jeffrey). 1984, Paleomagnetic dating of postglacial sediment, offshore Lake Superior, Minnesota-Wisconsin, U.S.A.: Chemical Geology, v. 44, nos. 1-3, p. 253-265.

Johnston, R. See Blomquist, R.V.

Jones, N.W.
1984, Petrology of some Logan diabase sills, Cook County, Minnesota: Minnesota Geological Survey Report of Investigations 29, 40 p.

Jorgensen, D.G. See Signor, D.C.

Jouseau, Marcel. See Schenk, Carl.

Julik, Joe. See Gabanski, Gilbert.

Kalliokoski, J. See Mudrey, M.G., Jr., 2.

Kane, M.F. See Hildenbrand, T.G., 2.

Kanivetsky, Roman. See also Hoyer, M.C., 2-3; Walton, Matt, 9.
1. 1982, Hydrogeochemical relationships between bedrock aquifers of southeastern Minnesota [abs.]: Eos (American Geophysical Union Transactions), v. 63, no. 33, p. 612.
2. 1982, Susceptibility of bedrock aquifers to contamination, fig. 3 *from* Bedrock topography, pl. 4 *of* Balaban, N.H., and McSwiggen, P.L., eds., Geologic atlas, Scott County, Minnesota: Minnesota Geological Survey County Atlas Series C-1.
3. 1983, Geological factors affecting hydrochemistry of bedrock aquifers in Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 15, no. 4, p. 213.

4. 1984, Bedrock hydrogeology, pl. 4 *of* Balaban, N.H., and Olsen, B.M., eds., Geologic atlas of Winona County, Minnesota: Minnesota Geological Survey County Atlas Series C-2, scale 1:200,000.
5. 1984, Susceptibility of the ground-water system to pollution, pl. 6 *of* Balaban, N.H., and Olsen, B.M., eds., Geologic atlas of Winona County, Minnesota: Minnesota Geological Survey County Atlas Series C-2, scale 1:100,000.
6. (Holm, T.R.; Hoyer, M.C.). 1984, Hydraulic and hydrochemical parameters of an experimental aquifer thermal energy storage (ATES) system at the St. Paul campus of the University of Minnesota, USA [abs.]: International Geological Congress, 27th, Moscow, 1984, Abstracts, v. 7, p. 418-419.
7. (Palen, Barbara). 1982, Hydrogeology, pl. 6 *of* Balaban, N.H., and McSwiggen, P.L., eds., Geologic atlas, Scott County, Minnesota: Minnesota Geological Survey County Atlas Series C-1.

Kannberg, L.D. See also Blair, S.C., 5.

1985, Aquifer Thermal Energy Storage in the United States/Stockage de l'énergie thermique en milieu aquifère aux États-Unis, *in* ENERSTOCK 85—International Conference on Energy Storage for Building Heating and Cooling, 3rd, Toronto, Canada, 1985, Proceedings/Communications: Ottawa, organized for Public Works Canada by Intertask Ltd., p. 3-8 (English), 9-13 (French translation).

Karls, R.M.

1982, A ground water model of the Williams Lake watershed, Hubbard County, Minnesota: Unpublished M.S. thesis, University of Arizona, 93 p.

Kaszuba, J.P.

(Schwarzweller, P.A.; Woodard, H.H.). 1983, Folded rocks in the eastern contact zone of the Vermilion batholith [abs.], *in* Institute on Lake Superior Geology, 29th Annual Meeting, Houghton, Michigan, 1983, Proceedings: Houghton, organized by the Dept. of Geology and Geological Engineering in cooperation with the Div. of Education and Public Services, Michigan Technological University, p. 23-24.

Kaufman, Sidney. See Gibbs, A.K., 1-2.

Kay, G.M.

1929, Stratigraphy of the Decorah Formation: Journal of Geology, v. 37, no. 7, p. 639-671.

Keen, K.L.

1. 1985, Sand dunes on the Anoka Sand Plain: Unpublished M.S. thesis, University of Minnesota, Minneapolis, 191 p., 7 pls.
2. (Shane, L.C.K.). 1985, Mid-Holocene sand dunes in east-central Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 17, no. 5, p. 294-295.

Kehew, A.E.

(Lord, M.L.). 1984, Large-scale fluvial erosional features produced by proglacial lake drainage in the Northern Great Plains [abs.]: Geological Society of America Abstracts with Programs, v. 16, no. 6, p. 556.

Keister, C.M. See Björck, Svante.

Keller, G.R.

(Lidiak, E.G.; Hinze, W.J.; Braile, L.W.). 1983, The role of rifting in the tectonic development of the midcontinent, U.S.A.: Tectonophysics, v. 94, nos. 1-4, p. 391-412.

Keller, W.D.
(Stone, C.G.; Hoersch, A.L.). 1985, Textures of Paleozoic chert and novaculite in the Ouachita Mountains of Arkansas and Oklahoma and their geological significance: Geological Society of America Bulletin, v. 96, no. 11, p. 1353-1363.

Kemmis, T.J.
1982, Differing sedimentation along the Algona Moraine and its significance to understanding the behavior of the Des Moines Lobe of the Late Wisconsinan Laurentide ice sheet [abs.]: International Congress on Sedimentology, 11th, Hamilton, Ontario, Canada, August 22-27, 1982, Abstracts of Papers, p. 78.

Kerr, S.D., Jr. See Lee, C.K., 1-3.

King, E.R. See Cannon, W.F., 2.

King, J.W. See also Sprowl, D.R., 6.
1. (Banerjee, S.K.; Marvin, James; Lund, S.P.). 1983, Use of small-amplitude paleomagnetic fluctuations for correlation and dating of continental climatic changes: Palaeogeography, Palaeoclimatology, Palaeoecology, v. 42, nos. 1-2, p. 167-183.
2. (Hackenmueller, J.; Banerjee, S.K.; Marvin, James; Zhu, X.Y.). 1982, The application of paleomagnetic measurements to paleoclimatic and paleoenvironmental problems [abs.]: American Quaternary Association, 7th Biennial Conference, Seattle, Washington, 1982, Program and Abstracts, p. 115.
3. (Marvin, James; Shane, L.C.K.; Banerjee, S.K.; Young, M.A.). 1982, The application of magnetic measurements to paleoclimatic and paleoenvironmental problems [abs.]: Eos (American Geophysical Union Transactions), v. 63, no. 33, p. 616.

King, P.B.
1. (compiler). 1969 [1972], Tectonic map of North America: U.S. Geological Survey, scale 1:5,000,000, 2 pls.
2. (Beikman, H.M., compilers). 1974 [1975], Geologic map of the United States (exclusive of Alaska and Hawaii): U.S. Geological Survey, scale 1:2,500,000, 3 pls.

Kinny, P.D. See Williams, I.S.

Kirkpatrick, R.J. See Oestrike, Richard.

Kirstein, M.H.
1979, Contact metamorphism of the Virginia Formation in MINNAMAX deposit, St. Louis County: Unpublished M.S. thesis, University of Minnesota, Duluth, 60 p.

Klapper, Gilbert. See also Bunker, B.J., 2.
(Barrick, J.E.). 1983, Middle Devonian (Eifelian) conodonts from the Spillville Formation in northern Iowa and southern Minnesota: Journal of Paleontology, v. 57, no. 6, p. 1212-1243.

Klasner, J.S. See also Cannon, W.F., 2.
(Cannon, W.F.; Van Schmus, W.R.). 1982, The pre-Keweenawan tectonic history of southern Canadian Shield and its influence on formation of the Midcontinent Rift, *in* Wold, R.J., and Hinze, W.J., eds., Geology and tectonics of the Lake Superior Basin: Geological Society of America Memoir 156, p. 27-46.

Klaysmat, A.W. See Meineke, D.G., 2.

Klein, Cornelis. See also Gole, M.J.
1983, Diagenesis and metamorphism of Precambrian banded iron-formations, *in* Trendall, A.F., and Morris, R.C., eds., Iron-formation facts and problems: Amsterdam, Elsevier, p. 417-469.

Knox, J.C. See Goebel, J.E., 1.

Kohler, W.M. See Evernden, J.F.

Kolata, D.R. See also Huff, W.D.; Lee, Mingchou.
1. (Huff, W.D.; Frost, J.K.). 1983, Correlation of K-bentonites in the Decorah subgroup in the Mississippi Valley by chemical fingerprinting, *in* Delgado, D.J., ed., Ordovician Galena Group of the Upper Mississippi Valley—deposition, diagenesis, and paleoecology: Society of Economic Paleontologists and Mineralogists, Great Lakes Section, 13th Annual Field Conference, 1983, Guidebook, p. F1-F15.
2. (Huff, W.D.; Frost, J.K.). 1984, Correlation of Champlainian (Middle Ordovician) K-bentonite beds from Minnesota to Kentucky and Tennessee [abs.]: Geological Society of America Abstracts with Programs, v. 16, no. 6, p. 563.

Kontis, A.L. See Siegel, D.I., 9; Signor, D.C.

Koster van Groos, A.F. See Janks, J.S., 2.

Krinitzsky, E.L.
1985, Seismic source zones in the Northern Central States [abs.]: Geological Society of America Abstracts with Programs, v. 17, no. 5, p. 297.

Kucks, R.P. See Hildenbrand, T.G., 1.

Kuhns, M.J.P. See Morey, G.B., 18; Wahl, T.E.

Labandeira, C.C.
1983, Changing species concepts in American paleontology and revision of *Dikelocephalus*, an Upper Cambrian trilobite from southwestern Wisconsin and eastern Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 15, no. 4, p. 260.

LaBaugh, J.W.
(Groschen, G.E.; Winter, T.C.). 1981, Limnological and geochemical survey of Williams Lake, Hubbard County, Minnesota: U.S. Geological Survey Water-Resources Investigations 81-41, 44 p.

Labno, B.A.
1973, The hydrogeological implications of chemical waste disposal in a glaciated terrain, Rosemount, Minnesota: Unpublished M.S. thesis, University of Minnesota, Minneapolis, 136 p.

Labotka, T.C. See also Vaniman, D.T.; White, C.E., 2.
1. 1981, Thermodynamic components of biotite in pelitic hornfels from N.E. Minnesota [abs.]: Eos (American Geophysical Union Transactions), v. 62, no. 17, p. 436.
2. 1983, Analysis of the compositional variations of biotite in pelitic hornfelses from northeastern Minnesota: American Mineralogist, v. 68, nos. 9-10, p. 900-914.
3. (Papike, J.J.; Morey, G.B.). 1981, The effect of pressure on isochemical metamorphism of pelitic rocks from north central Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 13, no. 7, p. 493.

4. (Papike, J.J.; Vaniman, D.T.; Morey, G.B.). 1981, Petrology of contact metamorphosed argillite from the Rove Formation, Gunflint Trail, Minnesota: American Mineralogist, v. 66, nos. 1-2, p. 70-86.
5. (White, C.E.; Papike, J.J.). 1984, The evolution of water in the contact-metamorphic aureole of the Duluth Complex, northeastern Minnesota: Geological Society of America Bulletin, v. 95, no. 7, p. 788-804.

Labuz, J.F.
(Shah, S.P.; Dowding, C.H.). 1985, Experimental analysis of crack propagation in granite: International Journal of Rock Mechanics and Mining Sciences and Geomechanics Abstracts, v. 22, no. 2, p. 85-98.

Lancelot, Joël. See Michard-Vitrac, Annie.

Landmesser, C.W.
(Johnson, T.C.; Wold, R.J.). 1982, Seismic reflection study of recessional moraines beneath Lake Superior and their relationship to regional deglaciation: Quaternary Research, v. 17, no. 2, p. 173-190.

Lapidary Journal.
1976, Lake Superior agates, the rainbow in rocks: V. 30, no. 9, p. 2164-2166.

Larue, D.K.
1. 1979, Sedimentary history prior to chemical iron sedimentation of the Precambrian X Chocolay and Menominee groups (Lake Superior region): Unpublished Ph.D. dissertation, Northwestern University, Evanston, Ill., 173 p.
2. 1979, Sedimentary history prior to chemical iron sedimentation of the Precambrian X Chocolay and Menominee groups (Lake Superior region) [abs., Northwestern University Ph.D. dissertation]: Dissertation Abstracts International, 1979, v. 40, no. 10, p. 4707B.

Lawler, T.L. See also Sellner, J.M., 2.
(Sellner, J.M.). 1985, Ranier, Minnesota, mineral potential evaluation: Outcrop sampling, geophysics and soil geochemistry [abs.], *in* Institute on Lake Superior Geology, 31st Annual Meeting, Kenora, Ontario, 1985, Technical Sessions and Abstracts: Organized by the Resident Geologist Office, Kenora, and the Ontario Geological Survey, p. 48.

Lawver, J.E.
(Wiegel, R.L.; Schulz, N.F.). 1976, Study of economic feasibility for copper-nickel development in northern Minnesota, *in* Mining Symposium, 37th Annual, and American Institute of Mining and Metallurgical Engineers (AIME), Minnesota Section, 49th Annual Meeting, Duluth, Minnesota, 1976, [Proceedings]: Minneapolis, University of Minnesota, Dept. of Conferences, Continuing Education and Extension, paper 24, 50 p.

Lee, C.K.
1. (Kerr, S.D., Jr.). 1983, Mid-Continent rift system—a frontier hydrocarbon province [abs.]: American Association of Petroleum Geologists Bulletin, v. 67, no. 8, p. 1325.
2. (Kerr, S.D., Jr.). 1984, Midcontinent: Oil and Gas Journal, v. 82, no. 33, p. 144-150.
3. (Kerr, S.D., Jr.). 1984, Mid-Continent rift system—a frontier hydrocarbon province [abs.]: American Association of Petroleum Geologists Bulletin, v. 68, no. 4, p. 499.

Lee, H.C.
1982, Dissolution kinetics of Minnesota aquifer rock up to 150°C: Unpublished M.S. thesis, University of Minnesota, Minneapolis, 157 p.

Lee, Mingchou.
(Hay, R.L.; Kolata, D.R.). 1985, Episodic potassic alteration of Ordovician tuffs in the Upper Mississippi Valley [abs.]: Geological Society of America Abstracts with Programs, v. 17, no. 7, p. 641.

Leff, C. See Arvidson, R.E.

Leier, P.J.
(Perkins, D., III). 1982, Thermometry and barometry of granulite facies rocks from the Minnesota River Valley [abs.]: Eos (American Geophysical Union Transactions), v. 63, no. 45, p. 1151.

Leigh, O.E. See Routledge, R.E.

Lemons, J.F., Jr. See Mishra, C.P.

Leonard-Mayer, P.J.
1. 1984, Development and use of azimuthal resistivity surveys for jointed formations, *in* NWWA/EPA Conference on Surface and Borehole Geophysical Methods in Ground Water Investigations, San Antonio, Texas, February 7-9, 1984: Worthington, Ohio, National Water Well Association, p. 52-88.
2. 1984, A surface resistivity method for measuring hydrologic characteristics of jointed formations: U.S. Bureau of Mines Report of Investigations 8901, 45 p.

Leoni, Louise.
1985, Water-filled abandoned mines as a heat source for district heating: Underground Space, v. 9, no. 1, p. 23-27.

Lepp, Henry.
1982, Minnesota's iron ranges: Rocks and Minerals, v. 57, no. 3, p. 96-101.

Levorson, C.O.
(Gerk, A.J.). 1983, Field recognition of stratigraphic position within the Galena Group of northeast Iowa (limestone facies), *in* Delgado, D.J., ed., Ordovician Galena Group of the Upper Mississippi Valley—deposition, diagenesis, and paleoecology: Society of Economic Paleontologists and Mineralogists, Great Lakes Section, 13th Annual Field Conference, 1983, Guidebook, p. C1-C11.

Li, F.S.
1976, Analysis and application of new array techniques for seismic signal extraction [abs., University of Minnesota Ph.D. dissertation]: Dissertation Abstracts International, 1976, v. 37, no. 6, p. 2728B.

Lidiak, E.G. See Keller, G.R.; Muehlberger, W.R.

Lindholm, G.F.
1980, Ground-water appraisal of sand plains in Benton, Sherburne, Stearns, and Wright Counties, central Minnesota: U.S. Geological Survey Water-Resources Investigations Open-File Report 80-1285, 111 p., 4 pls.

Linscheid, E.K.
1985, The petrology of the Longnose Peridotite deposit and its relationship to the Duluth Complex [abs.], *in* Institute on Lake Superior Geology, 31st Annual Meeting, Kenora, Ontario, 1985, Technical Sessions and Abstracts: Organized by the Resident Geologist Office, Kenora, and the Ontario Geological Survey, p. 49-50.

Lipp, R.J.

1. (compiler). [1981,] Minnesota industrial minerals directory, 1980: Minneapolis, University of Minnesota, Mineral Resources Research Center, 39 p.
2. (compiler). [1982,] Minnesota industrial minerals directory, 1981: Minneapolis, University of Minnesota, Mineral Resources Research Center, 41 p.
3. (editor). 1982, Minnesota mining directory, 1982: Minneapolis, University of Minnesota, Mineral Resources Research Center, 265 p.
4. (compiler). [1983,] Minnesota industrial minerals directory, 1982: Minneapolis, University of Minnesota, Mineral Resources Research Center, 42 p.
5. (editor). 1983, Minnesota mining directory, 1983: Minneapolis, University of Minnesota, Mineral Resources Research Center, 262 p.
6. (editor). 1984, Minnesota mining directory, 1984: Minneapolis, University of Minnesota, Mineral Resources Research Center, 264 p.
7. (compiler). [1985,] Minnesota industrial minerals directory, 1983-84: Minneapolis, University of Minnesota, Mineral Resources Research Center, 46 p.
8. (editor). 1985, Minnesota mining directory, 1985: Minneapolis, University of Minnesota, Mineral Resources Research Center, 265 p.

Little, R.L.

1. (Olsen, B.M.). 1982, Data base map, *from* Physiography and data base, pl. 1 *of* Balaban, N.H., and McSwiggen, P.L., eds., Geologic atlas, Scott County, Minnesota: Minnesota Geological Survey County Atlas Series C-1, scale 1:100,000.
2. (Olsen, B.M.). 1982, Water-well construction in cavernous rock formations, fig. 2 *from* Bedrock topography, pl. 4 *of* Balaban, N.H., and McSwiggen, P.L., eds., Geologic atlas, Scott County, Minnesota: Minnesota Geological Survey County Atlas Series C-1, scale 1:200,000.

Lively, R.S. See also Evans, J.E.; Milske, J.A., 2-4; Morey, G.B., 23; Soroka, L.G., 2; Southwick, D.L., 7-8.

1. 1981, Radon activity in ground waters from several areas in Minnesota [abs.]: Minnesota Academy of Science, 49th Annual Spring Meeting, Minneapolis, Minnesota, 1981, Abstracts of Papers, p. 12.
2. 1982, Radon in karst groundwaters of southeastern Minnesota [abs.]: Midwest Ground-water Conference, 27th Annual, Coralville, Iowa, 1982, loose sheet.
3. 1983, Late Quaternary U-series speleothem growth record from southeastern Minnesota: Geology, v. 11, no. 5, p. 259-262.
4. 1983, A U-series speleothem growth record from southeastern Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 15, no. 4, p. 263.
5. 1984, Uranium-series dating of calcite cemented sands and gravels in Minnesota and Wisconsin, *in* Pleistocene history of west-central Wisconsin: Wisconsin Geological and Natural History Survey Field Trip Guide Book 11, p. 68-76.
6. (coordinator). 1985, Pleistocene geology and evolution of the Upper Mississippi valley—Winona, Minnesota, August 13-16, 1985, Abstracts and field trip guide: Minnesota Geological Survey, 105 p., 1 pl.
7. (Alexander, E.C., Jr.). 1985, Karst and the Pleistocene history of the Upper Mississippi River valley [abs.], *in* Lively, R.S., coordinator, Pleistocene geology and evolution of the Upper Mississippi valley—Winona, Minnesota, August 13-16, 1985, Abstracts and field trip guide: Minnesota Geological Survey, p. 31-32.
8. (Alexander, E.C., Jr.; Milske, J.A.). 1981, A late Pleistocene chronologic record in southeastern Minnesota, *in* Beck, B.F., ed., International Congress of Speleology, 8th, Americus, Georgia, July 18-24, 1981, v. 2, p. 623-626.
9. (Morey, G.B.). 1982, Hydrogeochemical distribution of uranium and radon in east-central Minnesota, *in* Perry, E.C., Jr., and Montgomery, C.W., eds., Isotope studies of hydrologic processes: DeKalb, Northern Illinois University Press, p. 91-107.

10. (Morey, G.B.). 1985, Ground-water geochemical atlas for parts of east-central Minnesota: Minnesota Geological Survey Miscellaneous Map Series M-58, scale 1 inch = 8 miles, 5 pls.
11. (Southwick, D.L.). 1981, Radon activity in ground waters of seven test areas in Minnesota: Minnesota Geological Survey Report of Investigations 25, 60 p.

Lochman-Balk, Christina.
1970, Cambrian faunal patterns on the craton: Geological Society of America Bulletin, v. 81, no. 11, p. 3197-3224.

Lord, M.L. See Kehew, A.E.

Lougheed, M.S.
1983, Origin of Precambrian iron-formations in the Lake Superior region: Geological Society of America Bulletin, v. 94, no. 3, p. 325-340.

Love, David. See Anderson, R.Y.

Lucente, M.E.
(Morey, G.B.). 1983, Stratigraphy and sedimentology of the lower Proterozoic Virginia Formation, northern Minnesota: Minnesota Geological Survey Report of Investigations 28, 28 p.

Ludvigson, G.A. See Witzke, B.J., 5.

Ludwig, K.R.
(Silver, L.T.). 1977, Lead-isotope inhomogeneity in Precambrian igneous K-feldspars: Geochimica et Cosmochimica Acta, v. 41, no. 10, p. 1457-1471.

Luetgert, J.H.
(Meyer, R.P.). 1982, Structure of the western basin of Lake Superior from cross structure refraction profiles, *in* Wold, R.J., and Hinze, W.J., eds., Geology and tectonics of the Lake Superior Basin: Geological Society of America Memoir 156, p. 245-255.

Lueth, Robert.
1985, Surficial deposits on the Paleozoic surface in southeastern Minnesota: Their distribution and geomorphic relationship [abs.], *in* Lively, R.S., coordinator, Pleistocene geology and evolution of the Upper Mississippi valley—Winona, Minnesota, August 13-16, 1985, Abstracts and field trip guide: Minnesota Geological Survey, p. 46-47.

Lumbers, S.B. See Sims, P.K., 6.

Lund, S.P. See also King, J.W., 1; Sprowl, D.R., 6.
1. 1981, Late Quaternary secular variation of the earth's magnetic field as recorded in the wet sediments of three North American lakes: Unpublished Ph.D. dissertation, University of Minnesota, Minneapolis, 300 p.
2. 1981, Late Quaternary secular variation of the earth's magnetic field as recorded in the wet sediments of three North American lakes [abs., University of Minnesota Ph.D. dissertation]: Dissertation Abstracts International, 1982, v. 42, no. 13, p. 4721B-4722B.
3. 1985, A comparison of the statistical secular variation recorded in some late Quaternary lava flows and sediments, and its implications: Geophysical Research Letters, v. 12, no. 5, p. 251-254.
4. (Banerjee, S.K.). 1979, Paleosecular variations from lake sediments: Reviews of Geophysics and Space Physics, v. 17, no. 2, p. 244-249.

5. (Banerjee, S.K.). 1984, Late Quaternary paleomagnetic field secular variation from two Minnesota lakes [abs.]: Eos (American Geophysical Union Transactions), v. 65, no. 47, p. 1191.
6. (Banerjee, S.K.). 1985, Late Quaternary paleomagnetic field secular variation from two Minnesota lakes: Journal of Geophysical Research, v. 90, no. B1, p. 803-825.
7. (Henyey, T.L.; Brandsma, Dan). 1984, Magnetic field secular variation as a high resolution relative dating tool in late Quaternary sedimentary sequences [abs.]: Geological Society of America Abstracts with Programs, v. 16, no. 6, p. 580.

Lundy, J.R.
1. 1985, Clues to structural history in the minor folds of the Soudan Iron Formation, NE Minnesota: Unpublished M.S. thesis, University of Minnesota, Minneapolis, 144 p., 1 pl.
2. 1985, Minor folds in the Soudan Iron Formation, northeastern Minnesota [abs.], *in* Institute on Lake Superior Geology, 31st Annual Meeting, Kenora, Ontario, 1985, Technical Sessions and Abstracts: Organized by the Resident Geologist Office, Kenora, and the Ontario Geological Survey, p. 51.

Lynd, L.E. See Force, E.R.

Macdonald, A.J. See Naldrett, A.J., 2.

Mahan, W.M. See Schluter, R.B.

Mainwaring, P.R.
1. 1975, The petrology of a sulfide-bearing layered intrusion at the base of the Duluth Complex, St. Louis County, Minnesota [abs., University of Toronto, Ph.D. dissertation]: Dissertation Abstracts International, 1978, v. 39, no. 3, p. 1172B.
2. (Douthitt, C.B.). 1981, Carbon isotope study of graphitic sulfides in the Duluth Complex, Minnesota, U.S.A. [abs.]: Geological Association of Canada Program with Abstracts, v. 6, p. A-37.

Malander, M.W.
1. 1983, A stable isotopic study of waters within and surrounding the Boundary Waters Canoe Area Wilderness, Minnesota: Unpublished M.S. thesis, Northern Illinois University, DeKalb, 88 p.
2. (Perry, E.C., Jr.). 1985, Stable isotopes in dissolved $SO_4^{=}$, Boundary Waters Canoe Area and environs, N. Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 17, no. 5, p. 300.

Malcolm, J.B. See Watowich, S.N., 1-2.

Malhotra, S.
(and others). 1984, Recovery of manganese from low-grade domestic sources: U.S. Bureau of Mines Open File Report 201-84, 171 p.

Malicsi, A.S. See Sabelin, Tatiana, 2.

Malone, J.F. See Nawaz, Rab.

Malterer, T.J. See also Severson, L.S.
1. 1980, Peat Resource Estimation Project in Minnesota, *in* Punwani, D.V., chairperson, and others, Peat as an energy alternative: Chicago, Ill., Institute of Gas Technology, p. 69-75.
2. 1985, The genesis and characterization of some calcareous peatlands in west-central Minnesota: Unpublished Ph.D. dissertation, University of Minnesota, Minneapolis, 228 p.

3. 1985, The genesis and characterization of some calcareous peatlands in west-central Minnesota [abs., University of Minnesota Ph.D. dissertation]: Dissertation Abstracts International, 1986, v. 46, no. 7, p. 2235B.

Mandle, R.J. See Siegel, D.I., 9-11; Signor, D.C.

Manhes, Gérald.
(Allègre, C.J.; Dupré, Bernard; Hamelin, Bruno). 1980, Lead isotope study of basic-ultrabasic layered complexes: Speculations about the age of the earth and primitive mantle characteristics: Earth and Planetary Science Letters, v. 47, no. 3, p. 370-382.

Mariano, A.
(Woodard, H.H.). 1984, Potassium metasomatism of trondhjemite migmatite wallrock, Vermilion Complex, northern Minnesota [abs.], *in* Institute on Lake Superior Geology, 30th Annual Meeting, Wausau, Wisconsin, 1984, Abstracts: Sponsored by the Geology Dept., University of Wisconsin-Wausau, p. 32-33.

Mark, Helen.
1963, High-alumina kaolinitic clay in the United States (exclusive of Alaska and Hawaii): U.S. Geological Survey Mineral Investigations Resource Map MR-37, scale 1:3,168,000, accompanying discussion, 22 p.

Marsden, R.W.
1980, Estimation and evaluation of the iron ore reserves of the United States—a partial survey, 1974-75: Iron ore reserves of the Mesabi Range, Minnesota; a Minerals Availability System report: U.S. Bureau of Mines Open-File Report 109-80, 73 p.

Martin, D.P.
1985, A compilation of ore mineral occurrences, drill core, and testpits in the state of Minnesota: Minnesota Department of Natural Resources, Division of Minerals Report 231, 266 p., 4 pls.

Marvin, James. See King, J.W., 1-3.

Matherly, R.M. See Janks, J.S., 2.

Mathews, K.E.
1975, Future developments in open stoping and cut and fill mining systems, *in* Metals industry, Lake Superior district: "A Challenge to Technology"—Mining Symposium, 36th Annual, and American Institute of Mining and Metallurgical Engineers (AIME), Minnesota Section, 48th Annual Meeting, Duluth, 1975, [Proceedings]: University of Minnesota, Department of Conferences, Continuing Education & Extension, p. 102-111.

Matsch, C.L. See also Hoagberg, R.K., 1; Ojakangas, R.W., 8; Wright, H.E., Jr., 5.
1. 1982, Minnesota glaciers: What to look for: Rocks and Minerals, v. 57, no. 3, p. 114-117.
2. 1982, River Warren, the southern outlet to Lake Agassiz [abs.]: Geological Association of Canada-Mineralogical Association of Canada Program with Abstracts, v. 7, p. 65.
3. 1983, River Warren, the southern outlet of glacial Lake Agassiz, *in* Teller, J.T., and Clayton, Lee, eds., Glacial Lake Agassiz: Geological Association of Canada Special Paper 26, p. 232-244.

Matthews, J.V., Jr. See Morgan, A.V.

Mattis, A.F. See Dott, R.H., Jr., 2.

Mazzullo, J.M.

1. 1981, Grain size variation of the St. Peter Sandstone: A record of eolian and fluvial sedimentation of an early Paleozoic cratonic sheet sand: Unpublished Ph.D. dissertation, University of South Carolina, Columbia, 71 p.
2. 1981, Grain size variation of the St. Peter Sandstone: A record of eolian and fluvial sedimentation of an early Paleozoic cratonic sheet sand [abs., University of South Carolina Ph.D. dissertation]: Dissertation Abstracts International, 1982, v. 42, no. 7, p. 2747B.
3. (Ehrlich, Robert). 1982, Grain shape types in the St. Peter Sandstone; their origin and distribution in the formation [abs.]: International Congress on Sedimentology, 11th, Hamilton, Ontario, Canada, August 22-27, 1982, p. 184-185.
4. (Ehrlich, Robert). 1983, Grain-shape variation in the St. Peter Sandstone: A record of eolian and fluvial sedimentation of an Early Paleozoic cratonic sheet sand: Journal of Sedimentary Petrology, v. 53, no. 1, p. 105-119.

McCall, G.W.

(Nabelek, P.I.; Bauer, R.L.; Glascock, M.D.). 1985, Origin and interaction of some alkalic and silicic plutons in the Vermilion Granitic Complex, NE Minnesota [abs.]: Geological Society of America, Abstracts with Programs, v. 17, no. 7, p. 657.

McConnell, J.D.C. See Carpenter, M.A.

McGuinness, C.L.

(compiler). 1964, Generalized map showing annual runoff and productive aquifers in the conterminous United States: U.S. Geological Survey Hydrologic Investigations Atlas HA-194, scale 1:5,000,000.

McIntosh, W.L.

(Eister, M.F.; Sparks, D.M., compilers). 1982, Geologic map index of Minnesota, compiled in 1978: U.S. Geological Survey.

McKenna, M.P. See Sellner, J.M., 2.

McLennan, S.M.

1. 1984, Petrological characteristics of Archean graywackes: Journal of Sedimentary Petrology, v. 54, no. 3, p. 889-898.
2. (Taylor, S.R.). 1984, Archaean sedimentary rocks and their relation to the composition of the Archaean continental crust, *in* Kröner, A., Hanson, G.N., and Goodwin, A.M., eds., Archaean geochemistry: The origin and evolution of the Archaean continental crust: New York, Springer-Verlag, p. 47-72.

McSwiggen, P.L. See also Balaban, N.H., 1; Morey, G.B., 18; Walton, Matt, 10-12.

1. 1981, Uranium in apatite-bearing rocks of east-central Minnesota [abs.]: Minnesota Academy of Science, 49th Annual Spring Meeting, Minneapolis, Minnesota, 1981, Abstracts of Papers, p. 11.
2. 1982, Uranium in lower Proterozoic phosphate-rich metasedimentary rocks of east-central Minnesota [abs.], *in* Institute on Lake Superior Geology, 28th Annual Meeting, International Falls, Minnesota, 1982, Proceedings: Sponsored by the Minnesota Geological Survey, p. 25.
3. (Morey, G.B.; Weiblen, P.W.). 1981, Uranium in lower Proterozoic, apatite-bearing rocks of east-central Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 13, no. 7, p. 508.

Mead, Judson. See Ferderer, R.J., 2.

Medaris, L.G., Jr. See also Moecher, D.P., 2-3.
(editor). 1983, Early Proterozoic geology of the Great Lakes region: Geological Society of America Memoir 160, 141 p.

Meineke, D.G. See also Vadis, M.K., 1-4.
1. (Gilgosch, M.A.; Vadis, M.K.). 1976, Exploration geochemistry of Quaternary deposits in northwestern Koochiching County, Minnesota: Minnesota Department of Natural Resources, Division of Minerals Report 36-7, 69 p.
2. (Klaysmat, A.W.). 1976, Preliminary report on nineteen digestion methods tested on various geochemical exploration sample medias: Minnesota Department of Natural Resources, Division of Minerals Report 104, 17 p.
3. (Vadis, M.K.). 1977, Geophysical and geochemical surveys, Indus School site: Minnesota Department of Natural Resources, Division of Minerals Project 149, 15 p.
4. (Vadis, M.K.). 1977, Geophysical profiles, Manitou Rapids area: Minnesota Department of Natural Resources, Division of Minerals Project 41, 41 p.
5. (Vadis, M.K.; Gilgosch, M.A.). 1976, Geophysical surveys conducted in northwestern Koochiching County, Minnesota: Minnesota Department of Natural Resources, Division of Minerals Report 36-8, 10 p.

Melchior, R.C. See also Rundell, P.
1981, Pollen analysis of a peat from near Brookston, Minnesota, *in* Fuchsman, C.H., ed., International Peat Symposium, Bemidji, Minnesota, 1981, Proceedings, p. 419-444.

Merewether, E.A. See Cobban, W.A., 2.
1. 1983, Lower Upper Cretaceous strata in Minnesota and adjacent areas—time-stratigraphic correlations and structural attitudes, *in* Cobban, W.A., and Merewether, E.A., Stratigraphy and paleontology of mid-Cretaceous rocks in Minnesota and contiguous areas: U.S. Geological Survey Professional Paper 1253-B, p. 26-52.
2. (Cobban, W.A.). 1981, Mid-Cretaceous formations in eastern South Dakota and adjoining areas—stratigraphic, paleontologic, and structural interpretations, *in* Cretaceous stratigraphy and sedimentation in northwest Iowa, northeast Nebraska, and southeast South Dakota: Iowa Geological Survey Guidebook Series 4, p. 43-56.

Merk, G.P.
1. 1972, Provenance and tectonic inferences concerning the Keweenawan interflow sediments of the Lake Superior region: Unpublished Ph.D. dissertation, Michigan State University, East Lansing, 126 p.
2. (Jirsa, M.A.). 1982, Provenance and tectonic significance of the Keweenawan interflow sedimentary rocks, *in* Wold, R.J., and Hinze, W.J., eds., Geology and tectonics of the Lake Superior Basin: Geological Society of America Memoir 156, p. 97-105.

Meyer, G.N. See also Jirsa, M.A., 3.
1. 1982, Surficial geologic cross sections, *from* Surficial sections and thickness, pl. 3 *of* Balaban, N.H., and McSwiggen, P.L., eds., Geologic atlas, Scott County, Minnesota: Minnesota Geological Survey County Atlas Series C-1.
2. 1983, Pre-Wisconsinan tills of west-central Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 15, no. 4, p. 262.
3. 1985, Quaternary geologic map of the Minneapolis-St. Paul urban area, Minnesota: Minnesota Geological Survey Miscellaneous Map Series M-54, scale 1:48,000.
4. 1985, The Wadena till revisited—some new ideas about an old till [abs.]: Geological Society of America Abstracts with Programs, v. 17, no. 5, p. 318.
5. (Jirsa, M.A.). 1984, Aggregate resources inventory, Twin Cities Metropolitan Area, Minnesota: Minnesota Geological Survey Information Circular 20, 16 p., 2 pls.

Meyer, R.P. See Bednarek, A.R.; Luetgert, J.H.

Meyer, Rubin. See Wright, H.E., Jr., 6.

Michard-Vitrac, Annie.
(Lancelot, Joël; Allègre, C.J.; Moorbath, Stephen). 1977, U-Pb ages on single zircons from the early Precambrian rocks of West Greenland and the Minnesota River Valley: Earth and Planetary Science Letters, v. 35, no. 3, p. 449-453.

Mickelson, D.M. See also Attig, J.W.; Farrand, W.R., 2; Goebel, J.E., 1.
(Clayton, Lee; Fullerton, D.S.; Borns, H.W., Jr.). 1983, The late Wisconsin glacial record of the Laurentide ice sheet in the United States, chap. 1 *of* Porter, S.C., ed., The late Pleistocene, v. 1 *of* Wright, H.E., Jr., ed., Late-Quaternary environments of the United States: Minneapolis, University of Minnesota Press, p. 3-37.

Miller, J.D., Jr. See also Mullenmeister, E.E., 2; Weiblen, P.W., 5-6.
1. 1983, Major element chemistry of anorthosites from the Duluth Complex, Snowbank Lake quadrangle, Minnesota [abs.], *in* Institute on Lake Superior Geology, 29th Annual Meeting, Houghton, Michigan, 1983, Proceedings: Houghton, organized by the Dept. of Geology and Geological Engineering in cooperation with the Div. of Education and Public Services, Michigan Technological University, p. 28-29.
2. 1985, Petrogenesis of anorthositic rocks of the Duluth Complex [abs.], *in* Institute on Lake Superior Geology, 31st Annual Meeting, Kenora, Ontario, 1985, Technical Sessions and Abstracts: Organized by the Resident Geologist Office, Kenora, and the Ontario Geological Survey, p. 57-58.
3. (Weiblen, P.W.). 1982, Mineralogic and textural variations of anorthosites in the Duluth Complex, Forest Center NW quadrangle, Minnesota [abs.], *in* Institute on Lake Superior Geology, 28th Annual Meeting, International Falls, Minnesota, 1982, Proceedings: Sponsored by the Minnesota Geological Survey, p. 26-28.
4. (Weiblen, P.W.). 1985, Comparative petrogenesis of anorthositic and troctolitic series rocks of the Duluth Complex, Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 17, no. 7, p. 664.

Miller, Michael. See Rapp, G.R., Jr.

Miller, R.G.
(O'Nions, R.K.). 1985, Source of Precambrian chemical and clastic sediments: Nature, v. 314, no. 6009, p. 325-330.

Miller, R.T.
1. 1981, Hydrologic data for the Pelican River sand-plain aquifer, western Minnesota: U.S. Geological Survey Open-File Report 80-695, 86 p., 2 pls.
2. 1982, Appraisal of the Pelican River sand-plain aquifer, western Minnesota: U.S. Geological Survey Open-File Report 82-347, 44 p., 3 pls.
3. 1983, Thermal-energy storage in a deep sandstone aquifer in Minnesota: Field observations and preliminary modeling, *in* DOE Physical and Chemical Energy Storage Annual Contractors' Review Meeting, 1983, Arlington, Virginia, Proceedings: CONF-830974, Washington, D.C., prepared for the U.S. Department of Energy, Division of Energy Storage Technology, p. 246-247.
4. 1983, Thermal-energy storage in a deep sandstone aquifer in Minnesota: Field observations and preliminary modeling, *in* International Conference on Subsurface Heat Storage in Theory and Practice, Stockholm, June 6-8, 1983, Proceedings, Appendix 2: Stockholm, Swedish Council for Building Research, p. 812-816.

5. 1984, Anisotropy in the Ironton and Galesville Sandstones near a thermal-energy-storage well, St. Paul, Minnesota: Ground Water, v. 22, no. 5, p. 532-537.
6. 1984, Preliminary modeling of an Aquifer Thermal-Energy Storage system: U.S. Geological Survey Open-File Report 84-811, 47 p.
7. 1984, Thermal-energy storage in a deep sandstone aquifer in Minnesota: Field observations and thermal-energy-transport modeling [abs.]: Eos (American Geophysical Union Transactions), v. 65, no. 45, p. 883.
8. 1985, Preliminary modeling of an aquifer thermal-energy storage system, *in* Subitzky, S., ed., Selected papers in the hydrologic sciences, 1985: U.S. Geological Survey Water-Supply Paper 2270, p. 1-19.

Mills, H.H.
1980, An analysis of drumlin form in the northeastern and north-central United States: Geological Society of America Bulletin, Part II, v. 91, no. 11, p. 2214-2289 [microfiche]; Summary: Geological Society of America Bulletin, Part I, v. 91, no. 11, p. 637-639.

Mills, S.J.
1983, The relationship between the basal zone and cloud zone Cu-Ni sulfides, Minnamax deposit, Duluth Complex, Minnesota [abs.], *in* Institute on Lake Superior Geology, 29th Annual Meeting, Houghton, Michigan, 1983, Proceedings: Houghton, organized by the Dept. of Geology and Geological Engineering in cooperation with the Div. of Education and Public Services, Michigan Technological University, p. 30.

Milske, J.A. See also Alexander, E.C., Jr., 12; Lively, R.S., 8; Mohring, E.H., 2.
1. 1982, Stratigraphy and petrology of clastic sediments in Mystery Cave, Fillmore County, Minnesota: Unpublished M.S. thesis, University of Minnesota, Minneapolis, 111 p.
2. (Alexander, E.C., Jr.; Lively, R.S.). 1981, Late Pleistocene cave deposits in southeastern Minnesota [abs.]: Minnesota Academy of Science, 49th Annual Spring Meeting, Minneapolis, Minnesota, 1981, Abstracts of Papers, p. 12.
3. (Alexander, E.C., Jr.; Lively, R.S.). 1983, A U/Th disequilibrium dated Pleistocene sedimentary record in Mystery Cave, Minnesota [abs.]: Eos (American Geophysical Union Transactions), v. 64, no. 18, p. 334.
4. (Alexander, E.C., Jr.; Lively, R.S.). 1983 [1984], Clastic sediments in Mystery Cave, southeastern Minnesota: NSS [National Speleological Society] Bulletin, v. 45, no. 3, p. 55-75.

Minnesota Department of Natural Resources, Division of Minerals, Peat Inventory Project.
1. 1982, Inventory of peat resources, Aitkin County, Minnesota: 86 p., 1 pl.; Appendix D, 56 p.
2. 1984, Inventory of peat resources—an area of Beltrami and Lake of the Woods counties, Minnesota: 64 p., 1 pl.

Minnesota Department of Natural Resources, Division of Waters.
1976, Ground water resources in Minnesota—a review of general availability, quality, distribution, use and problems: Bulletin 27, 62 p.

Minnesota, University.
1980, Concept design of Aquifer Thermal Energy Storage system, University of Minnesota, St. Paul Campus, *in* Mechanical, Magnetic, and Underground Energy Storage Annual Contractors'Review, Arlington, Virginia, 1980, Proceedings: Conf-801128, Washington, D.C., prepared for U.S. Department of Energy, p. 18-26.

Minnesota, University, Underground Space Center.
1982, Minneapolis geology/hydrogeology, chap. 3 *of* Planning for underground space: A case study for Minneapolis, Minnesota: Minneapolis, p. 25-69.

Minnesota Volunteer.
1983, Iron Range crocodile: V. 46, no. 271, p. 53-59.

Mishra, C.P.
(Sheng-Fogg, C.D.; Christiansen, R.G.; Lemons, J.F., Jr.; De Giacomo, D.L.). 1985, Cobalt availability—market economy countries; a minerals availability program appraisal: U.S. Bureau of Mines Information Circular 9012, 33 p.

Mitchell, B.J.
(Blair, S.C.). 1983, Field characterization of the injection and withdrawal fluids at an ATES site [abs.]: Eos (American Geophysical Union Transactions), v. 64, no. 45, p. 704.

Moecher, D.P.
1. 1984, Determination of late Archean granulite facies metamorphic conditions, Granite Falls, Minnesota: Unpublished M.S. thesis, University of Wisconsin, Madison.
2. (Medaris, L.G., Jr.). 1984, Comparative geothermobarometry and determination of late Archean metamorphic conditions at Granite Falls, SW Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 16, no. 6, p. 598.
3. (Medaris, L.G., Jr.). 1984, Late Archean metamorphic conditions at Granite Falls, Minnesota [abs.], *in* Institute on Lake Superior Geology, 30th Annual Meeting, Wausau, Wisconsin, 1984, Abstracts: Sponsored by the Geology Dept., University of Wisconsin-Wausau, p. 34.

Mogessie, Aberra.
1980 [1982], Petrology of sulfide mineralization in the Tuscarora intrusion, Duluth Complex, northeastern Minnesota, U.S.A.: SINET, Ethiopian Journal of Science, v. 3, no. 2, p. 111-133.

Mohring, E.H.
1. 1983, A study of subsurface water flow in a southeastern Minnesota karst drainage basin: Unpublished M.S. thesis, University of Minnesota, Minneapolis, 99 p.
2. (Book, P.R.; Alexander, E.C., Jr.; Milske, J.A.). 1983, Quantitative tracing of groundwater flow through fractured karst aquifers [abs.]: Eos (American Geophysical Union Transactions), v. 64, no. 18, p. 230.

Mollard, J.D.
1983, The origin of reticulate and orbicular patterns on the floor of the Lake Agassiz basin, *in* Teller, J.T., and Clayton, Lee, eds., Glacial Lake Agassiz: Geological Association of Canada Special Paper 26, p. 355-374.

Molling, P.A. See also Grant, N.K.
1979, Petrology and mineralogy of a drill core (DDH 295) from the Partridge River Troctolite of the Duluth Complex, Minnesota: Unpublished M.S. thesis, Miami University, Oxford, Ohio, 150 p.

Mooers, H.D. See Severson, L.S.

Mooney, H.M. See also Greenhalgh, S.A., 2.
1. 1981, Minnesota earthquakes—1979: Seismological Society of America, Eastern Section, Earthquake Notes, v. 52, no. 2, p. 57-58.
2. (Morey, G.B.). 1981, Seismic history of Minnesota and its geological significance: Seismological Society of America Bulletin, v. 71, no. 1, p. 199-210.

Moorbath, Stephen. See Michard-Vitrac, Annie.

Moran, S.R. See also Clayton, Lee, 5; Fenton, M.M., 1-2.

1. (Clayton, Lee). 1972, Lake Agassiz and the history of the Des Moines Lobe [abs.]: Geological Society of America Abstracts with Programs, v. 4, no. 7, p. 602.
2. (and others). 1976, Quaternary stratigraphy and history of North Dakota, southern Manitoba, and northwestern Minnesota, *in* Mahaney, W.C., ed., Quaternary stratigraphy of North America: Stroudsburg, Pa., Dowden, Hutchinson & Ross, p. 133-158.

Morey, G.B. See also Bergstrom, D.J.; Cooper, R.W., 2-3; Dacre, G.J., 2; Hatch, J.R., 1-2; Heutmaker, J.F.; Labotka, T.C., 3-4; Lively, R.S., 9-10; Lucente, M.E.; McSwiggen, P.L., 3; Mooney, H.M., 2; Mudrey, M.G., Jr., 3; Ojakangas, R.W., 9-11; Sims, P.K., 7; Southwick, D.L., 8; Wahl, T.E.; Walton, Matt, 13; Weiblen, P.W., 7.

1. 1981, Geologic map of Minnesota, bedrock outcrops: Minnesota Geological Survey State Map Series S-10, scale 1:3,168,000.
2. 1981, Geologic terranes of Minnesota and their uranium potential: Minnesota Geological Survey Information Circular 19, 40 p.
3. 1981, Lineament map, Two Harbors sheet, Minnesota: Minnesota Geological Survey Miscellaneous Map Series M-45, scale 1:250,000.
4. 1982, Bedrock geology of Minnesota: Rocks and Minerals, v. 57, no. 3, p. 109-113.
5. 1982, Evaluation of catlinite resources, Pipestone National Monument [abs.], *in* Willson, G.D., and Larson, G.L., compilers, Abstracts of Park research funded by the Midwest Regional Office, National Park Service: 1973-1982: Omaha, U.S. National Park Service, Midwest Regional Office Research/Resources Management Report MWR-1, p. 77-78.
6. 1982, Manganese on the Cuyuna range, Minnesota, *in* Reid, K.J., compiler, An evaluation of the Cuyuna range as a national strategic mineral resource: Minneapolis, University of Minnesota, Mineral Resources Research Center, p. 68-91.
7. 1983, Animikie basin, Lake Superior region, U.S.A., *in* Trendall, A.F., and Morris, R.C., eds., Iron-formation facts and problems: Amsterdam, Elsevier, p. 13-67.
8. 1983, Evaluation of catlinite resources, Pipestone National Monument, Minnesota: Omaha, U.S. National Park Service, Midwest Regional Office Research/Resources Management Report MWR-4, 48 p.
9. 1983, Lower Proterozoic stratified rocks and the Penokean orogeny in east-central Minnesota, *in* Medaris, L.G., Jr., ed., Early Proterozoic geology of the Lake Superior region: Geological Society of America Memoir 160, p. 97-112.
10. 1983, Oil in the North Star State: Minnesota Volunteer, v. 46, no. 271, p. 2-9.
11. 1984, The search for oil and gas in Minnesota: Minnesota Geological Survey Educational Series 6, 30 p.
12. 1984, Sedimentology of the Sioux Quartzite in the Fulda basin, Pipestone County, southwestern Minnesota, *in* Southwick, D.L., ed., Shorter contributions to the geology of the Sioux Quartzite (early Proterozoic), southwestern Minnesota: Minnesota Geological Survey Report of Investigations 32, p. 59-74.
13. (Balaban, N.H.; Swanson, Lynn, compilers). 1981, Bibliography of Minnesota geology, 1951-1980: Minnesota Geological Survey Bulletin 46, 143 p.
14. (Goldich, S.S.). 1977, Correlation of Precambrian rocks in the Lake Superior district, U.S.A. [abs.]: Geological Society of America Abstracts with Programs, v. 9, no. 7, p. 1103.
15. (Green, J.C.). 1982, Status of the Keweenawan as a stratigraphic unit in the Lake Superior region, *in* Wold, R.J., and Hinze, W.J., eds., Geology and tectonics of the Lake Superior Basin: Geological Society of America Memoir 156, p. 15-25.
16. (Hanson, G.N., editors). 1980, Selected studies of Archean gneisses and lower Proterozoic rocks, southern Canadian Shield: Geological Society of America Special Paper 182, 175 p.

17. (Heutmaker, J.F.). 1982, Lineament map, International Falls sheet, Minnesota: Minnesota Geological Survey Miscellaneous Map Series M-47, scale 1:250,000.
18. (McSwiggen, P.L.; Kuhns, M.J.P.; Jirsa, M.A.). 1985, Analytical results of the Public Geologic Sample Program, 1983-1985 biennium: Minnesota Geological Survey Information Circular 22, 56 p.
19. (Ojakangas, R.W.). 1982, Keweenawan sedimentary rocks of eastern Minnesota and northwestern Wisconsin, *in* Wold, R.J., and Hinze, W.J., eds., Geology and tectonics of the Lake Superior Basin: Geological Society of America Memoir 156, p. 135-146.
20. (Olsen, B.M.; Southwick, D.L.). 1981, Geologic map of Minnesota, east-central Minnesota (includes Duluth, Stillwater, and parts of St. Cloud and Brainerd geologic map sheets), bedrock geology: Minnesota Geological Survey, scale 1:250,000.
21. (Sims, P.K.; Cannon, W.F.; Mudrey, M.G., Jr.; Southwick, D.L.). 1982, Geologic map of the Lake Superior region: Minnesota, Wisconsin, and northern Michigan: Minnesota Geological Survey State Map Series S-13, scale 1:1,000,000, Principal sources of geologic data, 4 p. [This map is included as Plate 1 in Battelle Project Management Division, Office of Crystalline Repository Development, and in Harrison, W., 1-2.]
22. (Southwick, D.L.). 1984, Early Proterozoic geology of east-central Minnesota—a review and reappraisal [abs.], *in* Institute on Lake Superior Geology, 30th Annual Meeting, Wausau, Wisconsin, 1984, Abstracts: Sponsored by the Geology Dept., University of Wisconsin-Wausau, p. 35-36.
23. (Southwick, D.L.; Lively, R.S.; Beltrame, R.J.). 1982, National Uranium Resource Evaluation, St. Cloud Quadrangle, Minnesota: U.S. Department of Energy Open-File Report PGJ/F-48(82), 21 p., 2 fiche, 17 pls.
24. (Southwick, D.L.; Weiblen, P.W.). 1983, The history of Precambrian studies in Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 15, no. 6, p. 647.
25. (Weiblen, P.W.; Papike, J.J.; Anderson, D.H.). 1981, Geologic map of the Long Island Lake quadrangle, Cook County, Minnesota: Minnesota Geological Survey Miscellaneous Map Series M-46, scale 1:24,000.

Morgan, A.V.
(Morgan, Anne; Ashworth, A.C.; Matthews, J.V., Jr.). 1983, Late Wisconsin fossil beetles in North America, chap. 17 *of* Porter, S.C., ed., The late Pleistocene, v. 1 *of* Wright, H.E., Jr., Late-Quaternary environments of the United States: Minneapolis, University of Minnesota Press, p. 354-363.

Morgan, Anne. See Morgan, A.V.

Morrison, D.A.
1. (Ashwal, L.D.; Phinney, W.C.; Shih, C.-Y.; Wooden, J.L.). 1983, Pre-Keweenawan anorthosite inclusions in the Keweenawan Beaver Bay and Duluth Complexes, northeastern Minnesota: Geological Society of America Bulletin, v. 94, no. 2, p. 206-221.
2. (Phinney, W.C.; Ashwal, L.D.; Wooden, J.L.; Shih, C.-Y.). 1981, Petrogenesis at anorthosite inclusions in Keweenawan rocks of northern Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 13, no. 6, p. 310.

Mosher, C.C. See also Greenhalgh, S.A., 2.

Mossler, J.H. See also Olsen, B.M., 7-8; Southwick, D.L., 9.
1. 1983, Bedrock topography and isopachs of Cretaceous and Quaternary strata, east-central and southeastern Minnesota: Minnesota Geological Survey Miscellaneous Map Series M-52, scale 1:500,000, 2 pls.

2. 1983, Paleozoic lithostratigraphy of southeastern Minnesota: Minnesota Geological Survey Miscellaneous Map Series M-51, scale 1:500,000, 8 pls.
3. 1985, Sedimentology of the Middle Ordovician Platteville Formation, southeastern Minnesota: Minnesota Geological Survey Report of Investigations 33, 27 p.
4. (Book, P.R.). 1984, Bedrock geology, pl. 2 *of* Balaban, N.H., and Olsen, B.M., eds., Geologic atlas of Winona County, Minnesota: Minnesota Geological Survey County Atlas Series C-2, scale 1:100,000.

Motamedi, Shoaullah.
1984, The Keweenawan lavas in the city of Duluth: Unpublished M.S. thesis, University of Minnesota, Duluth, 140 p., 1 pl.

Mudrey, M.G., Jr. See also Craddock, Campbell; Green, J.C., 9; Morey, G.B., 21.
1. 1973, Structure and petrology of the sill on Pigeon Point, Cook County, Minnesota: Unpublished Ph.D. dissertation, University of Minnesota, Minneapolis, 310 p.
2. (Kalliokoski, J.). 1984, Metallogeny of the Lake Superior Precambrian [abs.], *in* Institute on Lake Superior Geology, 30th Annual Meeting, Wausau, Wisconsin, 1984, Abstracts: Sponsored by the Geology Dept., University of Wisconsin-Wausau, p. 37-39.
3. (Morey, G.B.). 1982, Non-ferrous base metal deposits and metallogeny of lower Proterozoic rocks in the Lake Superior region, U.S.A. [abs.]: Geological Association of Canada-Mineralogical Association of Canada Program with Abstracts, v. 7, p. 68.

Muehlberger, W.R. See also Bayley, R.W.
(Denison, R.E.; Lidiak, E.G.). 1967, Basement rocks in continental interior of United States: American Association of Petroleum Geologists Bulletin, v. 51, no. 12, p. 2351-2380.

Mullenmeister, E.E. See also Holst, T.B., 14.
1. (Holst, T.B.; Green, J.C.; Weiblen, P.W.). 1985, Structural analysis of the northeastern Mesabi range and adjacent basal Duluth Complex [abs.], *in* Institute on Lake Superior Geology, 31st Annual Meeting, Kenora, Ontario, 1985, Technical Sessions and Abstracts: Organized by the Resident Geologist Office, Kenora, and the Ontario Geological Survey, p. 64-65.
2. (Miller, J.D., Jr.). 1982, Structural analysis of the Duluth Complex, Forest Center NW quadrangle, Minnesota [abs.], *in* Institute on Lake Superior Geology, 28th Annual Meeting, International Falls, Minnesota, 1982, Proceedings: Sponsored by the Minnesota Geological Survey, p. 31-32.

Murray, H.H.
1982, Clay resources of the Midwest states: Mining Engineering, v. 34, no. 1, p. 68-71.

Murthy, V. Rama. See Beck, Warren, 1-3; Dosso, Laure, 3-4; Jahn, Bor-ming, 2.

Myers, P.E. See Green, J.C., 9.

Myette, C.F. See also Soukup, W.G.
1. 1982, Baseline water-quality data for sand-plain aquifers in Hubbard, Morrison, Otter Tail, and Wadena Counties, Minnesota: U.S. Geological Survey Open-File Report 82-909, 112 p.
2. 1984, Appraisal of water from surficial-outwash aquifers in Todd County and parts of Cass and Morrison Counties, central Minnesota: U.S. Geological Survey Water-Resources Investigations Report 83-4156, 43 p., 6 pls.
3. 1984, Ground-water-quality appraisal of sand-plain aquifers in Hubbard, Morrison, Otter Tail, and Wadena Counties, Minnesota: U.S. Geological Survey Water-Resources Investigations Report 84-4080, 49 p.

Nabelek, P.I. See McCall, G.W.; Sheehan, T.J.

Nairn, A.E.M. See Cavanaugh, M.D., 3.

Naldrett, A.J. See also Duke, J.M.
1. 1981, Nickel sulfide deposits: Classification, composition, and genesis, *in* Skinner, B.J., ed., Economic Geology—seventy-fifth anniversary volume, 1905-1980: Economic Geology Publishing Company, p. 628-685.
2. (Macdonald, A.J.). 1980, Tectonic settings of Ni-Cu sulphide ores: Their importance in genesis and exploration, *in* Strangway, D.W., ed., The continental crust and its mineral deposits: Geological Association of Canada Special Paper 20, p. 633-657.

Nater, Edward.
(Bickel, K.L.; Borovsky, J.P.). 1982, Characterization of glacial overburden waste and red ore tailings of the Mesabi Iron Range, Minnesota: Symposium on Surface Mining, Hydrology, Sedimentology, and Reclamation, Lexington, Kentucky, 1982, Proceedings, p. 27-38.

Nawaz, Rab.
(Malone, J.F.; Din, V.K.). 1985, Pseudomesolite is mesolite: Mineralogical Magazine, v. 49, pt. 1, p. 103-105.

Nelson, C.R.
1984, Geotechnical design of the University of Minnesota CME Building: Underground Space, v. 8, no. 2, p. 77-82.

Nelson, Susan. See Sterling, R.L.

Neumann, S.N.
1985, Lower and Middle Precambrian geology of the Denham area, northern Pine County, east-central Minnesota: Unpublished M.S. thesis, University of Minnesota, Duluth, 180 p., 1 pl.

Nevanlinna, H. See Pesonen, L.J.

Nicol, D.L. See also Ripley, E.M., 7.
1980, The origin and evolution of sulfur in an Archean volcano-sedimentary basin—Deer Lake area, Minnesota: Unpublished M.A. thesis, Indiana University, Bloomington, 53 p.

Nicols, D.S.
(Boelter, D.H.). 1984, Fiber size distribution, bulk density, and ash content of peats in Minnesota, Wisconsin, and Michigan: Soil Science Society of America Journal, v. 48, no. 6, p. 1320-1328.

Nordstrand, Earl. See Chandler, V.W., 18.

Norton, A.R.
1. 1982, Quaternary geology of the Itasca-St. Croix Moraine interlobate area, north-central Minnesota: Unpublished M.S. thesis, University of Minnesota, Duluth, 143 p., 3 pls.
2. 1983, Supraglacial and proglacial sedimentation associated with the Itasca and St. Croix moraine interlobate area, north-central Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 15, no. 4, p. 251.

Nuttli, O.W. See Brill, K.G., Jr.

Oak Ridge Gaseous Diffusion Plant (ORGDP).

1. 1981, Hydrogeochemical and stream sediment reconnaissance basic data for Fargo NTMS Quadrangle, North Dakota; Minnesota: U.S. Department of Energy Open-File Report GJBX-167(81), 132 p., 8 pls., 2 fiche.
2. 1981, Hydrogeochemical and stream sediment reconnaissance basic data for Grand Forks NTMS Quadrangle, North Dakota; Minnesota: U.S. Department of Energy Open-File Report GJBX-169(81), 130 p., 8 pls., 2 fiche.
3. 1981, Hydrogeochemical and stream sediment reconnaissance basic data for Milbank NTMS Quadrangle, Minnesota; North Dakota; South Dakota: U.S. Department of Energy Open-File Report GJBX-271(81), 114 p., 9 pls., 2 fiche.
4. 1981, Hydrogeochemical and stream sediment reconnaissance basic data for Thief River Falls NTMS Quadrangle, Minnesota; North Dakota: U.S. Department of Energy Open-File Report GJBX-168(81), 132 p., 8 pls., 2 fiche.
5. 1981, Hydrogeochemical and stream sediment reconnaissance basic data for Watertown NTMS Quadrangle, South Dakota; Minnesota: U.S. Department of Energy Open-File Report GJBX-219(81), 150 p., 9 pls., 2 fiche.

O'Brien, H.E.

1982, Petrology, geochemistry and magnetics of a lamprophyre dike intruded into the Saganaga tonalite batholith, northeastern Minnesota: Unpublished senior thesis, University of Minnesota, Department of Geology and Geophysics, Minneapolis, 59 p.

O'Brien, P.N.S.

1968, Lake Superior crustal structure—a reinterpretation of the 1963 seismic experiment: Journal of Geophysical Research, v. 73, no. 8, p. 2669-2689.

Oestrike, Richard.

(Kirkpatrick, R.J.). 1983, The Endion sill, Duluth, Minnesota: Evidence for composite intrusion [abs.]: Geological Society of America Abstracts with Programs, v. 15, no. 4, p. 266.

Office of Crystalline Repository Development. See Battelle Project Management Division, Office of Crystalline Repository Development.

O'Hara, N.W. See also Chandler, V.W., 15; Hinze, W.J.

1. (compiler). 1981, Great Lakes region gravity and magnetic map sequence—Great Lakes area: Geological Society of America Map and Chart Series MC-41, scale 1:2,500,000, 3 pls., explanatory text.
2. (compiler). 1981, Great Lakes region gravity and magnetic map sequence—Lake Superior area: Geological Society of America Map and Chart Series MC-37, scale 1:750,000, 2 pls., explanatory text.

Ojakangas, R.W. See also Morey, G.B., 19.

1. 1982, Archean sedimentation [abs.], *in* Goldich, S.S., chairperson, 1982 Archean geochemistry field conference; Seminoe Mountains and Hartville Uplift, Wyoming; Part II, Program: I.G.C.P., Archean Geochemistry Project, U.S. Working Group, Colorado School of Mines, Geological Survey of Wyoming, U.S. Geological Survey, p. 14.
2. 1982, Archean sedimentation, Superior and Slave provinces, Canadian Shield [abs.]: Geological Association of Canada-Mineralogical Association of Canada Program with Abstracts, v. 7, p. 71.

3. 1982, Tidal deposits in the Early Proterozoic basin of the Lake Superior region—the Palms and Pokegama formation: Evidence for subtidal-shelf deposition of Superior-type banded iron-formation [abs.], *in* Institute on Lake Superior Geology, 28th Annual Meeting, International Falls, Minnesota, 1982, Proceedings: Sponsored by the Minnesota Geological Survey, p. 34-35.
4. 1983, Tidal deposits in the early Proterozic basin of the Lake Superior region—the Palms and the Pokegama Formations: Evidence for subtidal-shelf deposition of Superior-type banded iron-formation, *in* Medaris, L.G., Jr., ed., Early Proterozoic geology of the Lake Superior region: Geological Society of America Memoir 160, p. 49-66.
5. 1984, Deposition of Lower Proterozoic banded iron-formation on a tidally-influenced shelf, Lake Superior region, USA [abs.]: International Geological Congress, 27th, Moscow, 1984, Abstracts, v. 2, p. 365.
6. 1985, Review of Archean clastic sedimentation, Canadian Shield: Major felsic volcanic contributions to turbidite and alluvial fan-fluvial facies associations, *in* Ayres, L.D., and others, eds., Evolution of Archean supracrustal sequences: Geological Association of Canada Special Paper 28, p. 23-47.
7. (Day, W.C.; Southwick, D.L.). 1982, Archean geology of the International Falls-Kabetogama area, Minnesota, Field Trip 2: Institute on Lake Superior Geology, 28th Annual Meeting, International Falls, Minnesota, 1982, Proceedings: Sponsored by the Minnesota Geological Survey, p. 89-139.
8. (Matsch, C.L.). 1982, Minnesota's geology: Minneapolis, University of Minnesota Press, 255 p.
9. (Morey, G.B.). 1982, Keweenawan pre-volcanic quartz sandstones and related rocks of the Lake Superior region, *in* Wold, R.J., and Hinze, W.J., eds., Geology and tectonics of the Lake Superior Basin: Geological Society of America Memoir 156, p. 85-96.
10. (Morey, G.B.). 1982, Keweenawan sedimentary rocks of the Lake Superior region: A summary, *in* Wold, R.J., and Hinze, W.J., eds., Geology and tectonics of the Lake Superior Basin: Geological Society of America Memoir 156, p. 157-164.
11. (Morey, G.B.). 1982, Proterozoic sedimentary rocks [abs.], *in* Wold, R.J., and Hinze, W.J., eds., Geology and tectonics of the Lake Superior Basin: Geological Society of America Memoir 156, p. 83-84.
12. (Olson, J.M.). 1982, Sedimentation and petrology of Archean feldspathic quartzite and conglomerate (Seine Series equivalent), Rainy Lake, Minnesota [abs.], *in* Institute on Lake Superior Geology, 28th Annual Meeting, International Falls, Minnesota, 1982, Proceedings: Sponsored by the Minnesota Geological Survey, p. 36-37.
13. (Weber, R.E.). 1984, Petrography and paleocurrents of the lower Proterozoic Sioux Quartzite, Minnesota and South Dakota, *in* Southwick, D.L., ed., Shorter contributions to the geology of the Sioux Quartzite (Early Proterozoic), southwestern Minnesota: Minnesota Geological Survey Report of Investigations 32, p. 1-15.

Oliver, J.E. See Gibbs, A.K., 1-2.

Olsen, B.M. See also Balaban, N.H., 2; Little, R.L., 1-2; Morey, G.B., 20.
1. 1982, Bedrock geology, pl. 5 *of* Balaban, N.H., and McSwiggen, P.L., eds., Geologic atlas, Scott County, Minnesota: Minnesota Geological Survey County Atlas Series C-1, scale 1:100,000.
2. 1982, Bedrock topography, *from* Bedrock topography, pl. 4 *of* Balaban, N.H., and McSwiggen, P.L., eds., Geologic atlas, Scott County, Minnesota: Minnesota Geological Survey County Atlas Series C-1, scale 1:100,000.
3. 1982, Thickness of unconsolidated surficial materials, *from* Surficial sections and thickness, pl. 3 *of* Balaban, N.H., and McSwiggen, P.L., eds., Geologic atlas, Scott County, Minnesota: Minnesota Geological Survey County Atlas Series C-1, scale 1:100,000.
4. 1984, Data base map, pl. 1 *of* Balaban, N.H., and Olsen, B.M., eds., Geologic atlas of Winona County, Minnesota: Minnesota Geological Survey County Atlas Series C-2, scale 1:100,000.

5. 1984, Geology and well construction, pl. 7 *of* Balaban, N.H., and Olsen, B.M., eds., Geologic atlas of Winona County, Minnesota: Minnesota Geological Survey County Atlas Series C-2, scale 1:150,000.
6. 1985, The bedrock geology of southern Minnesota and its relationship to the history of the Mississippi River valley [extended abs.], *in* Lively, R.S., coordinator, Pleistocene geology and evolution of the Upper Mississippi valley—Winona, Minnesota, August 13-16, 1985, Abstracts and field trip guide: Minnesota Geological Survey, p. 21-24.
7. (Mossler, J.H.). 1982, Geologic map of Minnesota, bedrock topography: Minnesota Geological Survey State Map Series S-15, scale 1:1,000,000.
8. (Mossler, J.H.). 1982, Geologic map of Minnesota, depth to bedrock: Minnesota Geological Survey State Map Series S-14, scale 1:1,000,000.

Olsen, D.K.
1982, Tower Soudan iron mine tour: Rocks and Minerals, v. 57, no. 3, p. 93-95.

Olson, J.M. See Ojakangas, R.W., 12.

O'Nions, R.K. See Miller, R.G.

Osterholm, M.T. See Singer, R.D.

Ostertag, Rolf. See Jessberger, E.K, 2.

Packer, D.J. See Vick, T.D., 1.

Palen, Barbara. See Kanivetsky, Roman, 7.

Palmer, T.J.
1978, Burrows at certain omission surfaces in the Middle Ordovician of the Upper Mississippi Valley: Journal of Paleontology, v. 52, no. 1, p. 109-117.

Papike, J.J. See Labotka, T.C., 3-5; Morey, G.B., 25; Vaniman, D.T.; White, C.E., 2.

Parham, W.E.
(Phinney, W.C.; Grant, J.A.). [1966?] A teacher's guide for geologic field investigations in the Minnesota River Valley, *in* Phinney, W.C., ed., A teacher's guide for geologic field investigations in Minnesota: Minnesota Department of Education with the cooperation of the Minnesota Geological Survey, 24 p.

Parker, P.D. See Watowich, S.N., 1-2.

Parrish, I.S. See Routledge, R.E.

Pasteris, J.D.
1. 1982, Further observations on some Cu-Fe-Ni sulfide deposits of the Duluth Complex, Minnesota [abs.]: Geological Association of Canada-Mineralogical Association of Canada Program with Abstracts, v. 7, p. 72.
2. 1983, Fe-Ti oxides in and the significance of fO_2 differences within the Duluth Complex [abs.]: Geological Association of Canada-Mineralogical Association of Canada Program with Abstracts, v. 8, p. A53.
3. 1984, Further interpretation of the Cu-Fe-Ni sulfide mineralization in the Duluth Complex, northeastern Minnesota: Canadian Mineralogist, v. 22, pt. 1, p. 39-53.
4. 1985, Relationships between temperature and oxygen fugacity among Fe-Ti oxides in two regions of the Duluth Complex: Canadian Mineralogist, v. 23, pt. 1, p. 111-127.

Paulson, R.O. See Giencke, A.G.

Payne, Barton. See Gibbs, A.K., 1-2.

Pearson, W.N. See Franklin, J.M.

Pereira, W.E. See Rostad, C.E.

Perkins, D., III. See also Leier, P.J.; Robinson, S.E.
(Chipera, S.J.). 1985, Garnet-orthopyroxene-plagioclase-quartz barometry: Refinement and application to the English River subprovince and the Minnesota River Valley: Contributions to Mineralogy and Petrology, v. 89, no. 1, p. 69-80.

Perkins, D.M. See Algermissen, S.T.

Perry, E.C., Jr. See also Malander, M.W., 2.
1983, Part C. Oxygen isotope geochemistry of iron-formation, *in* Trendall, A.F., and Morris, R.C., eds., Iron-formation facts and problems: Amsterdam, Elsevier, p. 359-371.

Person, R.A.
1977, Winter thomsonite: Rock & Gem, v. 7, no. 1, p. 36-40.

Pesonen, L.J. See also Green, J.C., 9; Halls, H.C., 5.
(Nevanlinna, H.). 1981, Late Precambrian Keweenawan asymmetric reversals: Nature, v. 294, no. 5840, p. 436-439.

Peterman, Z.E. See Harrison, J.E.; Sims, P.K., 8-9.

Petrie, G.M. See Blair, S.C., 6.

Pfannkuch, H.O. See Blomquist, R.V.; Erickson, D.R., 2; Siegel, D.I., 12; Trotman, K.

Phinney, W.C. See also Morrison, D.A., 1-2; Parham, W.E.
(editor). [1966?] A teacher's guide for geologic field investigations in Minnesota: Minnesota Department of Education with the cooperation of the Minnesota Geological Survey, 8 sections in a three-ring binder, variously paged.

Pierson, W.R. See also Smithson, S.B.
1. 1984, A geophysical study of the contact between the greenstone-granite terrain and the gneiss terrain in central Minnesota: Unpublished M.S. thesis, University of Wyoming, Laramie, 84 p., 3 pls.
2. (Smithson, S.B.). 1984, Geophysical study of Archean structure along the COCORP seismic lines in Minnesota [abs.]: Eos (American Geophysical Union Transactions), v. 65, no. 16, p. 278.

Pinson, W.H.
(Ahrens, L.H.; Franck, M.L.). 1953, The abundances of Li, Sc, Sr, Ba and Zr in chondrites and some ultramafic rocks: Geochimica et Cosmochimica Acta, v. 4, no. 5, p. 251-260.

Poetz, J.A. See Frey, F.A.

Poppe, J.R. See also Witzke, B.J., 5.
1981, Cretaceous coccolith biostratigraphy, Lincoln County, southwestern Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 13, no. 6, p. 313.

Porter, S.C.
(editor). 1983, The late Pleistocene, v. 1 *of* Wright, H.E., Jr., ed., Late-Quaternary environments of the United States: Minneapolis, University of Minnesota Press, 480 p.

Poss, J.R.
1982, Lake Superior iron and copper ranges: World Mining, v. 35, no. 4, p. 68-70.

Poulsen, K.H. See Borradaile, G.J.

Pratt, W.P.
(editor). 1985, The Midcontinent Strategic and Critical Minerals Project—objectives and status, October 1985: U.S. Geological Survey Open-File Report 85-597, 16 p.

Prugger, A.F.
(Woods, D.V.). 1984, The pattern of anomalous geomagnetic variation fields over the midcontinent gravity high: Journal of Geophysical Research, v. 89, no. B9, p. 7773-7782.

Purucker, Michael.
1983, Time of formation of soft ore on the Gunflint and Mesabi Ranges (Ontario, Canada and Minnesota, U.S.A.): Economic Geology, v. 78, no. 3, p. 502-506.

Radbruch-Hall, D.H.
(and others). 1982, Landslide overview map of the conterminous United States: U.S. Geological Survey Professional Paper 1183, 25 p, 1 pl., scale 1:7,500,000.

Rajaram, V. See also Hoagberg, R.K., 2.
(Hoagberg, R.K.). 1984, Inventory of aggregates in an expanding urban area/L'inventaire des resources en granulats dans une region urbaine en voie d'expansion: International Association of Engineering Geology Bulletin 29, p. 315-319.

Rao, B.V. See also Ripley, E.M., 8.
1. 1981, Petrogenesis of sulfides in the Dunka Road Cu-Ni deposit, Duluth Complex, Minnesota, with special reference to the role of contamination by country rock: Unpublished Ph.D. dissertation, Indiana University, Bloomington, 372 p.
2. 1981, Petrogenesis of sulfides in the Dunka Road Cu-Ni deposit, Duluth Complex, Minnesota, with special reference to the role of contamination by country rock [abs., Indiana University Ph.D. dissertation]: Dissertation Abstracts International, 1982, v. 42, no. 7, p. 2748B.
3. (Ripley, E.M.). 1980, Bulk rock and mineral chemistry as an aid in evaluating the role of country rock assimilation in sulfide formation, Dunka Road Cu-Ni deposit, Duluth Complex, Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 12, no. 7, p. 506.
4. (Ripley, E.M.). 1983, Petrochemical studies of the Dunka Road Cu-Ni deposit, Duluth Complex, Minnesota: Economic Geology, v. 78, no. 6, p. 1222-1238.

Rapp, G.R., Jr.
(Henrickson, Eiler; Miller, Michael; Aschenbrenner, Stanley). 1980, Trace-element fingerprinting as a guide to the geographic sources of native copper: Journal of Metals, v. 32, no. 1, p. 35-45.

Ratner, David.
(Rohr, Bonnie). 1981, Erosional features of the Cannon River Wilderness Park [abs.]: Geological Society of America Abstracts with Programs, v. 13, no. 6, p. 313-314.

Ravn, R.L. See Witzke, B.J., 5.

Readdy, L.A. See Delaney, H.J.

Reagor, B.G. See Stover, C.W., 1-2.

Reed, M.J.
(editor). 1983, Assessment of low-temperature geothermal resources of the United States—1982: U.S. Geological Survey Circular 892, 73 p.

Reid, J.R., Jr.
1. 1984, Shoreline erosion processes, Orwell Lake, Minnesota: U.S. Army, Cold Regions Research and Engineering Laboratory Report 84-32, 76 p.
2. 1985, Bank-erosion processes in a cool-temperature environment, Orwell Lake, Minnesota: Geological Society of America Bulletin, v. 96, no. 6, p. 781-792.

Rice, D.D.
(Shurr, G.W.). 1983, Patterns of sedimentation and paleogeography across the western interior seaway during time of deposition of Upper Cretaceous Eagle Sandstone and equivalent rocks, northern Great Plains, *in* Reynolds, M.W., and Dolly, E.D., eds., Mesozoic paleogeography of west-central United States—Rocky Mountain Paleogeography Symposium 2: Denver, Society of Economic Paleontologists and Mineralogists, Rocky Mountain Section, p. 337-358.

Rice, W.F.
1. 1985, Common fossils of the North Country region: Portland, Ore., North Country Region of the National Speleological Society, NCR News, v. 6, no. 1, p. 6-7.
2. 1985, The systematics and biostratigraphy of the Brachiopoda of the Decorah Shale at St. Paul, Minnesota: Unpublished M.S. thesis, University of Minnesota, Minneapolis, 141 p.

Ripley, E.M. See also Rao, B.V., 3-4; Ryan, R.M., 2.
1. 1981, Sulfide mineralogy and sulfur isotope geochemistry of layered sills in the Deer Lake Complex, Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 13, no. 7, p. 538-539.
2. 1981, Sulfur isotope studies of the Dunka Road Cu-Ni deposit, Duluth Complex, Minnesota: Economic Geology, v. 76, no. 3, p. 610-620.
3. 1983, Sulfide mineralogy and sulfur isotope geochemistry of layered sills in the Deer Lake Complex, Minnesota: Mineralium Deposita, v. 18, no. 1, p. 3-15.
4. (Andrews, M.S.). 1985, Devolatilization equilibria in the genesis of the Dunka Road Cu-Ni deposit, Duluth Complex, Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 17, no. 7, p. 700.
5. (Grant, N.K.; Chalokwu, C.I.). 1984, Isotopic studies of the Babbitt Cu-Ni deposit, Duluth Complex, Minnesota, USA: The importance of melt-country rock interaction in sulfide genesis [abs.]: International Geological Congress, 27th, Moscow, 1984, Abstracts, v. 6, p. 275-276.
6. (al-Jassar, T.J.). 1983, Oxygen isotopic studies of the Babbitt Cu-Ni prospect, Duluth Complex, Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 15, no. 6, p. 671.
7. (Nicol, D.L.). 1981, Sulfur isotopic studies of the Archean slate and graywacke from northern Minnesota: Evidence for the existence of sulfate reducing bacteria: Geochimica et Cosmochimica Acta, v. 45, no. 6, p. 839-846.
8. (Rao, B.V.; Berkley, J.L.). 1982, Mineralogical and chemical variations within layered sills of the Deer Lake Complex, Minnesota: Contributions to Mineralogy and Petrology, v. 80, no. 3, p. 230-239.
9. (Watowich, S.N.). 1982, Sulfur isotopic studies of the Minnamax Cu-Ni deposit, Duluth Complex, Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 14, no. 7, p. 600.

Robinson, S.E.
(Stevenson, R.J.; Perkins, D., III). 1984, Geochemistry of rocks of the Lake Vermilion Formation Ely Greenstone Belt, Vermilion district, northeastern Minnesota [abs.]: Eos (American Geophysical Union Transactions), v. 65, no. 16, p. 292.

Rogers, C.L.
(Jaster, M.C.). 1962, Titanium in the United States (exclusive of Alaska and Hawaii): U.S. Geological Survey Mineral Investigations Resource Map MR-29, scale 1:3,168,000, accompanying discussion, 18 p.

Rogers, J.C. See Wunderman, R.L.

Rohr, Bonnie. See Ratner, David.

Romano, J.V.
1982, Feldspar-grain size relations in the Mazomanie and Reno Members of the Franconia Formation (Upper Cambrian), eastern Minnesota: Unpublished M.S. Plan B thesis paper, University of Minnesota, Minneapolis, 94 p.

Rongitsch, B.A. See Fax, J.G.

Ronnei, D.M.
(Watkins, I.W.; Shurr, G.W.; Anderson, G.G.). 1985, Hundred Acre pluton: Constituent of Lower Proterozoic batholith in central Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 17, no. 5, p. 324.

Rosenberry, D.O.
1985, Factors contributing to the formation of transient water-table mounds on the outflow side of a seepage lake, Williams Lake, central Minnesota: Unpublished M.S. thesis, University of Minnesota, Minneapolis, 127 p.

Ross, B.A.
1. 1985, Petrogenesis of the Bardon Peak peridotite, Duluth Complex [abs.], *in* Institute on Lake Superior Geology, 31st Annual Meeting, Kenora, Ontario, 1985, Technical Sessions and Abstracts: Organized by the Resident Geologist Office, Kenora, and the Ontario Geological Survey, p. 81-82.
2. 1985, A petrologic study of the Bardon Peak peridotite, Duluth Complex: Unpublished M.S. thesis, University of Minnesota, Minneapolis, 161 p., 1 pl.

Ross, R.J., Jr.
(and others). 1982, The Ordovician System in the United States—correlation chart and explanatory notes: International Union of Geological Sciences Publication 12, 73 p., 3 pls.

Rostad, C.E.
(Pereira, W.E.; Hult, M.F.). 1985, Partitioning studies of coal-tar constituents in a two-phase contaminated ground-water system: Chemosphere, v. 14, no. 8, p. 1023-1036.

Routledge, R.E.
(Parrish, I.S.; Leigh, O.E.). 1982, National Uranium Resource Evaluation, Ashland Quadrangle, Wisconsin, Michigan, and Minnesota: U.S. Department of Energy Open-File Report PGJ/F-84(82), 31 p., 1 fiche, 23 pls.

Ruhe, R.V.
1983, Depositional environment of late Wisconsin loess in the midcontinental United States, chap. 6 *of* Porter, S.C., ed., The late Pleistocene, v. 1 *of* Wright, H.E., Jr., ed., Late-Quaternary environments of the United States: Minneapolis, University of Minnesota Press, p. 130-137.

Ruhl, J.F. See also Adolphson, D.G., 2; Anderson, H.W., Jr.; Wolf, R.J., 2.
1. (Wolf, R.J.). 1983 [1985], Hydrogeologic and water-quality characteristics of the St. Peter aquifer, southeast Minnesota: U.S. Geological Survey Water-Resources Investigations Report 83-4200, 2 pls.
2. (Wolf, R.J.; Adolphson, D.G.). 1982 [1984], Hydrogeologic and water-quality characteristics of the Ironton-Galesville aquifer, southeast Minnesota: U.S. Geological Survey Water-Resources Investigations 82-4080, scale varies, 2 pls.
3. (Wolf, R.J.; Adolphson, D.G.). 1983 [1985], Hydrogeologic and water-quality characteristics of the Prairie du Chien-Jordan aquifer, southeast Minnesota: U.S. Geological Survey Water-Resources Investigations Report 83-4045, scale varies, 2 pls.

Rundell, P.
(Melchior, R.C.). 1981, Study of a peat deposit covered by a Lake Agassiz beach ridge, *in* Fuchsman, C.H., ed., International Peat Symposium, Bemidji, Minnesota, 1981, Proceedings, p. 583-605.

Ryan, P.J.
(Weiblen, P.W.). 1984, Pt and Ni arsenide minerals in the Duluth Complex [abs.], *in* Institute on Lake Superior Geology, 30th Annual Meeting, Wausau, Wisconsin, 1984, Abstracts: Sponsored by the Geology Dept., University of Wisconsin-Wausau, p. 58-60.

Ryan, R.M.
1. 1984, Chemical, isotopic, and petrographic study of the sulfides in the Duluth Complex Cloud Zone: Unpublished M.A. thesis, Indiana University, Bloomington, 88 p.
2. (Ripley, E.M.). 1983, Genesis of cloud zone Cu-Ni mineralization, Babbitt prospect, Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 16, no. 6, p. 676.

Saarnisto, Matti.
1975, Stratigraphical studies on the shoreline displacement of Lake Superior: Canadian Journal of Earth Sciences, v. 12, no. 2, p. 300-319.

Sabelin, Tatiana.
1. 1985, Platinum group element minerals in the Duluth Complex [abs.], *in* Institute on Lake Superior Geology, 31st Annual Meeting, Kenora, Ontario, 1985, Technical Sessions and Abstracts: Organized by the Resident Geologist Office, Kenora, and the Ontario Geological Survey, p. 83-84.
2. (Malicsi, A.S.; Iwasaki, Iwao). 1984, Beneficiation of Cuyuna ores by high gradient magnetic separation: Minneapolis, University of Minnesota, Mineral Resources Research Center, final narrative report to the Iron Range Resources and Rehabilitation Board, 148 p.

St. Ores, Jeffrey.
(Alexander, E.C., Jr.; Halsey, C.F.). 1982, Groundwater pollution prevention in southeast Minnesota's karst region: University of Minnesota, Agricultural Extension Service, Extension Bulletin 465, 19 p.

Sanger, J.E. See Gorham, Eville.

Sansome, C.J.
1. 1972, Minnesota geology: A laboratory and field manual for a first course in geology with an elaboration on the Ordovician stratigraphy in Sogn quadrangle, Goodhue County: Unpublished M.S. thesis, University of Minnesota, Minneapolis, 2 v., 575 p., 10 pls. in separate envelope.
2. 1983, Minnesota underfoot—a field guide to the state's outstanding geologic features: Bloomington, Minn., Voyageur Press, 224 p.

Sardeson, F.W.,
1. 1900, Meteorology of the Ordovician: American Geologist, v. 26, p. 388-391.
2. 1902, On the deceptive fossilization of certain pelecypod species and on the genus *Eurymya:* American Geologist, v. 30, p. 39-45.
3. 1924, Tetradium and coral evolution: Pan-American Geologist, v. 41, p. 1-16.
4. 1926, Four-stage glacial epoch: Pan-American Geologist, v. 46, p. 175-188.
5. 1927, Nomenclature of glacial formations: Pan-American Geologist, v. 48, p. 287-298.
6. 1927, Oldest Pleistocene till: Pan-American Geologist, v. 47, p. 179-196.
7. 1927, Pioneer re-population of devastated sea bottoms: Pan-American Geologist, v. 46, p. 273-288.
8. 1928, Bentonite seams in stratigraphic correlation: Pan-American Geologist, v. 50, p. 107-116.
9. 1928, Recent extensions of our glacial tills: Pan-American Geologist, v. 49, p. 263-270.
10. 1930, Known glaciations of North America: Pan-American Geologist, v. 53, p. 327-340.
11. 1930, Rational delimitation of species in paleontology: Pan-American Geologist, v. 54, p. 281-286.
12. 1932, Traditional errors in glaciology: Pan-American Geologist, v. 57, p. 186-194.
13. 1933, Ordovicic bentonite zones: Pan-American Geologist, v. 61, p. 19-28.

Savina, M.E. See Cowdery, T.K.; Jackson, J.L.

Sawkins, F.J. See Eldougdoug, A.A., 4.

Schenk, Carl.
(Jouseau, Marcel). 1983, Aggregate resources in the Twin Cities Metropolitan Area: St. Paul, Metropolitan Council of the Twin Cities Area Publication 10-83-019, 100 p., 2 pls.

Schluter, R.B.
(Mahan, W.M.). 1981, Flotation responses of two Duluth Complex copper-nickel ores: U.S. Bureau of Mines Report of Investigations 8509, 24 p.

Schmidt, S.T.
(Amstutz, G.C.). 1984, Observations on amygdule minerals in the Keweenawan North Shore Volcanic Group, Minnesota [abs.]: Fortschritte der Mineralogie, v. 62, suppl. 1, p. 217.

Schoenberg, M.E. See also Hult, M.F., 3-4.
1. 1982, Seasonal versus long-term variations in potentiometric levels in the Mount Simon-Hinckley and Prairie du Chien-Jordan aquifers, Twin Cities metropolitan area, Minnesota [abs.]: Eos (American Geophysical Union Transactions), v. 63, no. 33, p. 613.
2. 1984, Water levels and water-level changes in the Prairie du Chien-Jordan and Mount Simon-Hinckley aquifers, Twin Cities Metropolitan Area, Minnesota, 1971-80: U.S. Geological Survey Water-Resources Investigations Report 83-4237, 23 p., 2 pls.
3. (Guswa, J.H.). 1981, Evaluation of geohydrologic data using a ground-water-flow model of the Twin Cities metropolitan area, Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 13, no. 7, p. 548.
4. (Guswa, J.H.). 1982, Evaluating ground-water data by a flow model of the Twin Cities metropolitan area, Minnesota [abs.]: Eos (American Geophysical Union Transactions), v. 63, no. 33, p. 612.

Schreiner, B.T. See Teller, J.T., 10.

Schulz, K.J. See also Green, J.C., 13.

1. 1977, The petrology and geochemistry of Archean volcanics, western Vermilion district, northeastern Minnesota [abs., University of Minnesota Ph.D. dissertation]: Dissertation Abstracts International, 1978, v. 39, no. 1, p. 125B.
2. 1981, Geochemistry of Precambrian lamprophyres [abs.]: Geological Society of America Abstracts with Programs, v. 13, no. 6, p. 316.
3. 1982, Magnesian basalts from the Archaean terrains of Minnesota, *in* Arndt, N.T., and Nisbet, E.G., eds., Komatiites: London, Allen & Unwin, p. 171-186.
4. 1982, The nature and significance of Archean alkalic magmatism, southern Superior Province [abs.]: Geological Association of Canada-Mineralogical Association of Canada Program with Abstracts, v. 7, p. 80.

Schulz, N.F. See Lawver, J.E.

Schwarzweller, P.A. See Kaszuba, J.P.

Schwert, D.P. See also Ashworth, A.C., 4.

(Ashworth, A.C.). 1980, Insect fossils and a late Wisconsinan successional model [abs.]: Geological Society of America Abstracts with Programs, v. 12, no. 7, p. 518.

Schwinn, C. See Soroka, L.G., 3.

Scoates, R.F.J. See Baragar, W.R.A.

Scott, Deanna.

(Anderson, G.G.). 1983, Topographic relief of the Precambrian/Cambrian contact in Chisago County, Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 15, no. 4, p. 255.

Seaberg, J.K.

1985, Geohydrologic interpretation of glacial geology near Williams Lake, central Minnesota, with emphasis on lake-groundwater interaction: Unpublished M.S. thesis, University of Minnesota, Minneapolis, 141 p.

Seeland, D.A.

1. 1973, Geochemical reconnaissance for gold in sedimentary and metamorphic rocks of the Great Lakes region, tabulated data on 799 samples: National Technical Information Service Report PB-222 892, 60 p.
2. 1973, A geochemical reconnaissance for gold in the sedimentary rocks of the Great Lakes region, Minnesota to New York: U.S. Geological Survey Bulletin 1305, 16 p.

Seifert, K.E.

1. 1984, Trace element geochemistry of some Lake Superior Keweenawan basic layered intrusions [abs.], *in* Institute on Lake Superior Geology, 30th Annual Meeting, Wausau, Wisconsin, 1984, Abstracts: Sponsored by the Geology Dept., University of Wisconsin-Wausau, p. 68.
2. 1985, Trace element geochemistry of some Keweenawan sills [abs.]: Geological Society of America Abstracts with Programs, v. 17, no. 5, p. 325-326.
3. (Brunfelt, A.O.). 1982, REE composition of Duluth Gabbro rocks [abs.]: Eos (American Geophysical Union Transactions), v. 63, no. 33, p. 615.

Sellner, J.M. See also Lawler, T.L.

1. 1985, Lake sediment geochemical survey of east-central Minnesota: Minnesota Department of Natural Resources, Division of Minerals Report 236, 32 p., 3 fiche.
2. (Lawler, T.L.; Dahlberg, E.H.; Frey, B.A.; McKenna, M.P.). 1985, 1984-1985 geodrilling report: Minnesota Department of Natural Resources, Division of Minerals Report 242, 75 p., 6 fiche.

Seltzer, G.O. See Vick, T.D., 2.

Setzer, Thomas. See Gibbs, A.K., 1-2.

Severson, L.S.

(Mooers, H.D.; Malterer, T.J.). 1980, Inventory of peat resources, Koochiching County, Minnesota: Minnesota Department of Natural Resources, Division of Minerals, Peat Inventory Project, 95 p.; Appendix E, Site descriptions, 114 p.; 2 pls.

Sexton, J.L.

(Hinze, W.J.; von Frese, R.R.B.; Braile, L.W.). 1982, Long-wavelength aeromagnetic anomaly map of the conterminous United States: Geology, v. 10, no. 7, p. 364-369.

Shacklette, H.T.

(Boerngen, J.G.). 1984, Element concentrations in soils and other surficial materials of the conterminous United States: U.S. Geological Survey Professional Paper 1270, 105 p.

Shah, S.P. See Labuz, J.F.

Shane, L.C.K. See Keen, K.L., 2; King, J.W., 3.

Shaw, D.M. See Truscott, M.G.

Sheehan, T.J.

(Bauer, R.L.; Nabelek, P.I.; Glascock, M.D.). 1985, Partial melting under conditions of filter pressing: Field and geochemical evidence from the migmatites of NE Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 17, no. 7, p. 714.

Sheng-Fogg, C.D. See Mishra, C.P.

Shettel, D.L., Jr.

(D'Andrea, R.F., Jr.). 1981, Application of solution-mineral equilibria to hydrogeochemical prospecting for unconformity-related uranium deposits [abs.]: Geological Society of America Abstracts with Programs, v. 13, no. 7, p. 552-553.

Shih, C.-Y. See Morrison, D.A., 1-2.

Shirey, S.B.

(Hanson, G.N.). 1984, Mantle-derived Archaean monozodiorites and trachyandesites: Nature, v. 310, no. 5974, p. 222-224.

Shirley, D.H. See Tyson, R.M., 4.

Shurr, G.W. See also Rice, D.D.; Ronnei, D.M.

1. 1981, Cretaceous sea cliffs and structural blocks on the flanks of the Sioux Ridge, South Dakota and Minnesota, *in* Cretaceous stratigraphy and sedimentation in northwest Iowa, northeast Nebraska, and southeast South Dakota: Iowa Geological Survey Guidebook Series 4, p. 25-41.
2. 1981, Cretaceous System in southwestern Minnesota and adjacent areas [abs.]: Geological Society of America Abstracts with Programs, v. 13, no. 6, p. 316.

Siegel, D.I. See also Alexander, E.C., Jr., 12; Boldt, D.R.; Guswa, J.H.

1. 1981, The effect of snowmelt on the water quality of Filson Creek and Omaday Lake, northeastern Minnesota: Water Resources Research, v. 17, no. 1, p. 238-242.
2. 1981, Hydrogeochemistry and kinetics of silicate weathering in a gabbroic watershed: Filson Creek, northeastern Minnesota: Unpublished Ph.D. dissertation, University of Minnesota, Minneapolis, 275 p.
3. 1981, Hydrogeochemistry and kinetics of silicate weathering in a gabbroic watershed: Filson Creek, northeastern Minnesota [abs., University of Minnesota Ph.D. dissertation]: Dissertation Abstracts International, 1981, v. 42, no. 6, p. 2268B-2269B.
4. 1981, Hydrogeologic setting of the Glacial Lake Agassiz peatlands, northern Minnesota: U.S. Geological Survey Water-Resources Investigations 81-24, 34 p.
5. 1981, Hydrogeologic setting of the Glacial Lake Agassiz peatlands, northern Minnesota [abs.], *in* Richardson, Brandt, ed., Midwest Conference on Wetland Values and Management, St. Paul, Minnesota, June 17-19, 1981, Selected Proceedings: St. Paul, Minnesota Water Planning Board, p. 123.
6. 1981 [1982], Effect of snowmelt on the quality of Filson Creek and Omaday Lake, northwestern Minnesota, *with a section on* Preliminary evaluation of methods for determination of sulfate concentrations in precipitation and other dilute solutions: U.S. Geological Survey Water-Resources Investigations 81-66, 87 p.
7. 1982, Kinetics and chemical weathering, Filson Creek, northeastern Minnesota [abs.]: Eos (American Geophysical Union Transactions), v. 63, no. 45, p. 931.
8. (Boldt, D.R.; Chason, D.B.). 1985, The hydrogeology and geochemistry of a spring-fen, raised bog complex, Lost River Peatland, northern Minnesota [abs.]: Eos (American Geophysical Union Transactions), v. 66, no. 18, p. 264.
9. (Kontis, A.L.; Mandle, R.J.). 1982, The chemical evolution of water quality in the Cambrian-Ordovician aquifer, north-central United States [abs.]: Eos (American Geophysical Union Transactions), v. 63, no. 33, p. 612.
10. (Mandle, R.J.). 1982, Geochemical evidence for Pleistocene glacial melt-water recharge to the Cambrian-Ordovician aquifer in the north-central United States [abs.]: Eos (American Geophysical Union Transactions), v. 63, no. 18, p. 327-328.
11. (Mandle, R.J.). 1984, Isotopic evidence for glacial meltwater recharge to the Cambrian-Ordovician aquifer, north-central United States: Quaternary Research, v. 22, no. 3, p. 328-335.
12. (Pfannkuch, H.O.). 1984, Silicate dissolution influence on Filson Creek chemistry, northeastern Minnesota: Geological Society of America Bulletin, v. 95, no. 12, p. 1446-1453.

Sielaff, B. See Blomquist, R.V.

Siems, D.F. See Grimes, D.J.

Signor, D.C.

(Kontis, A.L.; Jorgensen, D.G.; Mandle, R.J.). 1980, Ground-water flow regime based on preliminary data for regional aquifer systems [abs.]: Eos (American Geophysical Union Transactions), v. 61, no. 46, p. 952.

Silling, R.M. See Delaney, H.J.

Silver, L.T. See Ludwig, K.R.

Simmons, K.R. See Hanson, G.N.

Simonson, B.M.
1985, Sedimentological constraints on the origins of Precambrian iron- formations: Geological Society of America Bulletin, v. 96, no. 2, p. 244-252.

Simpson, R.W. See Hildenbrand, T.G., 2.

Sims, P.K. See also Day, W.C., 7; Morey, G.B., 21.
1. 1983, Extension of exposed Precambrian rocks in the Lake Superior region into the subsurface [abs.]: Geological Society of America Abstracts with Programs, v. 15, no. 6, p. 689.
2. 1983, Metallogeny of Archean and Proterozoic terranes in the Lake Superior region [abs.]: American Institute of Mining Engineers (AIME), 113th Annual Meeting, Los Angeles, 1984, [Program with Abstracts], p. 30.
3. (compiler). 1985, Generalized bedrock geologic map of west-central Vermilion district, northern Minnesota: U.S. Geological Survey Miscellaneous Investigations Series Map I-1529, scale 1:48,000.
4. 1985, Metallogeny of Archean and Proterozoic terranes in the Lake Superior region [abs.], *in* Krafft, K., ed., USGS research on mineral resources, 1985—V.E. McKelvey Forum on Mineral and Energy Resources, 1st, Program and Abstracts: U.S. Geological Survey Circular 949, p. 51.
5. (compiler). 1985, Precambrian basement map of the northern midcontinent, U.S.A.: U.S. Geological Survey Open-File Report 85-604, scale 1:500,000, 16 p. text.
6. (Card, K.D.; Lumbers, S.B.). 1981, Evolution of early Proterozoic basins of the Great Lakes region, *in* Campbell, F.H.A., ed., Proterozoic basins of Canada: Canada Geological Survey Paper 81-10, p. 379-397.
7. (Morey, G.B.). [1966?] A teacher's guide for geologic field investigations in north-central Minnesota, *in* Phinney, W.C., ed., A teacher's guide for geologic field investigations in Minnesota: Minnesota Department of Education with the cooperation of the Minnesota Geological Survey, 14 p.
8. (Peterman, Z.E.). 1981, Archaean rocks in the southern part of the Canadian Shield—a review, *in* Glover, J.E., and Groves, D.I., eds., Archaean geology—Second International Symposium, Perth, 1980: Geological Society of Australia Special Publication 7, p. 85-98.
9. (Peterman, Z.E.). 1983, Evolution of Penokean foldbelt, Lake Superior region, and its tectonic environment, *in* Medaris, L.G., Jr., ed., Early Proterozoic geology of the Lake Superior region: Geological Society of America Memoir 160, p. 3-14.
10. (Southwick, D.L., compilers). 1985, Geologic map of Archean rocks, western Vermilion district, northern Minnesota: U.S. Geological Survey Miscellaneous Investigations Series Map I-1527, scale 1:48,000.

Singer, R.D.
(Osterholm, M.T.; Straub, C.P.). 1982, Ground water quality in southeastern Minnesota: University of Minnesota, Water Resources Research Center Bulletin 109, 45 p.

Sloan, R.E. See also Cutler, Bruce.
1. [1966?] A teacher's guide for geologic field investigations in southeastern Minnesota, *in* Phinney, W.C., ed., A teacher's guide for geologic field investigations in Minnesota: Minnesota Department of Education with the cooperation of the Minnesota Geological Survey, 19 p.
2. 1982, Fossil collecting in Minnesota: Rocks and Minerals, v. 57, no. 3, p. 102-108.

3. 1982, The Royalton staurolite outcrop: Rocks and Minerals, v. 57, no. 3, p. 123.
4. 1985, Pleistocene fluvial geomorphology of southeastern Minnesota [extended abs.], *in* Lively, R.S., coordinator, Pleistocene geology and evolution of the Upper Mississippi valley—Winona, Minnesota, August 13-16, 1985, Abstracts and field trip guide: Minnesota Geological Survey, p. 27-30.

Smith, A.J.
1981, Is aquifer heating system feasible?: Johnson Drillers Journal, v. 53, no. 4, p. 4-6.

Smith, T.J. See Steinhart, J.S., 1-2.

Smithson, S.B. See also Pierson, W.R., 2.
(Pierson, W.R.; Wilson, S.L.; Johnson, R.A.). 1985, Seismic reflection results from Precambrian crust, *in* Tobi, A.C., and Touret, J.L.R., eds., The deep Proterozoic crust in the North Atlantic provinces: Boston, Mass., D. Reidel, p. 21-37.

Society of Exploration Geophysicists.
1982, Gravity anomaly map of the United States (exclusive of Alaska and Hawaii): Scale 1:2,500,000, 2 pls.

Sood, M. See Harrison, W., 1.

Soroka, L.G. See also Hosch, J.A.
1. (Hosch, J.A.). 1984, Morphology, accretion rate and microstructure of recent algal stromatolites from Eagle Lake, Otter Tail Co., MN [abs.], *in* Institute on Lake Superior Geology, 30th Annual Meeting, Wausau, Wisconsin, 1984, Abstracts: Sponsored by the Geology Dept., University of Wisconsin-Wausau, p. 77.
2. (Lively, R.S.). 1985, Discovery of algal stromatolites in the hard-water lakes of west-central Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 17, no. 5, p. 327-328.
3. (Schwinn, C.; Voelz, N.). 1984, The stromatolites of Eagle Lake, Otter Tail Co., Minnesota [abs.]: Minnesota Academy of Science Journal, v. 49, no. 2, p. 22.

Soukup, W.G.
(Gillies, D.C.; Myette, C.F.). 1984, Appraisal of the surficial aquifers in the Pomme de Terre and Chippewa River valleys, western Minnesota: U.S. Geological Survey Water-Resources Investigations Report 84-4086, 63 p., 4 pls.

South, D.L.
(Daemen, Jaak). 1981, Laboratory experiments of borehole plug performance, *in* Einstein, H.H., and others, compilers, Rock mechanics from research to application—Symposium on Rock Mechanics, 22nd, Cambridge, Massachusetts, June 28-July 2, 1981, Proceedings, p. 116-120.

Southwick, D.L. See also Chandler, V.W., 19; Hudleston, P.J.; Lively, R.S., 11; Morey, G.B., 20-24; Ojakangas, R.W., 7; Sims, P.K., 10; Walton, Matt, 13; Weiblen, P.W., 7.
1. 1982, Preliminary results of a drilling program across the Great Lakes tectonic zone, central Minnesota [abs.], *in* Institute on Lake Superior Geology, 28th Annual Meeting, International Falls, Minnesota, 1982, Proceedings: Sponsored by the Minnesota Geological Survey, p. 45-46.
2. (editor). 1984, Shorter contributions to the geology of the Sioux Quartzite (early Proterozoic), southwestern Minnesota: Minnesota Geological Survey Report of Investigations 32, 74 p., 1 pl.

3. (Chandler, V.W.). 1983, Subsurface investigation of the Great Lakes tectonic zone, west-central Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 15, no. 6, p. 692.
4. (Day, W.C.). 1982, Geology and petrography of Proterozoic mafic dikes, north-central Minnesota [abs.]: Eos (American Geophysical Union Transactions), v. 63, no. 33, p. 614.
5. (Day, W.C.). 1983, Geology and petrology of Proterozoic mafic dikes, north-central Minnesota and western Ontario: Canadian Journal of Earth Sciences, v. 20, no. 4, p. 622-638.
6. (Goebel, J.E.; Walton, Matt; Batten, L.G.; Heutmaker, J.F.). 1981, Synergistic relationships among remote-sensing and geophysical media: Geological and hydrological applications (final report), Sec. C *of* A study of Minnesota land and water resources using remote sensing—progress report, December 31, 1980: NASA Grant 24-005-263 Vol. 14, Minneapolis, University of Minnesota, Space Science Center, 28 p.
7. (Lively, R.S.). 1984, Hydrogeochemical anomalies associated with the basal contact of the Sioux Quartzite along the north margin of the Cottonwood County basin, *in* Southwick, D.L., ed., Shorter contributions to the geology of the Sioux Quartzite (early Proterozoic), southwestern Minnesota: Minnesota Geological Survey Report of Investigations 32, p. 45-58.
8. (Morey, G.B.; Lively, R.S.; Beltrame, R.J.). 1982, National Uranium Resource Evaluation, New Ulm Quadrangle, Minnesota: U.S. Department of Energy Open-File Report PGJ/F-52(82), 26 p., 1 fiche, 22 pls.
9. (Mossler, J.H.). 1984, The Sioux Quartzite and subjacent regolith in the Cottonwood County basin, Minnesota, *in* Southwick, D.L., ed., Shorter contributions to the geology of the Sioux Quartzite (early Proterozoic), southwestern Minnesota: Minnesota Geological Survey Report of Investigations 32, p. 17-44, 1 pl.

Sparks, D.M. See McIntosh, W.L.

Spencer, K.J.
1. (Hanson, G.N.). 1984, Pb, Nd isotope and REE constraints on east-central Minnesota Proterozoic granites: Evidence for newly derived crustal components [abs.]: EOS (American Geophysical Union Transactions), v. 65, no. 16, p. 292.
2. (Hanson, G.N.; Horan, M.F.). 1985, Generation of granitic batholiths along a proposed Proterozoic continental margin in east-central Minnesota [abs.]: Geological Society of America Abstracts with Programs, v. 17, no. 7, p. 723.

Splettstoesser, J.F. See also Webers, G.F., 2.
1985, Gold in Minnesota: Minnesota Geological Survey, folder.

Spong, R.C.
1983, Masonic Park Cave: Minnesota Speleology Monthly, v. 15, no. 2, p. 25-26.

Sprowl, D.R.
1. 1985, The paleomagnetic record from Elk Lake, Minnesota and its implications: Unpublished Ph.D. dissertation, University of Minnesota, Minneapolis, 145 p.
2. (Banerjee, S.K.). 1985, High-resolution paleomagnetic record of geomagnetic field fluctuations from the varied sediments of Elk Lake, Minnesota: Geology, v. 13, no. 8, p. 531-533.
3. (Banerjee, S.K.). 1985, Lake sediment paleomagnetic evidence for westward drift over the past 8000 years [abs.]: Eos (American Geophysical Union Transactions), v. 66, no. 46, p. 878-879.
4. (Banerjee, S.K.). 1985, Limits of confidence on sediment paleomagnetic data; a cautionary note [abs.]: Eos (American Geophysical Union Transactions), v. 66, no. 18, p. 260.

5. (Banerjee, S.K.; Harris, Ruth). 1983, Preliminary paleomagnetic results from the varved sediments of Elk Lake, MN, 0-10,000 B.P. [abs.]: Eos (American Geophysical Union Transactions), v. 64, no. 45, p. 685.
6. (King, J.W.; Bogden, D.; Lund, S.P.). 1982, The magnetic properties of varied sediments from Elk Lake, Minnesota [abs.]: Eos (American Geophysical Union Transactions), v. 63, no. 33, p. 615.

Stark, J.R.
(Hult, M.F.). 1985, Ground-water flow in the Prairie du Chien-Jordan aquifer related to contamination by coal-tar derivatives, St. Louis Park, Minnesota: U.S. Geological Survey Water-Resources Investigations Report 85-4087, 57 p.

Steinhart, J.S.
1. (Smith, T.J., editors). 1966, The Earth beneath the continents; a volume of geophysical studies in honor of Merle A. Tuve: American Geophysical Union Geophysical Monograph 10, 663 p., 1 pl.
2. (Smith, T.J.). 1966, Time terms and structure in western Lake Superior region, *in* Steinhart, J.S., and Smith, T.J., eds., The Earth beneath the continents: American Geophysical Union Geophysical Monograph 10, p. 198-204.

Sterling, R.L.
(Nelson, Susan). 1982, Planning the development of underground space; practical guidelines and a case study of Minneapolis: Underground Space, v. 7, no. 2, p. 86-103.

Stevenson, R.J. See also Robinson, S.E.
1. 1982, Amphiboles at the base of the Duluth Complex, Minnesota: Unpublished Ph.D. dissertation, University of Minnesota, Minneapolis, 160 p., 2 pls.
2. 1982, Amphiboles at the base of the Duluth Complex, Minnesota [abs., University of Minnesota Ph.D. dissertation]: Dissertation Abstracts International, 1983, v. 43, no. 11, p. 3515B.

Stockwell, C.H.
1982, Proposals for time classification and correlation of Precambrian rocks and events in Canada and adjacent areas of the Canadian Shield—part 1: A time classification of Precambrian rocks and events: Canada Geological Survey Paper 80-19, 135 p., 6 pls.

Stone, C.G. See Keller, W.D.

Stone, D.J.
1983, Lithostratigraphy of the upper Dunleith Formation (Ordovician) in southeastern Minnesota, *in* Delgado, D.J., ed., Ordovician Galena Group of the Upper Mississippi Valley—deposition, diagenesis, and paleoecology: Society of Economic Paleontologists and Mineralogists, Great Lakes Section, 13th Annual Field Conference, 1983, Guidebook, p. E1-E6.

Stone, J.E.
1. 1965, The status of urban geology in the Minneapolis-St. Paul area: Conference on Soil Mechanics and Foundation Engineering, 13th Annual, University of Minnesota, 1965, Proceedings, p. A1-A13.
2. [1966?] A teacher's guide for geologic field investigations in the Twin Cities area, *in* Phinney, W.C., ed., A teacher's guide for geologic field investigations in Minnesota: Minnesota Department of Education with the cooperation of the Minnesota Geological Survey, 18 p.

Stover, C.W.
1. (Reagor, B.G.; Algermissen, S.T.). 1981, Seismicity map of the State of Minnesota: U.S. Geological Survey Miscellaneous Field Studies Map MF-1323, scale 1:1,000,000.
2. (Reagor, B.G.; Algermissen, S.T.). 1984, United States earthquake data file: U.S. Geological Survey Open-File Report 84-225, 123 p.

Strack, O.D.L. See Fitts, C.R., 2.

Straub, C.P. See Singer, R.D.

Strimple, H.L. See Brower, J.C., 1.

Sulima, J.H.
1972, Community ecology of a Middle Orodovician epeiric sea (Decorah Formation, upper Mississippi Valley) [abs.]: Geological Society of America Abstracts with Programs, v. 4, no. 7, p. 681.

Swanson, Lynn. See also Morey, G.B., 13.
1985, Publications of the Minnesota Geological Survey and its predecessor, the Geological and Natural History Survey of Minnesota: Minnesota Geological Survey Information Circular 21, 48 p.

Sweeney, R.E. See Hildenbrand, T.G., 1.

Tamplin, M.J. See Bannatyne, B.B.

Tasker, D.R.
1983, High grade metamorphism of the Hillman Migmatite, east-central Minnesota: Unpublished M.A. thesis, University of Missouri, Columbia, 181 p.

Taylor, S.R. See McLennan, S.M., 2.

Teller, J.T. See also Fenton, M.M., 1-2.
1. 1981, The catastrophic draining of glacial Lake Agassiz [abs.]: Geological Society of America Abstracts with Programs, v. 13, no. 7, p. 565.
2. 1984, Lake Agassiz—its influence on the other Great Lakes [abs.]: Geological Association of Canada-Mineralogical Association of Canada Program with Abstracts, v. 9, p. 110.
3. (Bluemle, J.P.). 1982, Geological setting of the Lake Agassiz region [abs.]: Geological Association of Canada-Mineralogical Association of Canada Program with Abstracts, v. 7, p. 84.
4. (Bluemle, J.P.). 1983, Bedrock geology of the Lake Agassiz region: North Dakota Geological Survey Miscellaneous Map 24 (*also* fig. 1 *from* Teller and Bluemle, 1983, Geological setting of the Lake Agassiz region: Geological Association of Canada Special Paper 26), scale 1 cm = 50 km.
5. (Bluemle, J.P.). 1983, Geological setting of the Lake Agassiz region, *in* Teller, J.T., and Clayton, Lee, eds., Glacial Lake Agassiz: Geological Association of Canada Special Paper 26, p. 7-20, fig. 1.
6. (Clayton, Lee). 1982, Late-glacial surging of the Des Moines and Red River Lobes [abs.]: International Congress on Sedimentology, 11th, Hamilton, Ontario, Canada, August 22-27, 1982, Abstracts of Papers, p. 78.
7. (Clayton, Lee, editors). 1983, Glacial Lake Agassiz: Geological Association of Canada Special Paper 26, 451 p., 2 pls.

8. (Thorleifson, L.H.). 1982, Drainage of Lake Agassiz to Lake Superior through channels in northwestern Ontario [abs.]: Geological Association of Canada-Mineralogical Association of Canada Program with Abstracts, v. 7, p. 84.
9. (Thorleifson, L.H.). 1983, The Lake Agassiz-Lake Superior connection, *in* Teller, J.T., and Clayton, Lee, eds., Glacial Lake Agassiz: Geological Association of Canada Special Paper 26, p. 261-290.
10. (Thorleifson, L.H.; Dredge, L.A.; Hobbs, H.C.; Schreiner, B.T.). 1983, Maximum extent and major features of Lake Agassiz, *in* Teller, J.T., and Clayton, Lee, eds., Glacial Lake Agassiz: Geological Association of Canada Special Paper 26, p. 43-45, 1 pl.

Texas Instruments, Inc.
1. 1982, Interpretation of aerial radiometric reconnaissance data, hydrogeochemical and stream sediment reconnaissance data, St. Cloud quadrangle, Minnesota: U.S. Department of Energy Open-File Report GJD-85(82).
2. 1982, Interpretation of hydrogeochemical and stream sediment reconnaissance data, New Ulm quadrangle, Minnesota: U.S. Department of Energy Open-File Report GJD-58(82).

Thayer, V.L.
(Johnson, T.C.). 1981, Diatoms in Lake Superior sediments [abs.]: Geological Society of America Abstracts with Programs, v. 13, no. 7, p. 565.

Thenhaus, P.C. See Algermissen, S.T.

Thorleifson, L.H. See Teller, J.T., 8-10.

Tilton, G.R. See Hart, S.R.

Tisue, M. See Harrison, W., 1.

Trethewey, W.D.
1. (editor). 1980, Minnesota mining directory, 1980: Minneapolis, University of Minnesota, Mineral Resources Research Center, 270 p.
2. (editor). 1981, Minnesota mining directory, 1981: Minneapolis, University of Minnesota, Mineral Resources Research Center, 266 p.

Trotman, K.
(Pfannkuch, H.O.). 1982, Determination of the net groundwater seepage component in lake hydrograph analysis [abs.]: Eos (American Geophysical Union Transactions), v. 63, no. 33, p. 613.

Truscott, M.G.
(Shaw, D.M.). 1984, Boron in chert and Precambrian siliceous iron formations: Geochimica et Cosmochimica Acta, v. 48, no. 11, p. 2313-2320.

Tsunakawa, Hideo.
(Yanagisawa, Masahisa). 1981, Rb-Sr and ^{40}Ar-^{39}Ar geochronological studies on the Precambrian rocks in the Minnesota River Valley: Geochemical Society of Japan Geochemical Journal, v. 15, no. 1, p. 17-23.

Tyler, S.A.
(Barghoorn, E.S.). 1954, Occurrence of structurally preserved plants in pre-Cambrian rocks of the Canadian Shield: Science, v. 119, no. 3096, p. 606-608.

Tyson, R.M.
1. 1979, The mineralogy and petrology of the Partridge River troctolite in the Babbitt-Hoyt Lakes region of the Duluth Complex, northeastern Minnesota: Unpublished Ph.D. dissertation, Miami University, Oxford, Ohio, 192 p.
2. 1979, The mineralogy and petrology of the Partridge River troctolite in the Babbitt-Hoyt Lakes region of the Duluth Complex, northeastern Minnesota [abs., Miami University Ph.D. dissertation]: Dissertation Abstracts International, 1980, v. 40, no. 7, p. 3067B-3068B.
3. 1982, Sulfide mineralization in the Duluth Complex: A product of a remobilized sedimentary sulfide [abs.]: Geological Association of Canada-Mineralogical Association of Canada Program with Abstracts, v. 7, p. 85.
4. (Bonnichsen, Bill; Shirley, D.H.). 1985, Precious metals associated with sulfide mineralization in the Ely-Hoyt Lakes District, Duluth Complex, Minnesota: Canadian Mineralogist, v. 23, pt. 2, p. 331.
5. (Chang, L.L.Y.). 1984, The petrology and sulfide mineralization of the Partridge River troctolite, Duluth Complex, Minnesota: Canadian Mineralogist, v. 22, pt. 1, p. 23-38.

Ullmer, Edwin.
1. 1981, A Mid-Proterozoic phosphate occurrence in east-central Minnesota: International Geological Correlation Program Project 156 Newsletter 8, p. 22-25.
2. 1985, The results of exploration for unconformity-type uranium deposits in east-central Minnesota: Economic Geology, v. 80, no. 5, p. 1425-1435.

U.S. Department of Energy. See Aero Service Division Western Geophysical Company of America, 1-11; Battelle Project Management Division, Office of Crystalline Repository Development, 1-2; Bendix Field Engineering Corporation, 1-25; Delaney, H.J.; geoMetrics, 1-4; Harrison, W., 1-2; Morey, G.B., 23; Oak Ridge Gaseous Diffusion Plant (ORGDP), 1-5; Southwick, D.L., 8; Texas Instruments Inc., 1-2.

U.S. Geological Survey.
1. 1968, Aeromagnetic map of the McNair-Grand Portage area, northeastern Minnesota: U.S. Geological Survey Open-File Map, scale 1:125,000.
2. 1980, Land use and land cover and associated maps for Duluth, Minnesota, Wisconsin: Open-File Report 80-630, scale 1:250,000, 4 pls. and a positive of the cultural base.
3. 1980, Land use and land cover and associated maps for Thief River Falls, Minnesota, North Dakota: Open-File Report 80-1301, scale 1:250,000, 1 pl. and a positive of the cultural base.
4. 1981, Land use and land cover and associated maps for Bemidji, Minnesota: Open-File Report 81-702, scale 1:250,000, 1 pl. and a positive of the cultural base.
5. 1981, Land use and land cover and associated maps for Brainerd, Minnesota: Open-File Report 81-703, scale 1:250,000, 1 pl. and a positive of the cultural base.
6. 1981, Land use and land cover and associated maps for New Ulm, Minnesota: Open-File Report 81-17, scale 1:250,000, 1 pl. and a positive of the cultural base.
7. 1981, Land use and land cover and associated maps for Roseau, Minnesota: Open-File Report 81-18, scale 1:250,000, 4 pls. and a positive of the cultural base.
8. 1982, Land use and land cover and associated maps for Hibbing, Minnesota: Open-File Report 82-247, scale 1:250,000, 1 pl. and a positive of the cultural base.
9. 1982, Land use and land cover and associated maps for International Falls, Minnesota: Open-File Report 82-9, scale 1:250,000, 1 pl. and a positive of the cultural base.
10. 1982, Land use and land cover and associated maps for Quetico, Minnesota: Open-File Report 82-11, scale 1:250,000, 1 pl. and a positive of the cultural base.
11. 1982, Land use and land cover and associated maps for St. Cloud, Minnesota: Open-File Report 82-25, scale 1:250,000, 1 pl. and a positive of the cultural base.

12. 1982, Land use and land cover and associated maps for Two Harbors, Minnesota, Wisconsin, Michigan: Open-File Report 82-10, scale 1:250,000, 1 pl. and a positive of the cultural base.
13. 1983, Land use and land cover and associated maps for Eau Claire, Wisconsin, Minnesota: Open-File Report 83-551, scale 1:250,000, 4 pls. and a positive of the cultural base.
14. 1983, Land use and land cover and associated maps for Fairmont, Minnesota, Iowa: Open-File Report 83-879, scale 1:250,000, 4 pls. and a positive of the cultural base.
15. 1984, Aquifer Thermal Energy Storage: Yearbook, fiscal year 1983, p. 79-80.
16. 1984, Contamination of ground water by coal-tar derivatives in St. Louis Park, Minnesota: Yearbook, fiscal year 1983, p. 75-78.
17. 1984, Land use and land cover and associated maps for Grand Forks, North Dakota, Minnesota: Open-File Report 84-199, scale 1:250,000, 4 pls. and a positive of the cultural base.
18. 1984, Land use and land cover and associated maps for La Crosse, Wisconsin, Iowa, Minnesota: Open-File Report 84-33, scale 1:250,000, 4 pls. and a positive of the cultural base.
19. 1984, Land use and land cover and associated maps for Mason City, Iowa, Minnesota: Open-File Report 84-324, scale 1:250,000, 4 pls. and a positive of the cultural base.
20. 1984, Land use and land cover and associated maps for Thunder Bay, Ontario, Canada, Michigan, Minnesota: Open-File Report 84-191, scale 1:250,000, 4 pls. and a positive of the cultural base.
21. 1985, Land use and land cover and associated maps for Milbank, South Dakota, Minnesota, North Dakota: Open-File Report 85-69, scale 1:250,000, 4 pls. and a positive of the cultural base.
22. 1985, Land use and land cover and associated maps for Sioux Falls, South Dakota, Iowa, Minnesota: Open-File Report 85-74, scale 1:250,000, 4 pls. and a positive of the cultural base.
23. 1985, Land use and land cover and associated maps for Watertown, South Dakota, Minnesota: Open-File Report 85-72, scale 1:250,000, 4 pls. and a positive of the cultural base.

University of Minnesota. See Minnesota, University.

Urban, T.C. See Diment, W.H.

Vadis, M.K. See also Meineke, D.G., 1, 3-5.
1. (Gladen, L.W.; Meineke, D.G.). 1981, Geological, geophysical and geochemical surveys of Lake, St. Louis and Cook Counties, Minnesota for the 1980 drilling project: Minnesota Department of Natural Resources, Division of Minerals Report 201, 13 p., 2 fiche.
2. (Meineke, D.G.). 1981, [Greenwood Lake magnetic trend]: Minnesota Department of Natural Resources, Division of Minerals Project 201, 5 pls.
3. (Meineke, D.G.). 1982, Lake sediment exploration geochemical survey of portions of Lake and St. Louis counties, Minnesota: Minnesota Department of Natural Resources, Division of Minerals Report 171, 31 p., 2 fiche.
4. (Meineke, D.G.). 1982, Lake sediment geochemical survey of Cook County, Minnesota: Minnesota Department of Natural Resources, Division of Minerals Report 138-2, 39 p.

Van Alstine, J.B. See Holzheimer, J.

Vander Horck, M.P.
1984, Diagenesis in the Sioux Quartzite: Unpublished M.S. thesis, University of Minnesota, Minneapolis, 101 p.

Van der Voo, Rob. See also Jackson, M.
(Watts, D.R.). 1980, Tectonic implications from the paleomagnetism of the upper Keweenawan sediments [abs.]: Eos (American Geophysical Union Transactions), v. 61, no. 48, p. 1195-1196.

Van De Voorde, B.W. See Ervin, C.P.

Vaniman, D.T. See also Labotka, T.C., 4.
(Papike, J.J.; Labotka, T.C.). 1980, Contact-metamorphic effects of the Stillwater Complex, Montana: The concordant iron formation: American Mineralogist, v. 65, nos. 11-12, p. 1087-1102.

Van Schmus, W.R. See also Klasner, J.S.
1. 1972, Geochronology of Precambrian rocks in the Penokean Fold Belt subprovince of the Canadian Shield [abs.], *in* Institute on Lake Superior Geology, 18th Annual Meeting, Houghton, Michigan, 1972, Agenda and Abstracts: Houghton, sponsored by Michigan Technological University, paper 32, 3 p.
2. 1976, Early and Middle Proterozoic history of the Great Lakes area, North America: Royal Society of London Philosophical Transactions, Series A, v. 280, p. 605-628.
3. 1982, Evolution of the Archean-Early Proterozoic transition in the United States [abs.]: International Symposium on Archean and Early Proterozoic Geologic Evolution and Metallogenesis, Salvador, Bahia, Brazil, September 3-11, 1982, Abstracts, excursions, p. 10.
4. 1982, Evolution of the Archean-Early Proterozoic transition in the United States: Revistra Brasileira de Geosciencias (Sao Paulo), v. 12, p. 278-283.
5. (Bickford, M.E.). 1981, Proterozoic chronology and evolution of the midcontinent region, North America, chap. 11 *of* Kröner, A., ed., Precambrian plate tectonics: Developments in Precambrian Geology 4, New York, Elsevier, p. 261-296.
6. (Green, J.C.; Halls, H.C.). 1982, Geochronology of Keweenawan rocks of the Lake Superior region: A summary, *in* Wold, R.J., and Hinze, W.J., eds., Geology and tectonics of the Lake Superior Basin: Geological Society of America Memoir 156, p. 165-171.
7. (Hinze, W.J.). 1985, The midcontinent rift system: Annual Review of Earth and Planetary Sciences, v. 13, p. 345-383.

Veinus, Julia. See Brower, J.C., 2.

Vervoort, J.D.
1985, Geology of the Jap Lake area of the eastern Vermilion district, northeastern Minnesota [abs.], *in* Institute on Lake Superior Geology, 31st Annual Meeting, Kenora, Ontario, 1985, Technical Sessions and Abstracts: Organized by the Resident Geologist Office, Kenora, and the Ontario Geological Survey, p. 94-95.

Vick, T.D.
1. (Cowan, C.A.; Packer, D.J.). 1982-1983, Buried bedrock topography of the Cannon River system around Northfield, Minnesota: Minnesota Academy of Science Journal, v. 48, no. 2, p. 19-23.
2. (Greilich, Glenn; Seltzer, G.O.). 1980, Seismic survey of buried bedrock topography in the Cannon River valley: Minnesota Academy of Science Journal, v. 46, no. 3, p. 6-9.

Voelz, N. See Soroka, L.G., 3.

von Frese, R.R.B. See Sexton, J.L.

Wahl, T.E. See also Beltrame, R.J., 2-4.
(Kuhns, M.J.P.; Morey, G.B.). 1985, Geologic map index of Minnesota (2nd ed.): Minnesota Geological Survey, 23 p.

Wallace, Henry.
1981, Keweenawan geology of the Lake Superior basin, *in* Campbell, F.H.A., ed., Proterozoic basins of Canada: Canada Geological Survey Paper 81-10, p. 399-417.

Walter, M.R.

(Hofmann, H.J.). 1983, The palaeontology and palaeoecology of Precambrian iron-formations, *in* Trendall, A.F., and Morris, R.C., eds., Iron-formation facts and problems: Amsterdam, Elsevier, p. 373-400.

Walton, M.S. See Walton, Matt.

Walton, Matt. See also Goebel, J.E., 1-2; Hoyer, M.C., 1-3; Southwick, D.L., 6; Weiblen, P.W., 7.

1. [1982?] The aquifer thermal energy storage (ATES) program, University of Minnesota, *in* International Conference on Seasonal Thermal Energy Storage and Compressed Air Energy Storage, Seattle, Washington, 1981, Proceedings: Prepared for the U.S. Department of Energy by Battelle Memorial Institute, Pacific Northwest Laboratory, Richland, Wash., v. 1, p. 132-140.
2. 1982, Seasonal thermal energy storage (STES), *in* Williamson, J.S., and Khoshaim, B.H., eds., Solar storage—SOLERAS Workshop, 3rd, Jeddah, Saudi Arabia, 1982, Proceedings: MRI/SOL-1101, Kansas City, Mo., Midwest Research Institute, p. 114-143.
3. 1982, Seasonal thermal energy storage (STES) systems in Minnesota [abs.], *in* Institute on Lake Superior Geology, 28th Annual Meeting, International Falls, Minnesota, 1982, Proceedings: Sponsored by the Minnesota Geological Survey, p. 49.
4. 1982, Engineering geology of the Twin Cities area, Minnesota, *in* Legget, R.F., ed., Geology under cities: Geological Society of America Reviews in Engineering Geology, v. 5, p. 125-131.
5. 1982, The University of Minnesota aquifer thermal energy storage project, *in* Mechanical, Magnetic and Underground Energy Storage Annual Contractors' Review, Washington, D.C., 1981, Proceedings: Conf-810833, sponsored by the U.S. Department of Energy, Division of Energy Storage, p. 120-126.
6. 1984, A geologically deep target for relatively shallow core drilling in the Minnesota River Valley [abs.]: Eos (American Geophysical Union Transactions), v. 65, no. 45, p. 1101-1102.
7. 1985, Seasonal Thermal Energy Storage (STES): Underground Space, v. 9, no. 1, p. 5-15. [This paper is a revised version of the report first published in 1982 in the proceedings of the 3rd SOLERAS Workshop, Jeddah, Saudi Arabia.]
8. (Hoyer, M.C.). 1982, University of Minnesota Aquifer Thermal Energy Storage Field Test Facility, *in* DOE Physical and Chemical Energy Storage Annual Contractors' Review Meeting, Arlington, Virginia, 1982, Proceedings: Conf.-820827, sponsored by the U.S. Department of Energy, Division of Energy Storage Technology, p. 111-115.
9. (Jirsa, M.A.; Kanivetsky, Roman). 1981, Engineering geology of the St. Paul Energy Park and vicinity, Appendix B *of* St. Paul Energy Park Study: Technical/economic feasibility study of central energy system alternatives for the St. Paul Energy Park: Prepared by the Honeywell Technology Strategy Center, Roseville, Minn., for the St. Paul Port Authority, 24 p.
10. (McSwiggen, P.L.). 1982, Heat accumulation and storage capability of the water-filled mines at Ely, Minnesota, *in* DOE Physical and Chemical Energy Storage Annual Contractors' Review Meeting, Arlington, Virginia, 1982, Proceedings: Conf.-820827, sponsored by the U.S. Department of Energy, Division of Energy Storage Technology, p. 131-135.
11. (McSwiggen, P.L.). 1983, Heat accumulation, storage and recovery in flooded mines at Ely, Minnesota, U.S.A., *in* International Conference on Subsurface Heat Storage in Theory and Practice, Stockholm, June 6-8, 1983, Proceedings, Appendix 2: Stockholm, Swedish Council for Building Research, p. 430-437.
12. (McSwiggen, P.L.). 1983, Investigation of thermal energy storage and heat exchange capacity of water-filled mines—Ely, Minnesota, *in* DOE Physical and Chemical Energy Storage Annual Contractors' Review Meeting, Arlington, Virginia, 1983, Proceedings: CONF-830974, Washington, D.C., prepared for the U.S. Department of Energy, Division of Energy Storage Technology, p. 264-270.

13. (Southwick, D.L.; Morey, G.B.). 1985, A proposal for a technological and geological drilling experiment in the Minnesota River Valley, *in* Continental Scientific Drilling Workshop, Houston, Texas, April 29-May 1, 1985: Deep Observation and Sampling of the Earth's Continental Crust, Inc. (DOSECC); workshop organized by Edward Schreiber, Queens College, CUNY, p. 106-108.

Warner, L.A.
1. 1978, The Colorado Lineament: A middle Precambrian wrench fault system: Geological Society of America Bulletin, v. 89, no. 2, p. 161-171.
2. 1979, Reply *to* Discussion *of* The Colorado Lineament: A Middle Precambrian wrench fault system, by L.A. Warner, 1978 (*in* Geological Society of America Bulletin, v. 89, no. 2, p. 161-171): Geological Society of America Bulletin, Part I, v. 90, no. 3, p. 314-316.

Watkins, I.W. See Ronnei, D.M.

Watowich, S.N. See also Ripley, E.M., 9.
1. (Malcolm, J.B.; Parker, P.D.). 1981, A review of the Duluth Gabbro Complex as a domestic source of critical and strategic metals [abs.]: SME-AIME, Fall Meeting and Exhibit, Denver, Colorado, 1981, Pocket Program, p. 33.
2. (Malcolm, J.B.; Parker, P.D.). 1981, A review of the Duluth Gabbro Complex of Minnesota as a domestic source of critical and strategic metals: Society of Mining Engineers of AIME Preprint 81-351, 9 p.

Watts, A.B. See Chandler, V.W., 20.

Watts, D.R. See also Jackson, M.; Van der Voo, Rob.
1981, Paleomagnetism of the Fond du Lac Formation and the Eileen and Middle River sections with implications for Keweenawan tectonics and the Grenville problem: Canadian Journal of Earth Sciences, v. 18, no. 5, p. 829-841.

Watts, W.A. See also Ashworth, A.C., 4.
1983, Vegetational history of the eastern United States, 25,000 to 10,000 years ago, chap. 15 *of* Porter, S.C., ed., The late Pleistocene, v. 1 *of* Wright, H.E., Jr., ed., Late-Quaternary environments of the United States: Minneapolis, University of Minnesota Press, p. 294-310.

Webb, Thompson, III. See Jacobson, G.L.

Weber, J.R.
(Goodacre, A.K.). 1966, A reconnaissance underwater gravity survey of Lake Superior, *in* Steinhart, J.S., and Smith, T.J., eds., The Earth beneath the continents: American Geophysical Union Geophysical Monograph 10, p. 56-65.

Weber, R.E. See also Ojakangas, R.W., 13.
1981, Petrology and sedimentation of the Upper Precambrian Sioux Quartzite, Minnesota, South Dakota and Iowa: Unpublished M.S. thesis, University of Minnesota, Duluth, 151 p.

Webers, G.F.
1. (Erickson, B.R.). 1984, Minnesota's Ice Age mammals: Minnesota Volunteer, v. 47, no. 275, p. 55-61.
2. (Splettstoesser, J.F.). 1983, Marine fossils link Minnesota and Antarctica: Minnesota Volunteer, v. 46, no. 270, p. 2-10.

Wegscheid, E. See Holzheimer, J.

Weiblen, P.W. See also Cooper, R.W., 2-3; Day, W.C., 8-10; Eldougdoug, A.A., 4; Grant, J.A.; Green, J.C., 14; Holst, T.B., 14; McSwiggen, P.L., 3; Miller, J.D., Jr., 3-4; Morey, G.B., 24-25; Mullenmeister, E.E., 1; Ryan, P.J.

1. 1982, Evidence for a change from wrench faulting to rifting in Keweenawan rocks of the Lake Superior region [abs.]: Eos (American Geophysical Union Transactions), v. 63, no. 33, p. 615.
2. 1982, Keweenawan intrusive igneous rocks, *in* Wold, R.J., and Hinze, W.J., eds., Geology and tectonics of the Lake Superior Basin: Geological Society of America Memoir 156, p. 57-82.
3. 1982, Similarities in the regional geology of the Midcontinent Rift in the Lake Superior region and the Tertiary geology of the North Atlantic, *in* Walker, D., and McCallum, I.S., eds., Workshop on magmatic processes of early planetary crusts; magma oceans and stratiform layered intrusions: Houston, Texas, Lunar and Planetary Science Institute Technical Report 82-01, p. 161-164.
4. 1983, Field trip guidebook for the Precambrian rocks of the Minnesota River Valley: Minnesota Geological Survey Guidebook Series 14, 25 p.
5. (Miller, J.D., Jr.). 1982, The effect of country rock and tectonics on variations of plagioclase-mafic mineral compositions in layered intrusions, *in* Lunar and Planetary Science Conference, 13th, Houston, Texas, 1982, Abstracts of papers: Houston, Lunar and Plantary Institute, p. 849.
6. (Miller, J.D., Jr.). 1982, Similarities in the regional geology of intrusive rocks in the Keweenawan Midcontinent Rift, the Permian Oslo Rift, and the Tertiary geology of the North Atlantic [abs.], *in* Institute on Lake Superior Geology, 28th Annual Meeting, International Falls, Minnesota, 1982, Proceedings: Sponsored by the Minnesota Geological Survey, p. 50-51.
7. (Morey, G.B.; Southwick, D.L.; Walton, Matt). 1976, The effect of ancestral structures on the evolution of the Midcontinent rift and the Duluth Complex [abs.]: International Geological Congress, 25th, Sydney, Australia, 1976, Abstracts, v. 3, p. 695.

Weijermars, Ruud.

1985, Comment *on* Evidence for nappe development during the early Proterozoic Penokean orogeny, Minnesota, by T.B. Holst, 1984 (*in* Geology, v. 12, no. 3, p. 135-138): Geology, v. 13, no. 6, p. 443-444.

Welsh, J.L.

1985, Preliminary investigations into the geology of the Giants Range Complex, Virginia-Biwabik area, N.E. Minnesota [abs.], *in* Institute on Lake Superior Geology, 31st Annual Meeting, Kenora, Ontario, 1985, Technical Sessions and Abstracts: Organized by the Resident Geologist Office, Kenora, and the Ontario Geological Survey, p. 96.

West, G.F. See Berry, M.J.

West, W.J. See Aase, J.H., 5; Briggs, R.C.

West, W.S. See Heyl, A.V.

Wheeler, G.A. See Glaser, P.H.

White, C.E. See also Labotka, T.C., 5.

1. 1981, The petrology and chemistry of the contact metamorphosed Virginia and Rove Formations, northeastern Minnesota: Unpublished M.S. thesis, State University of New York at Stony Brook, 67 p.
2. (Labotka, T.C.; Papike, J.J.). 1981, Mass transfer and evolution of H_20 during contact metamorphism of argillaceous rocks [abs.]: Eos (American Geophysical Union Transactions), v. 62, no. 17, p. 435.

White, W.S.
1. 1966, Geologic evidence for crustal structure in the western Lake Superior basin, *in* Steinhart, J.S., and Smith, T.J., eds., The Earth beneath the continents: American Geophysical Union Geophysical Monograph 10, p. 28-41.
2. 1972, Keweenawan flood basalts and continental rifting [abs.]: Geological Society of America Abstracts with Programs, v. 4, no. 7, p. 732-734.

Wiegel, R.L. See Lawver, J.E.

Wiesmann, H. See Wooden, J.L.

Wilband, J.T. See Green, J.C., 9.

Wildeman, T.R.
(Haskin, L.A.). 1973, Rare earths in Precambrian sediments: Geochimica et Cosmochimica Acta, v. 37, no. 3, p. 419-438.

Williams, I.S.
(Kinny, P.D.; Black, L.P.; Compston, W.; Froude, D.O.; Ireland, T.R.). 1984, Dating Archaean zircon by ion microprobe—new light on an old problem, *in* Workshop on the early Earth: The interval from accretion to the older Archean, Houston, Texas, April 23-25, 1984: Houston, Lunar and Planetary Institute, p. 79-81.

Wilson, J.L. See Ham, W.E.

Wilson, S.L. See Smithson, S.B.

Wilson, W.E.
1976, Trace element geochemistry and geochronology of Early Precambrian granulite facies metamorphic rocks near Granite Falls in the Minnesota River Valley [abs., University of Minnesota Ph.D. dissertation]: Dissertation Abstracts International, 1977, v. 38, no. 3, p. 1095B.

Winfree, K.E.
1. 1983, Depositional environments of the St. Peter Sandstone of the upper Midwest: Unpublished M.S. thesis, University of Wisconsin, Madison.
2. (Dott, R.H., Jr.; Byers, C.W.). 1983, Depositional environments of the St. Peter Sandstone of the Upper Midwest [abs.]: Geological Society of America Abstracts with Programs, v. 15, no. 4, p. 214.

Winter, T.C. See also LaBaugh, J.W.
1. 1974, The natural quality of ground water in Minnesota: Minnesota Department of Natural Resources, Division of Waters, Soils, and Minerals Bulletin 26, 23 p.
2. 1976, The hydrologic setting of lakes in Minnesota and adjacent states with emphasis on the interaction of lakes and groundwater [abs., University of Minnesota Ph.D. dissertation]: Dissertation Abstracts International, 1976, v. 37, no. 6, p. 2729B-2730B.
3. 1977, Classification of the hydrologic settings of lakes in the North Central United States: Water Resources Research, v. 13, no. 4, p. 753-767.
4. 1985, Effect of climatic and hydrogeologic uncertainty on determination of water balances in lakes [abs.]: Eos (American Geophysical Union Transactions), v. 66, no. 18, p. 263.

Wirth, K.
(Crouse, G.; Woodard, H.H.). 1982, Geology of the Friday Bay quadrangle, Minnesota [abs.], *in* Institute on Lake Superior Geology, 28th Annual Meeting, International Falls, Minnesota, 1982, Proceedings: Sponsored by the Minnesota Geological Survey, p. 52.

Wishart, J.S.
1929, The geology of Disappointment Lake, Lake County, Minnesota: Unpublished M.S. thesis, University of Rochester, 83 p.

Witzke, B.J. See Bunker, B.J., 2.
1. 1980, Middle and Upper Ordovician paleogeography of the region bordering the Transcontinental Arch, *in* Fouch, T.D., and Magathan, E.R., eds., Paleozoic paleogeography of west-central United States—West-Central United States Paleogeography Symposium 1: Denver, Society of Economic Paleontologists and Mineralogists, Rocky Mountain Section, p. 1-18.
2. 1981, Cretaceous vertebrate fossils of Iowa and nearby areas of Nebraska, South Dakota, and Minnesota, *in* Cretaceous stratigraphy and sedimentation in northwest Iowa, northeast Nebraska, and southeast South Dakota: Iowa Geological Survey Guidebook Series 4, p. 105-122.
3. 1983, Ordovician Galena Group in Iowa subsurface, *in* Delgado, D.J., ed., Ordovician Galena Group of the Upper Mississippi Valley—deposition, diagenesis, and paleoecology: Society of Economic Paleontologists and Mineralogists, Great Lakes Section, 13th Annual Field Conference, 1983, Guidebook, p. D1-D26.
4. (Bunker, B.J.). 1984, Devonian stratigraphy of north-central Iowa: A geologic framework for the Devonian aquifer and karst systems in Floyd-Mitchell Counties: Iowa Geological Survey Open-File Report 84-2, pt. 2, p. 107-149.
5. (Ludvigson, G.A.; Poppe, J.R.; Ravn, R.L.). 1983, Cretaceous paleogeography along the Western Interior seaway, Iowa, southern Minnesota, and eastern Nebraska and South Dakota, *in* Reynolds, M.W., and Dolly, E.D., eds., Mesozoic paleogeography of west-central United States—Rocky Mountain Paleogeography Symposium 2: Denver, Society of Economic Paleontologists and Mineralogists, Rocky Mountain Section, p. 225-252.

Wold, R.J. See also Hinze, W.J.; Landmesser, C.W.
1. (Hinze, W.J., editors). 1982, Geology and tectonics of the Lake Superior Basin: Geological Society of America Memoir 156, 280 p., 3 pls.
2. (Hutchinson, D.R.; Johnson, T.C.). 1982, Topography and surficial structure of Lake Superior bedrock as based on seismic reflection profiles, *in* Wold, R.J., and Hinze, W.J., eds., Geology and tectonics of the Lake Superior Basin: Geological Society of America Memoir 156, p. 257-272.

Wolf, R.C.
1983, Fossils of Iowa: Field guide to Paleozoic deposits: Ames, Iowa State University Press, 198 p.

Wolf, R.J. See also Adolphson, D.G., 2; Ruhl, J.F., 1-3.
1. 1981, Hydrogeology of the Buffalo aquifer, Clay and Wilkin Counties, west-central Minnesota: U.S. Geological Survey Water-Resources Investigations 81-4, 83 p.
2. (Ruhl, J.F.; Adolphson, D.G.). 1983 [1984], Hydrogeologic and water-quality characteristics of the Mount Simon-Hinckley aquifer, southeast Minnesota: U.S. Geological Survey Water-Resources Investigations Report 83-4031, 2 pls.

Woodard, H.H. See Kaszuba, J.P.; Mariano, A.; Wirth, K.

Wooden, J.L. See also Morrison, D.A., 1-2.
(Bansal, B.; Wiesmann, H.). 1983, Archean crust-mantle reservoirs; Sr and Nd evidence from the Superior Province [abs.]: Eos (American Geophysical Union Transactions), v. 64, no. 18, p. 340.

Woods, D.V. See Prugger, A.F.

Woodward, D.G. See also Delin, G.N.

1. 1984, Areal lithologic changes in bedrock aquifers in southeastern Minnesota as determined from natural-gamma borehole logs, *in* NWWA/EPA Conference on Surface and Borehole Geophysical Methods in Ground Water Investigations, San Antonio, Texas, February 7-9, 1984: Worthington, Ohio, National Water Well Association, p. 788-800.
2. 1985, Minnesota, *in* U.S. Geological Survey, National water summary 1984; hydrologic events, selected water-quality trends, and ground-water resources: U.S. Geological Survey Water-Supply Paper 2275, p. 261-268.
3. 1985, Seismic-refraction study of suspected drift-filled bedrock valleys in Ramsey County, Minnesota: U.S. Geological Survey Water-Resources Investigations Report 85-4107, 20 p.
4. 1985, Trends in municipal-well installations and aquifer utilization in southeastern Minnesota, 1880-1980: U.S. Geological Survey Water-Resources Investigations Report 83-4222, 99 p.
5. (Delin, G.N.). 1982, Potentiometric surface of regional aquifers in the Hollandale embayment, southeastern Minnesota [abs.]: Eos (American Geophysical Union Transactions), v. 63, no. 33, p. 612.

Woollard, G.P.

1966, Regional isostatic relations in the United States, *in* Steinhart, J.S., and Smith, T.J., eds., The Earth beneath the continents: American Geophysical Union Geophysical Monograph 10, p. 557-594.

Wopat, M.A.

1974, The karst of southeastern Minnesota: Wisconsin Speleologist, v. 13, p. 1-47.

Wright, H.E., Jr. See also Ashworth, A.C., 4; Glaser, P.H.

1. [1966?] A teacher's guide for geologic field investigations in northwestern Minnesota, *in* Phinney, W.C., ed., A teacher's guide for geologic field investigations in Minnesota: Minnesota Department of Education with the cooperation of the Minnesota Geological Survey, 7 p.
2. 1985, History of the Mississippi River in Minnesota below St. Paul [abs.], *in* Lively, R.S., coordinator, Pleistocene geology and evolution of the Upper Mississippi valley—Winona, Minnesota, August 13-16, 1985, Abstracts and field trip guide: Minnesota Geological Survey, p. 1-2.
3. (Glaser, P.H.). 1982, Postglacial peatlands of northern Minnesota [abs.]: Geological Association of Canada-Mineralogical Association of Canada Program with Abstracts, v. 7, p. 88.
4. (Glaser, P.H.). 1983, Postglacial peatlands of the Lake Agassiz plain, northern Minnesota, *in* Teller, J.T., and Clayton, Lee, eds., Glacial Lake Agassiz: Geological Association of Canada Special Paper 26, p. 375-389.
5. (Matsch, C.L.; Cushing, E.J.). 1973, Superior and Des Moines lobes, *in* Black, R.F., Goldthwait, R.P., and Willman, H.B., eds., The Wisconsinan Stage: Geological Society of America Memoir 136, p. 153-185.
6. (Meyer, Rubin). 1956, Radiocarbon dates of Mankato drift in Minnesota: Science, v. 124, no. 3223, p. 625-626.

Wright, W.B. See Carr, M.S.

Wunderman, R.L.

(Young, C.T.; Rogers, J.C.). 1985, A magnetotelluric traverse across the exposed Midcontinent Rift and adjacent basement, central Minnesota-Wisconsin: Preliminary data [abs.]: Eos (American Geophysical Union Transactions), v. 66, no. 46, p. 874.

Yaghubpur, Abdolmajid.
(Clark, K.F.). 1984, Evolution of Midcontinent Feature; a proposed hypothesis for the action of Mesozoic rifting in late Precambrian time [abs.]: International Geological Congress, 27th, Moscow, 1984, Abstracts, v. 3, p. 463.

Yanagisawa, Masahisa. See Tsunakawa, Hideo.

Yau, Yu-Chyi. See Chalokwu, C.I., 6.

Yeomans, B.W.
1984, The geology and economic petrology of the Archean Newton Lake Formation Boulder Bay area, St. Louis County, Minnesota: Unpublished M.S. thesis, University of Minnesota, Duluth, 123 p., 3 pls.

Young, C.T. See Wunderman, R.L.

Young, G.M.
1983, Tectono-sedimentary history of early Proterozoic rocks of the northern Great Lakes region, *in* Medaris, L.G., Jr., ed., Early Proterozoic geology of the Lake Superior region: Geological Society of America Memoir 160, p. 15-32.

Young, M.A. See King, J.W., 3.

Zhu, X.Y. See King, J.W., 2.

Zietz, Isidore.
1. (compiler). 1981, Preliminary composite magnetic anomaly map of the conterminous United States: U.S. Geological Survey Open-File Report 81-766, 55 p., scale 1:2,500,000, 2 pls.
2. (and others, compilers). 1982, Composite magnetic anomaly map of the United States—part A: Conterminous United States: U.S. Geological Survey Geophysical Investigations Map GP-954-A, scale 1:2,500,000, 2 pls.

Zoltai, S.C. See Bannatyne, B.B.

INDEX