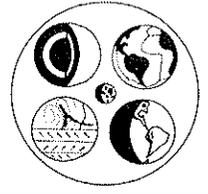




# DEPARTMENT OF GEOLOGY

# NEWSLETTER



Volume I No. 4

August 1, 1978

Dear Alumni and Friends:

The 1977-78 year has passed, and it represents one of good progress for the department. Late in the previous year authorization was received to add a ninth faculty position to the staff, and we were fortunate enough to obtain the services of Ron J. Sides of the University of Kansas. Ron taught structural geology, oceanography, mathematical geology, and shared the petrology class with Dr. Chase while he was here. Also, Ron won a Western Faculty Research Fellowship and has accepted a faculty position at the University of Texas at Arlington beginning in September. We wish him, his wife Dottie, and new baby great success in Texas.

Replacing Ron is Dr. Chris Schmidt who will be joining us from Albion College. Chris is a graduate of Indiana University and has specializations in structural geology and geophysics. Chris has taught at the Indiana Field Station, and some of our former students may have met him there. Chris has recently plunged into matrimony, and his new bride is Carolyn Rutland. Carolyn is finishing her M.S. thesis on carbonatites and plans to pursue her Ph.D. in geology at the University of Chicago. We welcome Chris and Carolyn to our department.

Enrollments in our programs continue to show steady growth. Recruiting of geology students for industry jobs reached a strong level of intensity with more opportunities than students to fill them. Texaco, Exploration Logging, and John Yellich for Rocky Mountain Energy Company recruited on campus.

The 75th anniversary year of Western has come to a close. The department participated in a special Jubilee Day last September. Dedication by WMU Trustee Robert Caine and President Bernhard of a large glacial erratic (greenstone) with a brass plaque citing the occasion took place in front of Rood Hall. A special outdoor seismic demonstration was conducted by grad student, Hall Taylor, and the Geology and Earth Science Club made a tidy profit through selling miscellaneous minerals and fossils. Many visitors toured the Geology museum, and it was an enjoyable occasion for all, especially with classes being called off. During Arts and Sciences Jubilee week in April, the department presented a special symposium: Energy - Is the Crisis Real, a two-day film festival, featuring films with earth science themes, and a program on Careers in the Geosciences for Women (American Geological Institute) that was conducted by Ms. Betty Garrett.

Major research awards were received by Dr. Kuenzi and Dr. Straw. Dr. Kuenzi received a grant from the National Science Foundation for studies in Guatemala on "Fluvial-Deltaic Processes and Facies within a Modern Arc-Trench Gap, Southwestern Guatemala-Model for Paralic 'Eugeosynclinal' Sedimentations." Working with Dr. Kuenzi in Guatemala this spring were grad students Dave White, Jim Bartel, and undergrad Tony Herrera.

Dr. Straw was Project Director for a feasibility study for reclamation of Austin Lake in southeastern Kalamazoo County. A grant by the Kalamazoo Foundation funded the research via the WMU Institute of Public Affairs. Assisting Dr. Straw on the project are geology grad students William French, Thomas Silverman, David White and William Williams. A special pontoon boat was constructed for lake research which has been turned over to the department for future research efforts.

The department is pleased to report that a total of nine papers were presented by students and faculty at the Annual Meeting of the North-Central Section of the Geological Society of America held in Ann Arbor last April.

The department expects to have a good contingent at GSA in Toronto. Alumni planning to go to Toronto, please complete the information sheet and return it to me so I can make arrangements for a get-together.

#### Here and There; This and That

John Heinsius reports from Midland, Texas, that he is an exploration geologist at Texaco. He is co-authoring a paper on Permian stratigraphy of part of the Glass Mountains of Texas and is currently interested in Pennsylvanian micropaleontology of some Upper Paleozoic carbonates. More recent reports indicate he will be moving to a new position with Ladd Petroleum in Tulsa.

At Eastern Nazarene College in Quincy, Massachusetts, Phil McLaren is busy on research involving single-year class scallop beds of Nova Scotia and teaching oceanography and marine biology. He's also involved with work on an annual erosional cycle at Marconi Beach on Cape Cod.

Four-star surprise: Received a card from Mammoth Cave from two "former freshmen", Dudley and Jean (Cargill) Cahn. They were celebrating their 11th wedding anniversary and Mammoth Cave reminded them they had first met in Dr. Schmaltz's Physical Geology (Fall 1961). They even remembered their cave geology. Congratulations!

For those of you who have wondered where Don Drozdenko is he is now a test engineer with E-Systems in Greenville, Texas. He'll be able to use his flight experience as a test navigator on various aircraft being modified by the firm.

Larry Mascotti is on the staff at the Como Planetarium in St. Paul, Minnesota. He has extended a welcome to all to visit him any time.

On her way from Colorado to California, Sue Kaschner dropped in for a short visit-- Sue always did manage to do things a little differently! She visited at Christmas time, too. Her current occupation is developing curriculum materials for blind students at Berkeley. Reports she is enjoying the California way of life and rumor has it she will soon marry.

It's always nice to see former students make good--Eric Swanson, now on the staff at Wayne State University, came over as a guest lecturer to tell us about his Ph.D. work with the volcanics of northern Mexico. And John Yellich (fellow undergraduate way back when) came to the department to interview for summer employees for Rocky Mountain Energy in Casper, Wyoming. He made four of our current undergraduates very happy. They are now doing summer field work.

Also, somewhere out in the wilds of Wyoming is Nancy Meade. Let us know where you are and what you are doing.

At GSA in Seattle Ron Parker provided lodging for Dick Passero and Lloyd Schmaltz. Many thanks! Recently Ron returned from Seattle and on July 8 married Debbie Oakland. Ron and Debbie will be living in the Petoskey area for the next year after which Ron expects to be looking for a position in industry.

The newest employees at the State Geological Survey include two of our female students. Checking oil wells for the state will be Jean Shoquist and Ginny Loselle. Nice to see the ladies in hard hats! Mike Cote and Doug Daniels are working with Michigan's DNR and are frequent visitors to the department. With Ginny Loselle, Jean Shoquist, Paul Daniels and Rich Kimmel we should be able to start an alumni chapter.

Julie Stein is working on a Ph.D. problem that concerns an "Archaic" site on the Green River. Her work involves the fluvial sedimentology of the site and related area. She anticipates two more field seasons on the project. In July 1978 she will join Dr. Wright on a trip to Peru where they will visit Lima, the glaciers at Junin and the famous archaeological sites at Cosco. She attended the "Midwest Friends of the Pleistocene" Field trip in southern Indiana in May of 1978.

Bob Timmons was happy to recognize himself in some of our mastadon "dig" photographs. He is now a lawyer in Grand Rapids, had come down to visit Tom Straw for some geological information.

Carol and Jim Peterson rescued Betty Garrett from a long (9 hour) lay over in Denver last summer. Took her to see his new office at Anadarko Production Company and showed her some aspects of his current exploration work.

Norm Lovan and Janell Smith were married in Richland, Michigan, on Christmas Eve with many members of the Geology community in attendance. Norm is working for Texaco in New Orleans where he sees Gene Murray, Charlie Cookman and George Fingleton. George Fingleton has recently left Texaco and has taken a position with Science Applications in Morgantown, West Virginia. Also, leaving Texaco are Charlie Cookman now with Texas Oil and Gas, Midland, Texas, and Gene Murray with Occidental Petroleum, Los Angeles.

Jim Staebler is a Park Ranger at Zion National Park. Jim stopped by this past winter and reports he is enjoying his work. Doug Thompson expects to return to Western this fall to complete some graduate courses.

Dawn Adams informs us she is planning graduate studies in oceanography. News from Buffy Brown is that she plans to marry Robert Oldham, also an employee of Seismic Service Corporation. They will be transferred to either Denver, Oklahoma City, or Casper, Wyoming.

Bill Middleton from Citgo stopped by the department in July. Bill has been promoted to senior geophysicist and is working in Houston in the offshore division. We discussed the increased numbers of our students in the Houston area and Bill has a listing of them in hopes of having a reunion.

Steve Tripp has taken a job with Pennzoil in Houston. Steve, let's hear from you. Mari Krull, a geology senior, has a summer position with Pennzoil and is working in the same building.

We hear that Jim Smith is now in Algeria doing seismic processing for French Company of Prospection Seismology.

Robert Kell is working for Anaconda in Butte, Montana, and will soon be joined by Jim Bielak who is currently doing his Masters at the University of Montana.

Surprise visitors to the department were Gayle and Mark Nelson with Ryan and the newest household member, Carinna, born last August. The Nelsons live in Little Chute, Wisconsin, and would like to see any of the geology gang who happen to be up that way.

Ruta Bormanis came to tell us she is working for Republic Steel Company in Akron, Ohio.

Bill Coons is at the University of Chicago doing post-doctorate work in the Geophysical Sciences Department. Finished his Ph.D. at Arizona State. Reports he has a new baby daughter.

Randy Kerhin came in from Baltimore for a visit and used the Rapid Sediment Analyzer on some samples from Chesapeake Bay. Randy is employed by the Maryland Geological Survey.

Karen Kemp and Glenn Baja were married in June of 1977. Karen and Glenn live in the Dearborn area. Tom Sherman with the Liberia Geological Survey continues his world travels as he represents Liberia at various international mineral resources conferences.

Harriet (Cloft) Dorf is living at 6110 Morningside, Dallas, Texas, 75214, for anyone who would like to contact her.

Let's hear from all of you out there! Please complete the tear-out sheet and return it to the department. In turn, we will be happy to pass on information to you about your friends.

Betty Garrett  
Lloyd Schmaltz

#### Faculty News

Bill Harrison remains busy teaching the large oceanography classes and invertebrate paleontology. Bill presented a paper at NC-GSA (see GSA Section) and was re-elected secretary of the Paleontological Society. The paleo field trip to Cincinnati this year produced no trilobites, but some of the students' pictures made the Cincinnati newspaper showing them digging for fossils in a highway cut. This summer Bill is embarking on a new venture and will teach the Upper Peninsula geology field course.

John Grace was promoted to Professor. Congratulations! John received a Faculty Research Fellowship and is spending spring and summer in Kalamazoo working on phase equilibrium studies in the copper sulphide system. Also, John serves as undergraduate geology advisor for our growing numbers of majors.

Ron Chase remains busy working on the Idaho Batholith problem with Dr. Pat Bickford of the University of Kansas. Word has just been received that their NSF Grant proposal

on age dating of this area will be funded. Ron spent this spring at Kansas in the dating lab and will be in Montana doing field work this summer. Ron was selected to attend a Penrose last year on Cordillera Batholith and attended the southeastern GSA meeting and field trip on Southern Appalachian structure in Chattanooga, Tennessee. Also, Ron has been awarded tenure at Western. Congratulations!

Caspar Cronk arranged for a special seminar on the use of exploration seismology by Dr. Roy Lindseth from Calgary, Alberta, President of the Society of Exploration Geophysicists. About 40 participants attended the program. Also, Caspar has been elected President of the Michigan Chapter of SEG. Congratulations!

Dave Kuenzi reports that during Fall Semester he completed and submitted a manuscript, co-authored with O. H. Horst and R. V. McGehee, on the "Effect of volcanic activity on fluvial-deltaic sedimentation in a modern arc-trench gap, Guatemala" which has been accepted for publication by the Geological Society of America. He was particularly excited, however, about the paper that he and John Fowler submitted to the Journal of Geophysical Research during Winter semester entitled "Keweenawan turbidites in Michigan (deep borehole redbeds): a founded basin sequence developed during evolution of a protoceanic rift system". The paper, which synthesizes Keweenawan geologic history in the Great Lakes region, is based on ideas which were the outgrowth of in-progress thesis work by John on core, well logs, and cuttings obtained from the 5,250 meter Michigan Basin deep test completed in 1975.

In January, Dave was notified that he was awarded a grant from the National Science Foundation in order to continue the Guatemala work for another two years. Thus, in late April, Dave, two graduate students (Dave White and Jim Bartel), and Tony Herrera (an undergraduate), with a van full of equipment, left for two months of field work. They were joined in Guatemala for three weeks by Dick McGehee, Dave's colleague in the project. Dave White and Jim Bartel gathered information in Guatemala for their MS theses. Dave and his students also did reconnaissance work in Nicaragua and Costa Rica in order to lay the ground work for future studies.

After returning from Central America in early July, Dave and Chris Schmidt spent several days in Montana helping to plan a field trip for a Penrose Conference on "High-level batholiths; their evolution, emplacement, and influence on sedimentation" scheduled for June, 1979. Dave attended the AAPG Meeting in Oklahoma City in April where he attended short courses on seismic stratigraphy and evaporites, and participated in a field trip on the stratigraphy and structure of the Ouachita Orogen. He particularly enjoyed visiting with former WMU students John Yellich, George Grover, John Heinsius, Steve Pierce, and John Fowler.

Lloyd Schmaltz continued to serve as chairman of the Department and teach Physical Geology and Geology of the National Parks and Monuments. The parks class has grown to 80 students each semester. Also, Lloyd conducted a geology field course in the Upper Peninsula for the Sarett Nature Center for nature center naturalists last August. Also, see Colorado Raft Trip news.

Dick Passero was promoted to Professor. Congratulations, Dick! He also received a Western Faculty Research Fellowship. He hosted the Michigan Earth Science Teachers Association Annual Conference on Current Environmental Issues in Michigan. He also attended the G.S.A. Annual Meeting, Seattle, Washington, which included a field trip to Teton Dam, Satsop Nuclear Power Plant and Environmental Problems in Seattle Area. He was appointed to the Michigan Environmental Review Board and Special Task Force on Toxic Chemical and Hazardous Waste Disposal by Governor Milliken. In addition, he has authored Environmental Geology for the January Review issue of Geotimes.

Betty Garrett taught 100 and 107. She also coordinated the program, Careers for Women in Geology which was given as part of the Arts and Sciences Week, Jubilee, 1978. She presented a paper at the GSA Regional Meeting (May 2, 1978) in Ann Arbor, Michigan, entitled, "A Petrographic Analysis of Black Mesa, Arizona Ceramics". Betty has continued to work on research for her Specialist Degree (6 hour) Project (an in-depth petrographic study of Black Mesa and surrounding sites of the same occupational age). She also indicates that she got one year older (and greyer!)

Tom Straw, with Bill Williams, Tom Silverman, Bill French and Dave White spent most of 1977-78 studying Austin Lake, a large kettle lake about 10 miles from campus. The first phase of the study has been completed, but much work remains to be done. Tom is also involved in a N.S.F. funded Science for Citizens project that is concerned with water problems in the Kalamazoo River Basin. He will return to the Indiana Field course in Montana this summer and may stay on for a sabbatical leave at the Montana Bureau of Mines and Geology. Tom was one of two nominees for the position Dean of the College of Arts and Sciences.

#### Graduate Students 1977-78

Stacy Clark is finishing his research on the Idaho Batholith and will soon join the geophysics division of Phillips in Bartlesville. Nate Fuller has finished his thesis on carbonate sedimentation of a bay on St. Croix, Virgin Islands, and has just accepted a position at the Geologist 3 level with the Lake Erie Section of the Ohio Geological Survey which is based in Sandusky, Ohio. Nate starts August 28, 1978, and the job will be doing research and Environmental Impact statements on the shore and near shore zones of the Lake Erie shoreline.

Jeff Martin is working on a Pennsylvanian depositional problem in the Grand Ledge, Michigan, area. Val Naeve spent the fall and winter at Brock University in Ontario. Her thesis is on "Interpretation of a Post Glacial History of a Marl Lake Site in Southeastern Kalamazoo County."

Dave White and Jim Bartel have just returned from Guatemala with material for thesis. Jim Dexter spent most of the spring at the University of Kansas in the dating lab working on rocks of the Idaho Batholith for Dr. Chase.

Bill French assisted with the Austin Lake project and is studying the feasibility of using the organic material. Tom Silverman is studying the phosphate concentration and methods of removal. Jeff Spruitt has shown interest in a paleo-ecology thesis problem in the Alpena area.

Bill Johnston is looking into a problem in geophysics. Marcus Bowen is completing a field course in Montana and will be working with Dr. Schmidt on a gravity study.

Jim Hahnenberg spent two weeks in the Upper Peninsula this summer sampling diabase dikes for his thesis problem. Hall Taylor is finishing his study of the seismic characteristics of the glacial drift in Kalamazoo County.

Ibrahim Al-Jallal has finished his research on a groundwater problem in Saudi Arabia. Dave Young completed a computer program for mapping water quality data for Dr. Passero.

Bill Williams, a doctoral candidate, is teaching a section of Earth Studies this summer for the department. Bill is working on the nutrient balance study of water of Austin Lake.

Bill Norman has returned from Massachusetts for a few weeks this summer to complete his research.

#### Former Faculty

Richard Davis continues to serve as chairman of the Department at the University of South Florida in Tampa. Skip attended GSA in Seattle and is searching for new faculty members for his department.

Dick McGehee has completed his Master's program at Texas A.M. and has accepted a teaching position in physical education in Louisiana. We wish him the best in his new endeavor. Also, Dick was with Dave Kuenzi in Guatemala for three weeks this spring as a contributor to the NSF Research study.

Stu Monroe is teaching at Central Michigan University, and we continue to receive good reports on his efforts there.

Phil Mariotti is in the Earth Science Department at Ashland College, Ashland, Ohio, and is an occasional visitor to the Department.

Mike Jordan has finished his doctoral research at the University of Texas - Austin and is seeking a teaching position.

John Lufkin is now located in Denver but doing field work in northern Nevada where he is looking for mineral deposits. John is expected in Kalamazoo later this summer.

#### Geology and Earth Science Club and Undergraduate News

The G.E.S. Club members greatly helped the department this year by serving as projectionists for the Jubilee Film Festival and as guides during the Open House period. Also, the club sponsored Jubilee Speaker, Mr. Don Clark of Dow Chemical who presented a program on Michigan's Native Copper Deposits. Other club speakers were Ms. Betty Garrett and Dr. Grace.

This year Department Senior Honor Awards in Geology were won by Mike Colvin, Walker, Michigan, and Tim Cook, Westland, Michigan. The Kalamazoo Geological and Mineral Society Field Trip Scholarship was won by Terri Reed. Terri is from Portage, Michigan, and will be enrolling in the Indiana University field program in the Tobacco Root Mountains.

Most undergraduates were heavily committed to their course work and in attending a variety of class field trips. Major field trips this past year included the Cincinnati area by the paleo class, Upper Peninsula by the structure class, the St. Francis Mountains by the petrology class, and southern Indiana by the geomorphology class.

## **HOME COMING '88**

### **STILL CRAZY AFTER ALL THESE YEARS**

Department Alumni are invited to attend Western's Homecoming October 21, 1978. The department will sponsor an Open House and Continental Breakfast for Alumni in Rood Hall from 8:00-10:00 a.m. and serve as host at a Geology Department table at the Alumni Luncheon 11:45 a.m. A luncheon-football combination is available and a notice will be in an Alumni Office Announcement. Western will play Eastern Michigan University. If you plan to attend, please return the information slip attached to the Newsletter.

#### Papers Presented by Faculty, Students and Alumni at the North-Central G.S.A.

##### Stratigraphy

John H. Fowler, A Keweenawan Turbidite Basin Michigan: Analysis, Interpretations, and Tectonic Implications of the Gratiot County Deep Borehole Red Beds

K. Robert Garrison: Paleoenvironmental Analysis of the Lost Creek Limestone and Associated Facies of the Breathitt Formation, Southeastern Kentucky

##### Quaternary

Norman A. Lovan (speaker), W. Thomas Straw: Analysis of an Interlobate Boundary in the Wisconsin Drift of Kalamazoo County and Adjacent Areas in Southwestern Michigan.

Elizabeth M. Garrett: A Petrographic Analysis of Black Mesa, Arizona, Ceramics

Valerie A. Naeve: Post-Glacial Environmental History of a Marl-Lake Site in Kalamazoo County, Southwestern Michigan

##### Paleontology

William B. Harrison: The Occurrence of Larval and Young Post-Larval Juvenile Mollusca in the Upper Ordovician Cincinnati Series

Papers Presented by Faculty, Students and Alumni at the North-Central G.S.A. (continued)

Petrology (Igneous and Metamorphic)

Stacy L. Clark (speaker), Ronald B. Chase: A Structural and Petrologic Comparison of the Southern Sapphire Range and the Northeastern Border Zone of the Idaho Batholith, Montana

Sedimentology and Sedimentary Petrology

Jean M. Shoquist (speaker), W. David Kuenzi: Sandstone Diagenesis in the Tertiary Bozeman Group (Montana) and Its Paleoclimatic Implications

Colorado River Trip Alumni

Two Colorado River trips were completed this spring. The April 20-May 2 trip had 29 students and two supporting faculty members attending. Faculty members participating were Dr. Tom Hodler from the Geography Department and Dr. John Cooley from the English Department. Dr. Hodler served as resident hydrologist and geographer, and Dr. Cooley provided ecological and literary comment. The weather was fine, and the trip went well except for the problem of low water on the last day of the river trip. This delayed our arrival at Phantom Ranch until well after noon. As a result, the hike out of the canyon got a late start, and some hikers did not get out until after dark. However, it was completed without mishap, and everyone had an exciting time. A reunion was held a month later to compare slides, enjoy the movie, and share in food and drink.

A river trip for WMU Alumni and Friends was held on June 2-8 and was attended by 13 members of the Kalamazoo Community. This was the second Alumni trip with the first occurring in 1976 when 23 participants braved the rigors of the Colorado River. This trip had some interesting experiences. After viewing some spectacular scenery including beautiful Matkatamiba Canyon, Havasau Creek, Deer Falls and the many thrills of shooting Sockdolager, Grapevine, Upset, and Lava Falls rapids, disaster struck on the sixth and last day. The horses did not arrive at our destination to carry us out of the canyon for our return journey home. After a long, hot wait, we departed for Diamond Creek located at mile 225.6 and another 35 miles down river. In the early evening we helped dismantle and load the rafts and rode a U-Haul truck to Peach Springs 40 miles away. After the long and dusty ride we crowded into three motel rooms and were able to catch our flights out the next morning. Cross Tours had goofed, but the extra 35 miles on the river produced some memorable events, namely, the many clusters of wild burros we saw, and the several low (100-150') fly-overs by a small plane dropping us messages as we rafted down the river. It was a trip we will not soon forget.

Lloyd

Geology Development Fund

In 1976 a Geology Development Fund was established so that cash contributions to the University as part of the Annual Fund drive could be channeled to the Department. An appeal for support in the 1977 Newsletter produced a modest sum from a small number of generous supporters. This year I would like to urge all alumni and friends that contribute to the Annual Fund to make their gift to the Geology Development Fund. Gifts made before January 1, 1979, will come available to the department in 1979. Small contributions of \$5-\$10 are welcomed and quickly add up to a meaningful amount. Funds in 1979 will be used to support a series of visiting speakers and student field trip activities. Rapidly-inflating costs have seriously impaired the department's ability to conduct these important activities as expanding needs require. (Continued on page 8.)

Geology Development Fund (continued)

Contributions to the department are tax deductible. Michigan residents can take advantage of the 50% credit on the state income tax form. Also, with the availability of the federal deduction using the long form, the tax advantage of making a gift is substantial and lessens the out-of-pocket bit to a small amount. Michigan alumni are urged to use this opportunity (a chart is enclosed as a guide and indicates the state regulations).

Also, it may be possible to take advantage of the matching gifts program sponsored by many employers. A brochure listing these firms is enclosed. If alumni have comments, suggestions, or activities they would like to see supported by their gifts, please inform me.

Lloyd

Late Flashes

Bruce McLeod also dropped by and reports he will be teaching chemistry instead of earth science at Green Bay High next year.

Wayne Lueck, B.S. 1961, stopped by the department for a visit. Wayne was enrolled in some of the first classes taught by Dr. Schmaltz in 1959-61. Wayne teaches earth science in Skokie, Illinois, and is helping promote the National Park Science trail through the Kettle Moraine area in Wisconsin.

INFORMATION SHEET

Name \_\_\_\_\_ Year Graduated and Degree \_\_\_\_\_

Address \_\_\_\_\_ Phone \_\_\_\_\_ Major \_\_\_\_\_

Current Position \_\_\_\_\_

Professional Interests \_\_\_\_\_

Other News \_\_\_\_\_

Homecoming 1978. I plan to attend breakfast \_\_\_\_\_, luncheon \_\_\_\_\_.

G.S.A., Toronto, October 23-25. I plan to attend \_\_\_\_\_.

Return to: Department of Geology, Western Michigan University, Kalamazoo, Michigan, 49008

PUBLICATIONS  
DEPARTMENT OF GEOLOGY  
WESTERN MICHIGAN UNIVERSITY

Listed below are the publications available from the Department of Geology. If you wish to receive copies, please write to the Department of Geology, Western Michigan University, Kalamazoo, Michigan, 49008.

Geology Series

Field Trip Guidebook Coastal and Environmental Geology of Southeastern Lake Michigan, William L. Wood, 1976	\$3.50	_____
Geology of the Kentland Structural Anomaly, Northwestern Indiana, Raymond C. Gutschick, 1976	\$2.50	_____
Guidebook for a Field Trip on Some Aspects of the Glacial Geology in the Kalamazoo Area, W. Thomas Straw, 1976	\$2.00	_____
Indiana Portion of Guidebook for a Field Trip on Silurian Reefs, Interreef Facies, and Faunal Zones of Northern Indiana and Northeastern Illinois, Robert H. Shaver, with a section on glacial geology by Ned K. Bleuer, 1976	\$2.00	_____
Guidebook for a Field Trip on the Thornton Reef (Silurian) Northeastern Illinois, with an Article on Distribution and Community Development of Trilobites, Thornton Reef (Silurian), Lloyd C. Pray	\$2.50	_____

Earth Science Education Series

A Bibliography of Geological Field Trip Guidebooks and Related Publications for Indiana, Kentucky, Michigan and Ohio (1950-1972), Education Committee, East-Central Section, N.A.G.T.	\$1.00	_____
A Field Guide to Geology of the Eastern Upper Peninsula of Michigan, Intended primarily for Secondary Earth Science Teachers, A. Lawrence Goldman, Jr., 1976	\$4.00	_____
A Field Guide to the Geology of Wouthwestern Michigan, Gregg R. Squire, 1972	\$2.50	_____

Miscellaneous

Sourcebook and Field Guide to the Geology of the West Central Lower Peninsula of Michigan, David A. Waltrip, 1973	\$3.00	_____
Geology and the Environment, Kalamazoo County Michigan (published August 1978)		