



# newsletter

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## FROM THE EDITORS

This issue includes the candidate biographies and the ballot for the election of the new GIS officers. (Copies of the ballot are only included in issues sent to GIS members.) Please mark your ballot and mail it to Ros Walcott by August 1, 1986. (Her address is on the back of the ballot.)

We hope to have reports from members who are attending the Adelaide meeting and the SLA and ALA meetings for the next issue.

Enjoy the summer!

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## 1985 GIS OFFICERS

### PRESIDENT

Annette E. Bourgeois  
Library  
Geological Survey of Canada  
601 Booth Street, Room 350  
Ottawa, Ont. Canada K1A 0E8  
613/995-4163

### PAST PRESIDENT

Claren E. Kidd  
Geology Library  
University of Oklahoma  
830 Van Vleet Oval, Room 101  
Norman, OK 73019  
405/325-6451

### VICE PRESIDENT and PRESIDENT ELECT

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Library  
U.S. Geological Survey  
Box 25046, MS 914  
Denver, CO 80225  
303/236-1004

### SECRETARY

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Geological Sciences Library  
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24 Oxford Street  
Cambridge, MA 02138  
(617) 495-2029

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Mary B. Ansari  
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Reno, NV 89557-0044  
(702) 784-6596

### EDITORIAL BOARD CHAIRPERSON

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(503) 686-3075

Connie Manson  
2525 Sleater Kinney Rd. N.E.  
Olympia, WA 98506  
(206) 459-6372

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GIS members are encouraged to contribute articles or news of general interest to the membership. Please send any manuscripts to the Chairperson of the Editorial Board. All other items, such as citations, letters to the editor, job announcements, publication notices, and general news should be sent to the Newsletter Editor.

Material for the August Newsletter should be received by the editors no later than June 15, 1986.

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The *GIS Newsletter* is published bi-monthly in February, April, June, August, October, and December by the Geoscience Information Society. Subscription to the *Newsletter* is \$30.00 per year and is included in the Society's annual membership dues. All correspondence relating to dues, membership status and address changes should be directed to the GIS Secretary.

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## GEOSCIENCE INFORMATION SOCIETY CANDIDATES FOR OFFICE - BIOGRAPHIES

### VICE-PRESIDENT/PRESIDENT-ELECT

JEAN T. EAGLESFIELD

#### *Education:*

B.A., History, Education, University of Missouri, 1964.  
M.A., History, Rutgers-The State University, 1966.  
M.L.S., Simmons College, 1972.

#### *Positions:*

Currently: Librarian, Lindgren Library, Massachusetts Institute of Technology, 1979-  
Past positions include Intern and Librarian, Geological Sciences Library, Harvard University, 1969-1979.

#### *GIS Activities:*

Member, 1972-  
Membership Drive chair, 1979-1980.  
Publications Manager, 1981-1982.  
Presented paper, "Costs of journals, library networks, interlibrary loan and copyright," at GIS Symposium, 1982.  
Convened maps discussion session, GIS Annual Meeting, 1983, 1984.  
Co-authored and presented paper, "Improving subject access in geoscience library catalogs," GIS Annual Meeting, 1985.

#### *Other Professional Activities:*

President, Harvard University Library Club, 1975.  
Chair, Harvard University Librarians' Assembly, 1976-1978.  
Member, ALA and MAGERT  
Member, SLA and Geography & Map Division Program Committee SLA Boston Chapter, 1983-1985  
Chair, Local Arrangements for SLA Geography and Map Division Boston Meeting, 1986  
President, Beta Beta Chapter, Beta Phi Mu, 1985-1986.

#### *Statement:*

"I am eager to take a leadership position in GIS after having done numerous tasks for the Society. GIS has been an

important source of professional inspiration and of practical knowhow for me personally and I want to help maintain the health of this organization."

SUSAN KLIMLEY

#### *Education:*

B.A., Boston University, 1972.  
M.L.S., Simmons College, 1973.

#### *Positions:*

Currently: Geological Sciences Librarian, Lamont-Doherty Geological Observatory, Columbia University.  
Past positions include Reference Librarian, Muhlenberg College, 1973-1975, and Head of the special library at the Academy of Natural Sciences, 1976-1979.

#### *GIS Activities:*

Member, 1979-

#### *Publications:*

Geologic maps in books and serials—A hidden preservation problem: Geoscience Information Society Proceedings, v. 13, 1982, p. 136-143.  
Saving geology libraries—What's available?: Geoscience Information Society Proceedings, v. 15, 1984, p. 51-58.  
The future—Videodisc, optical disk and CD-ROM: Geoscience Information Society Newsletter, no. 99, April, 1986, p. 9-11.

#### *Other Professional Activities:*

Member, ALA and MAGERT  
Member, SLA  
Member, WAML

#### *Statement:*

"As a GIS member, I have organized discussion groups on maps and database searching and presented papers on the special preservation problems of the geology literature and alternative solutions. At the present time, I am working on an analysis of geology holdings in research libraries. I am running for President of GIS because I feel an obligation to make a contribution to the society which has given me so much over the years."

SECRETARY

DONA DIRLAM

*Education:*

B.S., Earth Science Education, University of Minnesota, Minneapolis.

M.S., Geology, Geophysics, University of Wisconsin, Madison, 1979.

Completed graduate gemology programs of the Gemological Institute of America, 1979, and the Gemological Association of Great Britain, 1982.

Currently taking information science courses at UCLA.

*Positions:*

Currently: Information Research Librarian Gemological Institute of America (GIA), Santa Monica, CA.

Currently: Abstract Editor, *Gems and Gemology* (GIA's quarterly research journal).

(Note: The GIA is the educational arm of the jewelry industry and offers a diploma in gemology through courses available in residence or by correspondence. Its special library, which focuses on gemology and all aspects of jewelry, is the information center for the international jewelry and gem industries.)

Past positions include teaching geology, earth science, and physical science for ten years in the Madison, Wisconsin, public school system.

*GIS Activities:*

Member

Publication: The use of microcomputers in selecting diamond terminology for indexing gemological literature: *Geoscience Information Society Proceedings*, v. 16, 1985.

*Other Professional Activities:*

Member, GIA Alumni Association

Member, Society of Jewelry Historians

Member, Association of Women Gemologists

Member, SLA

Member, NAGT

Member, Association of Women Geoscientists

Member: Geo-literary Society

Publications:

Pearl fashion through the ages: *Gems and Gemology*, v. 21, no. 2, 1985.

International jewelry periodicals: *In Focus*, v. 4, no. 1, 1985.

MIRIAM SHEAVES

*Education:*

B.A. German, Miami University, Oxford, Ohio, 1972.

M.L.S., University of Illinois, Urbana-Champaign, 1979.

*Positions:*

Currently: Librarian, Geology Library, University of North Carolina, Chapel Hill, 1980-

Past positions include teaching High School German in Cincinnati, and managing a branch geology library at Miami University of Ohio, 1972-1975.

*GIS Activities:*

Member, 1980-

Chair, Membership Committee, 1981, 1982. Coordinator for the Expansion of the *GIS Newsletter*.

Chair, *GIS Newsletter* Editorial Board, 1983-

Member, GeoRef User Group Steering Committee, 1983-

Planned two GeoRef workshops for 1985 Annual Meeting.

Member, GeoRef Advisory Committee Task Force on Serials and Coverage, 1985-

Publication: A serials review program based on journal use in a departmental geology library: *Geoscience Information Society Proceedings*, v. 12, 1983, p. 59-71. (Paper presented at the 1981 Annual Meeting in Cincinnati.)

*Other Professional Activities:*

Member, Microcomputer Users Group for

*Other Professional Activities:*

Member, Microcomputer Users Group for Libraries in North Carolina.

Member, North Carolina Online Users Group.

Note: This page has been intentionally left blank for Newsletter issues sent to subscribers only. In issues sent to GIS members, this page contains the official ballot.



## ANNOUNCEMENTS

### GEOREF RELOADED ON ORBIT

The GeoRef database was reloaded on SDC's ORBIT system in March. The reload added 133,000 references from the Bibliography of North American Geology (1785-1960) as well as significant improvements and new search capabilities.

New search features include:

- Proximity searching, which allows the user to link together adjacent words, nearby words, or words from the same field
- The designation of "abstract" as a document type, which allows the user to eliminate abstracts from the search results
- Searching by illustration, such as plates, sketch maps, tables, charts, and portraits.

Other improvements include corrections to the records in the GeoRef file and deletions of duplicate records. The citation format was redesigned for greater clarity, and all known "bugs" in the old file were eliminated. Coordinate searching has been simplified, and coordinate ranging has been improved, so that a search can specify particular coordinates and search them directly.

For more information, contact the GeoRef Information System at the American Geological Institute, 4220 King Street, Alexandria, VA 22302-9990, or call 800/336-4764.

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### GSA SHORT COURSES ANNOUNCED

The short courses to be held immediately before and after the GSA Annual Meeting in San Antonio (November 10-14) are:

- Computer Graphics for Geological Applications
- Glacial-Marine Sedimentation
- Contaminant Hydrogeology
- Seawater Chronostratigraphy Using Strontium Isotopes
- Introduction to the Geologic Use of Microcomputers

- Geologic Applications of Fossil Radiolaria
- Basic Principles of Rock Mechanics

Course participation is open to GSA members and nonmembers. Registration for the Annual Meeting is not required to attend one of these courses. Preregistration deadline is October 10. On-site registration to these courses is based on availability, and there is a \$15 additional fee for on-site registration.

For additional information, contact:

GSA Meetings Department  
P. O. Box 9140  
Boulder, CO 80301  
303/447-2020

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### GEOSCIENCE RESOURCES, INC.—A NEW GEOSCIENCE LIBRARY SERVICE COMPANY

Geoscience Resources, Inc. (GRI) is a new map supply company serving the professional map librarian.

Founded in 1982, GRI started as a thin section and sample preparation lab, and expanded. It now carries an integrated product line of minerals, fossils, books, charts, teaching sets, and equipment—in all, over 2,000 products for geologists.

The map section has been one of the fastest growing divisions, and now has one of the largest inventories of geologic maps in the U.S.

### STOCK:

- GRI stocks:
- USGS maps of the U.S.: geologic, structural, geophysical, bouguer gravity, magnetic anomaly, geothermal, mineral, and oil and gas, including the GQ, MF, and I series, and also hydrologic and open-files.
  - State survey maps and reports: geologic, bouguer gravity, magnetic anomaly, geothermal, mineral and oil and gas maps at 1:500,000 and 1:1,000,000, and also 1:250,000 geologic maps of Texas, Okla-

homa, California, and other states as available. State and regional geologic bulletins are also available by special order.

— Foreign maps: GRI is a recognized dealer for several foreign surveys, including Great Britain, France, Germany, Italy, Australia, and China. GRI carries geologic maps of most foreign countries at 1:1,000,000, and tectonic, mineral deposit and geophysical maps (including some out-of-print maps); geologic maps at 1:250,000 of some countries, including New Zealand, Malawi, Papua New Guinea, Fiji, Panama, and others.

— Topographic maps: GR now stocks the topographic base maps of the U.S. and the individual states, as well as the 1:1,000,000 or 1:250,000 topographic maps for many foreign countries. Topographic maps at other scales are available by request.

#### ORDERING SERVICES:

Standing orders are available. Rush service is available (nice, when you find a little extra money at the end of the fiscal year that must be spent immediately). The complete catalog is mailed annually, with periodic updates, and is available free.

For additional information, contact:

Annabelle C. Powell, PhD, President  
Geoscience Resources, Inc.  
2990 Anthony Road  
Burlington, NC 27216-2096  
919/227-8300, or toll free  
800/742-2677

#### AGI/NSTA EARTH SCIENCE TEST TO BE DEVELOPED

The National Science Teachers Association (NSTA) has approved a joint venture with the American Geological Institute (AGI) to develop an earth science test and is seeking the help of earth science teachers.

The test would be targeted at the first year earth science course offered to students grades 9-12, and would be similar to tests cooperatively developed by NSTA for physics, chemistry, and biology. Such tests provide teachers and school systems with instruments to evaluate their overall high school science program.

The test is to be developed by teachers, and so the committee is asking for volunteers— teachers to write items, and teachers, scientists and science educators to validate items. If you'd like to participate or offer your opinions, contact one of the co-chairs:

Victor J. Mayer  
The Ohio State University  
1945 North High Street  
Columbus, OH 43210

Jeffrey C. Callister  
13 Linda Drive  
Newburgh, NY 12550

In order to insure the widest possible input, the test will also be discussed at the open meetings of the area conventions of the NSTA in:

- Indianapolis, Oct. 30-Nov. 1, 1986
- Las Vegas, Nov. 21-23, 1986
- Anchorage, Dec. 4-6, 1986.

This test is the result of the Conference of Earth Scientists to Plan Improvements in Precollege Science Education, held in Washington, D.C., September, 1985. The health of earth science programs in K-12 science curricula was a concern of this conference, and the decision to develop this test was the result.



## UPDATE ON CD-ROM

by

**Susan Klimley**

**Lamont-Doherty Geological Observatory Columbia University**

### *National Online Meeting*

I had the opportunity to attend three of the National Online Meeting sessions on CD-ROM May 7th. It was interesting to see what progress had been made in the 4 months since the Optical, Video and CD-ROM meeting in December. Some of the information I heard was reassuring. The interpretations and guesses I made (and recorded for GIS) turned out to be pretty accurate. But the thing that stands out most in my reflections on the May 7th sessions was the gloomy tone of the speakers, their lack of energy, and failure to see what I believe many librarians are seeing in this new technology.

I think particularly of the keynote session, "Technological Challenges to Online" that had as panelists: Mike Adams from DEC, William Marovitz from BRS, and James McGinty from Dun and Bradstreet, among others. It is clear the data base producers feel threatened by CD technology-- that it will take away revenue from their online products. They ask how updating will occur, what users will do without help desks and they predict the appearance of "orphan data bases." Unlike librarians I have spoken to, they can't see the potential of access to data bases locally so the elusive end user can actually learn how to use a data base without "the meter running." The panelists repeated more than once that "if the problem is a flat fee for unlimited use, we can do that online," minimizing the difficulty of logging on and off as well as high telecommunication costs. I sat next to Dick Walker and, as he said, it was the type of panel that could have been used to temper starry-eyed wishful thinking rather than setting the tone of a successful meeting.

I found that my perception of how the CD data base environment would work became clearer. The panelists view a hybrid situation as a likely scenario-- a high-use "archive" data base, perhaps updated yearly, held on CD in the local library, supplemented by online access to updated information and access to less-used data bases.

I enjoyed the eccentric presentation of silver-haired Bela Hatvany of (appropriately enough) Silver Platter Information Ltd. He suggested a major difference between offering online and CD data base services would be that the latter would come out of the materials budget-- a practice already being followed at Columbia. These budgets tend to be much larger than online budgets and already accommodate high-priced times like indexing and abstracting services (I speak from my academic perspective here). He also mentioned that CD technology is more in line with traditional library values-- you buy a tool for people to use rather than charging back costs as is frequently done with online service.

John Paul Emard (Meckler) made the interesting comment that people like the "toy" CD-ROM-- there is high user acceptance. Along a similar line, Sue Zayac, a Columbia Computer Center consultant, commented that she thought the driving force toward having personal "end user" access to data bases was very similar to the interest in having PC's. People want their own computer, not because they think it can do everything a mainframe can or to replace a mainframe, but rather so they can use it at home, in their office, in privacy. Data base searching is similar. Not that everyone will start doing all their own searching but they can explore it.

It was clear at the meeting the librarians were very interested in the CD sessions. It's too bad the "industry" did not show more creativity and anticipation of another technological tool toward information distribution.

I also wanted to pass on some information about CD-ROM that I have picked up since the last report I wrote. A number of Columbia computer buffs have been sending me articles that I probably would have missed. After pruning the "waffle," I have found some interesting bits and pieces of the CD picture.

#### *Time sharing on CD-ROM*

I found out a little more about "time-sharing" on a single CD disk drive. A very good IEEE Spectrum (April, 1986) article on CD-ROM discusses the mechanics of a CD drive which affect access time. The pickup head is a fairly massive device to begin with, carrying several lenses for focusing. Access speed is improved by use of a small focusing mirror to direct the laser beam without moving the whole lens' apparatus. However, if more than one user is competing for time on different areas of the disk, the pickup head must be moved frequently, causing a degradation of access time. This is recognized as a major problem by the tech-ies and is high on their list of priorities.

#### *Graphics on CD-ROM*

The May Byte has a big section on CD-ROM which added a nice bit of info on combining graphics and text on CD-ROM. They mentioned a project being conducted by OCLC using American Chemical Society journals which not only contains graphic but also includes the ability to make high-quality hard copy. I visited the ACS booth at Online and found out that this is being done only as a pilot project since ACS realizes (as does everyone else) that not only is this a preservation medium but it would also give the user the ability to search. Apparently ACS is moving very conservatively on this issue, but it is good to know the technology is being developed.

I discussed graphics in general with a number of vendors and although many speakers talked about combined text, audio and visual on a single disk, at the present time illustrations are being run on parallel video systems. Apparently, the monitor's poor resolution is holding up development, not the disk's ability to store. Graphics that can handle our map preservation problems are key to the use of disk as a preservation alternative in geology. Fortunately, we are in the company of the potential art and engineering users of CD which should give greater numbers to our cause.

Finally, again gleaned from *IEEE Spectrum*, there is some hard information on how much mastering a CD-ROM would cost. The problem remains that American manufacturing plants are turning out audio CDs of Madonna and not the *Electronic Encyclopedia*. However, according to IEEE, the first mass produced discs have been done in 4 to 6 weeks. Premastering and mastering costs about \$3000 for the master and \$4-5 per CD in lots of 10,000. This sounds encouraging from my preservation orientation (although I'm not exactly sure where I would unload 9,999 copies of the *New York State Museum Bulletin* on CD). One of the disc producers said the break even point is under 20 copies of a disc.

Just in summary, I think there are still some significant problems in the use of disc technology. But I also see that people are working in these areas and progress has been made even in a few months. It's a fascinating technology with a strong basis in the ever-growing number of personal computers available and the mass production being set up for audio disks. Despite the gloom of the vendors, I still think this is a good area to keep under close watch and it's time to start working on pilot projects that will address the needs of geology directly.

## PUBLICATIONS

North Carolina Geological Survey, 1985, Geologic map of North Carolina: North Carolina Geological Survey, 1 sheet, (66 x 44 inches), scale 1:500,000.

Includes an explanatory legend consisting of geologic belts, rock type descriptions and their geologic ages, a geologic time scale for use as a visual reference for placement of the rock types in their correct geochronological order; a 1:2,500,000 color lithotectonic map showing the location of the different geologic belts and structures, and a color 1:2,500,000 Paleozoic metamorphic facies map.

Cost: \$7.00 prepaid (North Carolina residents add 4 1/2% sales tax). Order from:

North Carolina Geological Survey  
Section  
P. O. Box 27687  
Raleigh, NC 27611  
919/733-2423

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The "Extended Abstracts Volume" of the *Computer Applications in Mineral Exploration, 1986*, are now available from:

Patricia Sheahan  
Konsult Int. Inc.  
44 Gemini Road  
Willowdale, Ontario  
Canada M2K 2G6

The volume sells for \$12 US; \$15 Canada, including postage and handling. Checks should be made payable to Patricia Sheahan. Prepaid orders only.

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The *Annotated bibliography of theses on the geology of Saskatchewan*, by David P. Salt, is now available. The bibliography lists 267 theses issued from 1915-September 1985. Photocopies of the bibliography are available from:

Regina Fast Print  
1639 Broad Street  
Regina, Saskatchewan  
Canada S4P 1X3  
(306) 359-1944

Harris, R. E.; Hausel, W. D.; Meyer, J. E., 1985, *Metallic and industrial materials map of Wyoming*: Geological Survey of Wyoming, 1 sheet (103 x 105 cm.), scale 1:500,000.

Highlights the state's mines, mills, mineral processing plants, mining districts, and mineral occurrences, except for coal, oil, and gas.

Cost: \$10.00 over the counter; \$12.00 by mail (first class).

Love, J. D.; Christiansen, A. C., 1985, *Geologic map of Wyoming*: U.S. Geological Survey, 3 sheets, scale 1:500,000.

Depicts 215 rock units in 128 colors and patterns. Set of 3 sheets includes geologic map, explanation, sources of data, and references cited.

Cost: \$7.30 from the USGS Denver Distribution Center; \$7.30 over the counter from the Wyoming GS or \$10.50 by mail (first class) from Laramie.

Both maps are available from:

Geological Survey of Wyoming  
Box 3008, University Station  
Laramie, WY 82071

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A new book from the Manchester University Press, *Wranglers and physicists—Studies on Cambridge physics in the nineteenth century*, edited by P. M. Harman, contains a chapter of interest to geoscientists, "Geologists and mathematicians--The rise of physical geology," by Crosbie Smith. This interesting chapter discusses the history of the relationship of geology, mathematics, physics, and theology with the Cambridge "school" of geological science. The author focuses on Adam Sedgwick, William Whewell, and William Hopkins, and their contributions to the field of geology.

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*Direct-Line Distances*, by Gary L. Fitzpatrick and Marilyn J. Modlin, has been published by Scarecrow Press, Inc., Metuchen, N.J. The publication gives distances between 1001 cities, towns,

and islands around the world, and is available in two editions: distances in miles (the United States Edition), and distances in kilometers (the International Edition). Each volume includes a 275-page table of distances, an intro-

duction explaining the use of the table, a rationale for the selection of places, and maps showing the location of places found in the table. The volumes sell for \$42.50 individually, or \$72.50 for the set.

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## NEW MEMBERS

John W. Graham  
Tulsa City-County Library  
Business and Technology Department  
400 Civic Center  
Tulsa, OK

Stephen Henson  
Prescott Memorial Library  
Louisiana Tech University  
Ruston, LA 71272

Kathleen A. Kinsey  
Langsam Library - Documents  
University of Cincinnati  
Cincinnati, Ohio

Jeffrey Thurwachter  
Bureau of Economic Geology  
University Station, Box X  
Austin, TX 78713

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## MEMBERS IN THE NEWS

CLAREN KIDD will spend the next year on sabbatical leave, working at the Bureau of Mineral Resources in Canberra, Australia. She will be compiling a union list of geologic field trip guidebooks of Australia. The Bureau will provide the support necessary for her work and will also publish the completed list. While in Australia, Claren will also conduct research for a future journal article, attend the upcoming Geoscience Information meeting in Adelaide, and also attend the Australian Library Association's meeting in Darwin at the end of June.

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BARBARA CHAPPELL, Chief of Reference and Circulation Section of the U.S. Geological Survey Library in Reston is currently participating in a Department of the Interior Manager Development Program

(DMDP). The 10-month training program is designed to provide promising employees with opportunity for managerial development through seminars, coursework, and assignments. Participants are permitted to negotiate assignments in or outside of government in pursuit of individual goals.

Barbara's program thus far has included work in Interior's Office of Policy Analysis, the Geological Survey's Office of the Director, the American Geological Institute, Resources for the Future, the National Technical Information Service, and the National Commission for Libraries and Information Science. The 1985/1986 DMDP extends through June 13.

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JUDY GEITGEY had an article published in the Spring, 1986 issue of *PNLA Quarterly*, "Government documents in the geosciences, an annotated bibliography."

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## FORTHCOMING MEETINGS

- June 15-18, 1986—American Association of Petroleum Geologists and Society of Economic Paleontologists and Mineralogists; annual meeting; Atlanta.
- June 28-July 2, 1986—American Library Association; annual meeting, New York.
- Sept. 7-10, 1986—Society of Mining Engineers of AIME; fall meeting, St. Louis.
- Sept. 17-19, 1986—American Institute of Professional Geologists; annual meeting; Keystone, CO.
- Sept. 26-28, 1986—Society of Economic Paleontologists and Mineralogists; mid-year, annual meeting; Raleigh, NC.
- Sept., 1986—Western Association of Map Libraries; fall meeting; Eugene, OR.

Nor is that Fellow-wanderer, so deem I,  
Less to be envied, (you may trace him oft  
By scars which his activity has left  
Beside our roads and pathways, though, thank Heaven!  
This covert nook reports not of his hand)  
He who with pocket-hammer smites the edge  
Of luckless rock or prominent stone, disguised  
In weather-stains or crusted o'er by Nature  
With her first growths, detaching by the stroke  
A chip or splinter — to resolve his doubts;  
And, with that ready answer satisfied,  
The substance classes by some barbarous name,  
And hurries on; or from the fragments picks  
His specimen, if but haply interveined  
With sparkling mineral, or should crystal cube  
Lurk in its cells — and thinks himself enriched,  
Wealthier, and doubtless wise, than before!

*from William Wordsworth, "The Excursion,  
Book III: Despondency," 1814.*

\* \* \* \* \*

### INSTRUCTIONS FOR CONTRIBUTORS

The GIS Newsletter welcomes original, previously unpublished English language papers related to geoscience information. Manuscripts should be typed on opaque paper, on one side only, double-spaced throughout, with 3 cm margins on all sides, and all pages numbered consecutively. Length should not exceed 12 pages.

The title page should include the title, the name(s) of the author(s) and their institutional address(es). References should be mentioned in the text (author and date), with a list of "References cited" appearing at the end of the paper, following GSA reference style. Provide on a separate sheet an informative abstract of no more than 200 words and a biographical sketch of the author(s), of

no more than 100 words, which includes current position and education.

Clear, black and white (glossy) photographs and illustrations with strong contrast should be submitted on separate sheets from the text and numbered consecutively in order of reference in the text. Tables and figures should be submitted on separate sheets from the text, numbered, and referred to in the text by number.

Send two (2) copies of the manuscript to the Chairperson, GIS Newsletter Editorial Board. Include a phone number where the author(s) may be reached and a self-addressed stamped envelope for notification of receipt of manuscript. Each manuscript will be reviewed by at least two persons.

Connie Manson - Editor  
Geoscience Information Society  
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Olympia, WA 98506

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