



# GSA news & information

G.S.A. ARCHIVES

VOLUME 2, NUMBER 5

MAY 1980

## Report of the Executive Director

*To the Council and Membership of The Geological Society of America, Inc.:*

For the Geological Society of America, 1979 was the year in which several major changes that had been decided upon earlier were put into effect. The most visible of these changes were in the publications program. It was the first year of publication of the *Bulletin* in the new two-part format: *Part I* in much the same format as previously and *Part II* on microfiche. In this regard it was also a year of transition because a significant number of old-format manuscripts (accepted before the decision to change) appeared in *Part I*, and it was not until year's end that the new *Bulletin* system was fully operative. This was also the year that "GSA News & Information" was removed from *Geology* and became a separate publication exclusively to serve the membership.

The total membership continued well above the 12,000 level, but the mix of the several grades changed perceptibly. The total number of Members increased to more than 7,000 for the first time, but also during the year there was a slight decrease in the number of Fellows to a total of 3,317 and approximately 100 fewer Student Associates to a total of 1,815.

The dues notices for 1980, mailed in September 1979, contained a questionnaire asking members to indicate his/her major area of professional interest. The response to the questionnaire was excellent, and the results show clearly that GSA continues to be the broad, general society for the geological sciences that it has been. Petroleum geology with 13.6% of the total was the largest group, followed by economic geology with 12.8%, mineralogy-petrology-volcanology with 10%, structural geology-tectonics with 9%, engineering geology with 8.5%, and stratigraphy-sedimentology with 8.3%. From

here the percentage dropped to 5.4% for hydrogeology, 5.3% for geomorphology, and 5.1% for paleontology. The other seven categories ranged downward from 3.9% for environmental geology.

After several years of "option packages," 1979 was the first year wherein each member selected his/her own publications, item by item, and each was individually priced for members. The system was well received by the membership in 1979 and was continued for 1980. By year's end 73% of the 1980 dues statements had been received at headquarters, and the publication orders by members were rather close to the percentages for 1979. *Bulletin, Part I* was ordered by 35.3% and *Bulletin, Part II*, was ordered by 10%, with 7.8% ordering separates from *Part I*; *Geology* was ordered by 55.5%, *Annual Meeting Abstracts with Programs* by 49%, and the *Membership Directory* by 16.3% of the membership. A section meeting *Abstracts with Programs* was ordered by 75%. *GSA News & Information* is not priced as a sales item but goes to all members as part of their basic dues.

The headquarters staff stayed at the approximate level of 42 full-time equivalents through the year, down from the all-time peak of 54 full-time equivalents during the first quarter of 1975. Key staff changes during the year were the return of Joan Heckman as Membership Coordinator and manager of the employment service, replacing Charlene B. Bicknell; the employment of Sue S. Beggs as Meetings Coordinator, replacing Fred S. Handy, and the employment of James R. Clark as Publications Manager, replacing Josephine K. Fogelberg who retired.

The November Annual Meeting in San Diego was a success in all regards. It was the first 3½-day meeting, preceding and following scheduled 4-day meetings. The total registration of 4,574 has been exceeded only by

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The Geological Society of America

## REPORT OF THE EXECUTIVE DIRECTOR (continued)

the 5,351 who registered for the 1976 meeting in Denver, and the 4,826 at the Toronto joint meeting last year. Of the total at San Diego, 2,924 were professional, 995 were students, and 428 were spouse/guest. There was a total of 1,037 papers presented orally or in poster sessions. Twenty-six field trips attracted 1,465 participants. The exhibit hall, as usual, was a popular feature. All records were broken in San Diego with 132 booths occupied by 65 technical/commercial exhibitors, 10 governmental agencies, 19 societies and associations, and 5 other educational exhibits.

The GSA employment interview service was operated simultaneously with the annual meeting in San Diego. In booths provided, 42 employers conducted 619 interviews for 71 positions, and 18 employers posted job descriptions and used the message center. Among the interviewers, 21 companies and governmental agencies and 36 academic institutions were represented. A total of 404 applicants were registered with the service during the year. As a prologue to the interview service, a special forum was presented on future employment opportunities.

All six of the GSA sections conducted successful annual meetings during the year. The total attendance at the six meetings was approximately 4,300, and more than 1,000 papers were presented. During the year five topical Penrose Conferences were held. As usual, they represented a range of topics and were quite successful.

There were 254 applications for research grants dur-

ing 1979 and of these 154 were funded. A total of \$84,868 was awarded by the Committee on Research Grants. This total includes a \$2,000 grant from Mobil Oil Corporation, income of \$1,200 from the Harold T. Stearns Fellowship Fund for the support of research grants in the Pacific region, and \$1,742 in contributions from the membership and former recipients. The remaining \$80,000 was from endowment fund income.

Although at the time of this writing the books have not yet been closed for the year 1979, it appears that the total Society's operations for the year 1979 finished at "break even" or slightly in the black based on income from investments (not including capital gain or loss), from dues, from publication sales, and from meetings at least equalled the total expenditures. The Irving Trust Company of New York continues to be custodian for the Society's securities, and advice is furnished to the Committee on Investments by the Irving Trust Company and by Reich and Tang, Inc., also of New York. The final settlement of the transfer of the *Bibliography and Index of Geology* from GSA to the American Geological Institute, scheduled for 1979, was not completed during the year because of unusual delay in publication of the cumulative volumes for 1978. The final settlement is now planned for early in 1980.

Respectfully submitted,  
JOHN C. FRYE, Executive Director

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## Report of Committee on Publications

*To the Council and Membership of the Geological Society of America, Inc.:*

The Committee on Publications held its spring meeting at GSA headquarters in Boulder on March 23, 1979, and an informal autumn meeting at the GSA annual meeting in San Diego on November 6. Because of continuing concern about the general health of the *Bulletin* and the flow of manuscripts, contacts were maintained during the year among the Committee Chairman, the Science Editor, the Executive Director, and the President and Vice-President of the Society.

The committee's reports were presented to the GSA Council on May 8 by the Science Editor and on November 7 by the Committee Chairman and the Science Editor.

At the March meeting several motions were passed that reflected extended discussion of the Publications

Department report for 1978. B. Clark Burchfiel and Robert H. Dott, Jr., moved that dedications be allowed in book publications. The appropriateness of a dedication should be approved by the GSA Executive Committee in all instances, whether such dedication is made to a specific individual, to a particular group, or to an abstract group. (Subsequent Council action delegated to the Science Editor the authority to approve dedications.) Dott and Burchfiel moved that a 1974 guideline in opposition to GSA publication of Festschrift volumes—collections of papers on a heterogeneity of topics in honor of an individual—be reaffirmed. Dott and Burchfiel moved that review articles be solicited for publication in the *Bulletin*, that a modest honorarium be provided to the designated author, and that Council should appoint an

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## REPORT OF COMMITTEE ON PUBLICATIONS (continued)

ad hoc committee to identify, contact, and enlist appropriate authors; the motion did not pass Council.

E. R. Ward Neale and Dott moved that, after seriously considering the problem of manuscript flow, the transition period for the *Bulletin* be extended beyond 1979 by continuing the policy that permits the Science Editor to accept medium-length articles, including those that contain up to 35 manuscript pages of text (up to 10 printed pages). Dott and Burchfiel moved that the step recommended by the Publications Department staff be adopted; that is, to modernize GSA's manuscript-control system through acquisition of appropriate record-control/word-processing equipment.

At the information meeting of the committee, held in San Diego on November 6, Science Editor Swanson reviewed recent changes in Publications Department staff: the resignation of Abstracts Coordinator Irene Woodall and the retirement of Publications Manager Josephine K. Fogelberg. James R. Clark, the new Publications Manager, was introduced to the committee members.

The Science Editor reported that during the year 123 articles and Penrose Conference reports were published in *Geology* and 129 articles (including *Part I/Part II*, medium-length, and old formats) were published in the *Bulletin*. Other publications included Special Paper 180; Reviews in Engineering Geology, Vol. IV; Microform Publication 9; Treatise on Invertebrate Paleontology, Part A; and Map and Chart nos. 28 (A-C) through 34; in addition to *Abstracts with Programs*, Division Newsletters, *Information for Contributors*, *Membership Directory*, *Memorials*, two Mini-catalogs, *GSA News & Information*, Report of the Committee on Geology and Public Policy, and reprints of Parts N<sup>3</sup>, Q, E, P, and H of the *Treatise*, and of the *Rock Color Chart*.

Swanson announced also that Douglas M. Kinney, upon his impending retirement from the U.S. Geological Survey, will probably act as a consultant to assist the Science Editor in certain editing and production activities of the Map and Chart series.

The committee held a long, informal discussion on the history and philosophy of the GSA publications program, advertising and marketing, and dissemination of information particularly as they relate to the *Bulletin* and to its current and future status. The Chairman, Science Editor, and committee member Brian J. Skinner presented some of the thoughts and concerns that had been voiced by the Associate Editors at their informal meeting of the previous day. It was clear from that meeting that much of the reasoning behind the change in the *Bulletin* format is not widely known among the membership of the Society. On the basis of the discussion, Skinner and Frank E. Kottowski moved that the *Bulletin* continue to operate under the present policy of publishing *Part I/Part II* articles and that articles of up to 10 printed pages (35 manuscript pages) be accepted with the approval of the Science Editor for publication in the *Part I* medium-length format; in addition, that papers longer than 10 printed pages be accepted for publication as printed articles in *Part I*, providing the author complies with a request for specified page contributions. The latter part of this motion was disapproved by Council.

It was further moved by Dott and Skinner that GSA's total financial situation, the pertinent information regarding specific interrelations of costs, publications, meetings, and other services be aired more times and in more ways by GSA officers and Council in order to promote understanding among the membership of the philosophy behind publications policy decisions. Other matters discussed included solicitation of *Bulletin* manuscripts, development of new procedures to accommodate the increased activity in the Map and Chart series, the evaluation and quality control of special books such as the Review and Case History volumes of the Engineering Geology Division, and future publication in the *Bulletin* of notes and reports of the North American Commission on Stratigraphic Nomenclature.

There was a consensus among the committee members that the topics of advertising, marketing, and information dissemination are of serious concern and are deserving of a major focus by GSA staff, the Publications Committee, and the Council in the near future.

The committee expresses thanks for the excellent service support from GSA headquarters editorial staff, and for guidance provided by Science Editor Vern E. Swanson, Executive Director John C. Frye, President Leon T. Silver, and Vice-President Laurence L. Sloss. The Chairman extends a large personal note of appreciation to Marianne Faber, Assistant to the Science Editor, for her efforts on his behalf throughout the year.

Respectfully submitted,  
Robert E. Davis, *Chairman*

### GSA News & Information

Vol. 2, no. 5

May 1980

GSA NEWS & INFORMATION (ISSN 0164-5854) is the monthly newsletter of The Geological Society of America, Inc., P.O. Box 9140, Boulder, Colorado 80301. Second-class postage rates paid at Boulder, Colorado, and at additional mailing office.

Prepared from contributions from the staff and membership by John C. Frye, Executive Director; James R. Clark, Publications Manager; and June Thomas, Judy Hall, and Ann Fogel, Production Assistants.

## Annual Report for 1979 The Geological Society of America



# SOCIETY AFFILIATIONS OF REGISTRANTS, SAN DIEGO — 1979

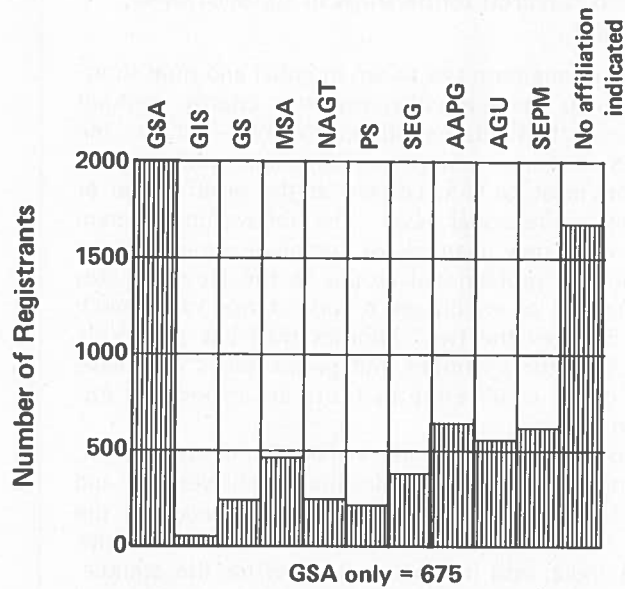
For the 1979 Annual Meeting in San Diego there was a membership questionnaire on both the preregistration form and the on-site registration form. All those registering for the meeting were asked to check all of the listed societies of which they were members. Such a questionnaire had been used for other meetings on the preregistration form but had not been tabulated for the on-site registrants, so the San Diego meeting was the first opportunity for a meaningful analysis.

Chart 1 shows the numerical data as compiled from the forms. Approximately 1,700 registrants indicated no society affiliation. As there was a significant number of students in attendance, many of whom were not members of societies, they probably account for a significant part of the number, but not for all. Therefore, there were indeed several hundred professional registrants with no affiliation or they neglected to check a box in the questionnaire.

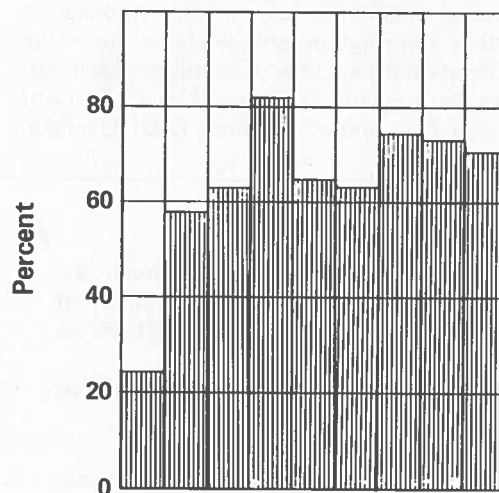
Charts 2 and 3 show percentage overlaps in memberships for those registrants who checked one or more affiliations. Only 675 of the registrants were members of GSA only, but a clear majority of the members of the other 9 societies were also members of GSA.

It must be remembered that these percentages apply only to those registering for the annual meeting in San Diego who checked the boxes in the questionnaire.

—John C. Frye

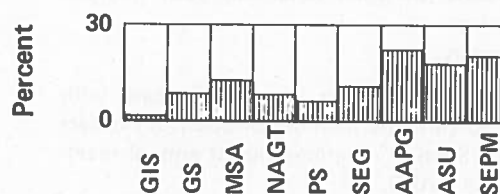


% Other Society also GSA members



Analysis indicates students but not spouse/guest

% GSA members also in other society





## UPDATE

### Advanced research fellowships in India offered, 1981-1982

Twelve long-term (six to ten months) and nine short-term (two to three months) research awards, without restriction as to field, are offered for 1981-1982 by the Indo-U.S. Subcommission on Education and Culture. Applicants must be U.S. citizens at the postdoctoral or equivalent professional level. The fellowship program seeks to open new channels of communication between academic and professional groups in the United States and India and to encourage a wider range of research activity between the two countries than has previously existed. Therefore, scholars and professionals who have limited or no experience in India are especially encouraged to apply.

Fellowship terms include \$1,000-\$1,500 per month, depending on academic/professional achievement and seniority, \$350 per month payable in dollars and the balance in rupees; an allowance for books and study/travel in India; and international travel for the grantee. In addition, long-term fellows receive international travel for dependents; a dependent allowance of \$100-\$250 per month in rupees; and a supplementary research allowance up to 34,000 rupees.

The application deadline is July 1, 1980. Application forms and further information are available from the Council for International Exchange of Scholars, Attention: Indo-American Fellowship Program, Eleven Dupont Circle, Washington, D.C. 20036, telephone (202) 833-4978.

Books and maps may be purchased through the Publication Sales Department, Geological Society of America, P.O. Box 9140, Boulder, CO 80301. Please remember that

- member orders must be on GSA order blank or personal stationery with member number listed,
- member purchase privilege is not transferable,
- orders on corporate forms or stationery will be considered corporate orders and filled without discount allowance.

You should refer to the "GSA Member Discount and Purchase Procedures" printed on the back of your membership card for other details of your member purchase privileges.

#### NEW IN 1980:

You will need to have your membership card with you in order to earn the member discount on orders placed at GSA Section meetings and at annual meetings of GSA and AAPG.

## AGU Spring Meeting Toronto, Ontario, Canada

May 22-27, 1980

Special sessions of  
interest to geologists  
include:

#### Union

Crustal Processes in North America  
(includes Precambrian)

#### Geomagnetism and Paleomagnetism

Paleomagnetism of Intrusive Bodies and  
Their Metamorphic Aureoles  
Magnetic Deep Sounding

#### Hydrology

Role of Laboratory Methods in  
Hydrogeologic Investigations  
Tracers in Groundwater  
Modeling of Groundwater Pollutants  
Uncertainties in Sediment Transport and  
Sediment Yield Measurements

#### Oceanography

Paleoceanographic Studies

#### Tectonophysics

Planetary Tectonics  
Mantle Rheology, Lithosphere and  
Convection  
Mantle Convection and Evolution

#### Volcanology, Geochemistry and Petrology

Early Crustal Processes

#### KEGS (Canadian Exploration Geophysical Society) (co-sponsoring society)

Mining and Exploration Geophysics

#### CGU (Canadian Geophysical Union) (co- sponsoring society)

Mathematical Methods

For information on registration, the program  
and hotel reservations, write to:

#### Meetings

American Geophysical Union  
2000 Florida Avenue, N.W.  
Washington, D. C. 20009

# Committee on Committees seeks nominations

The Committee on Committees requests help from all members. As is customary, an entirely new committee has been appointed by Vice-President Howard R. Gould. Its sole purpose is to look for talent to serve GSA as members of our committees and as our representatives to other organizations.

The Committee on Committees will do its work late in August or early in September and will present at least two nominations for each open position to the Council at its November 19 meeting in Atlanta. During that meeting, individual councilors may or may not add other names to the lists for consideration. The entire Council will then select appointees for all positions, thus completing the process of bringing new blood into Society affairs.

The Committee on Committees for 1980 is made up of the following people: *William R. Dickinson* (chairman), *Paul A. Bailly*, *Doris M. Curtis*, *Dallas L. Peck*, and *Arthur A. Socolow*.

This group is broadly based, both geographically and in disciplines, but its members cannot possibly know all

the GSA members who are potential candidates for serving the Society. You can help them immensely by volunteering yourself or by suggesting names of others who you think should be considered for any of the openings.

Mere listing of names for these positions will be helpful to the committee, *but you can be far more helpful*, and will ensure more thorough consideration of your candidates, *if you will attach a note explaining the special qualifications of your candidates for particular jobs*. Please be sure that your candidates are Members or Fellows of the Society.

If you can think of a better or more democratic process for providing governance of the Society, please let us know. If you think the present system is at least adequate, do your part by suggesting candidates!

Listed below are the committees on which vacancies will occur in November. Appointments will be made by the Council at its meeting in Atlanta on November 19, 1980.

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CUT HERE

PLEASE RETURN THIS FORM TO HEADQUARTERS BY AUGUST 1, 1980

**GSA Committees  
for 1981**

**Members suggested to  
serve on committees**

**GSA Designee for 1981**

**Members suggested to serve  
as GSA Designee**

Day Medal \_\_\_\_\_

NACSN \_\_\_\_\_

Geology & Public Policy \_\_\_\_\_

Headquarters Advisory \_\_\_\_\_

Honorary Fellows \_\_\_\_\_

Investments \_\_\_\_\_

Membership \_\_\_\_\_

**Remarks:** \_\_\_\_\_

National Medal of Science \_\_\_\_\_

Nominations \_\_\_\_\_

Penrose Conferences \_\_\_\_\_

Penrose Medal \_\_\_\_\_

Publications \_\_\_\_\_

Research Grants \_\_\_\_\_

**Signature (optional)** \_\_\_\_\_

Treatise Advisory \_\_\_\_\_

# 1980 GSA Committees and Representatives

NOTE: The President, or a representative designated by him, shall be an Ex Officio member of every committee.

## EXECUTIVE COMMITTEE

Laurence L. Sloss (Chairman), Howard R. Gould, William B. Heroy, Jr., Leon T. Silver, Jack A. Simon (Budget Committee Member of the Executive Committee).

## AUDIT COMMITTEE

William C. Bradley (Chairman), John D. Moody, Dallas L. Peck. Conferee: William B. Heroy, Jr.

## COMMITTEE ON COMMITTEES

William R. Dickinson (Chairman), Paul A. Bailly, Doris M. Curtis, Dallas L. Peck, Arthur A. Socolow.

## COMMITTEE ON GEOLOGY & PUBLIC POLICY

Allen F. Agnew (Chairman, 1978-80), Charles G. Groat (1978-80), Robert W. Metsger (1978-80), Carol S. Breed (1979-81), Reese E. Mallette (1979-81), Jesus Najera (1979-81), Ernest E. Angino (1980-82), Victor R. Baker (1980-82), Peter R. Vail (1980-82).

## GSA-TREATISE ADVISORY COMMITTEE

Roger L. Batten (Chairman, 1977-80), Richard E. Grant (1979-82), John C. Frye (Continuing).

## HEADQUARTERS ADVISORY COMMITTEE

John W. Rold (Chairman, 1978-80), Bruce F. Curtis (1978-80), John C. Harms (1980-82), Donald D. Runnells (1980-82), Robert J. Weimer (1980-82).

## COMMITTEE ON HONORS AND AWARDS

Helen Tappan Loeblich (Chairman), Dallas L. Peck, Claude C. Albritton, Clarence R. Allen.

## SUBCOMMITTEE ON THE PENROSE MEDAL AWARD

Helen Tappan Loeblich (Chairman, 1978-80), Richard H. Jahns (1978-80), Raymond A. Price (1978-80), Lloyd C. Pray (1979-81), E-an Zen (1979-81), Paul B. Barton (1980-82), M. Gordon Wolman (1980-82).

## SUBCOMMITTEE ON THE ARTHUR L. DAY MEDAL AWARD

Dallas L. Peck (Chairman, 1980), Allan Cox (1978-80), Robert A. Berner (1979-81), Iris Y. P. Borg (1979-81), George W. Fisher (1979-81), Gerald J. Wasserburg (1979-81), Rosemary J. Vidale (1980-82).

## SUBCOMMITTEE ON HONORARY FELLOWS

Claude C. Albritton (Chairman, 1978-80), Robert E. Folinsbee (1978-80), Joseph R. Curray (1980-81), W. G. Ernst (1980-81), William Back (1980-82), Hans P. Eugster (1980-82).

## SUBCOMMITTEE ON THE NATIONAL MEDAL OF SCIENCE

Clarence R. Allen (Chairman, 1978-80), Alfred G. Fischer (1979-81), Peter J. Wyllie (1980-82).

## COAL GEOLOGY DIVISION PANEL ON GILBERT H. CADY AWARD

Edward C. Beaumont (Chairman, 1980-81), Frank E. Kottowski (1980-81), Peter A. Hacquebard (Immediate Past Recipient, 1979), Harold J. Gluskoter (Division Chairman, 1980), Heinz H. Damberger (Division First Vice-Chairman, 1980).

## ENGINEERING GEOLOGY DIVISION PANEL ON E. B. BURWELL, JR., AWARD

Alan L. O'Neill (1978-80), Raymond T. Throckmorton, Jr. (1978-80), Alice S. Allen (1979-81), Roy J. Shlemon (1979-81), Ellis L. Krinitzsky (1980-82), John H. Peck (1980-82) (No chairman indicated).

## HYDROGEOLOGY DIVISION PANEL OF O. E. MEINZER AWARD

Eugene S. Simpson (Chairman, 1980), Martin Mifflin (1978-80), Philip Cohen (1979-81), Irwin Remson (1979-81), James J. Geraghty (1980-82).

## QUATERNARY GEOLOGY & GEOMORPHOLOGY DIVISION PANEL ON KIRK BRYAN AWARD

Don J. Easterbrook (Chairman), John E. Armstrong (1979-80), Peter W. Birkeland (1979-80), Kenneth L. Pierce (1979-80), Gail M. Ashley (1980-81), Richard P. Goldthwait (1980-81), Richard J. Janda (1980-81).

## COMMITTEE ON INVESTMENTS

Robert L. Fuchs (Chairman, 1978-80), C. Harry Burgess (1978-80), Donald A. Parks (1980-82), Thomas W. Stern (1980-82). Ex Officio: William B. Heroy, Jr., Treasurer, (voting); Jack A. Simon, Budget Committee Member of the Executive Committee (non-voting). Conferee: Robert E. King (non-voting).

## COMMITTEE ON MEMBERSHIP

Richard A. Paull (Chairman, 1978-80), Lee A. Woodward (1978-80), Jose C. Guerrero (1979-81), Richard H. Groshong, Jr. (1980-81), Penelope M. Hanshaw (1980-82), Anthony J. Naldrett (1980-82).



#### **COMMITTEE ON NOMINATIONS**

Randolph W. Bromery (Chairman), Frank E. Kottlowski, Roger W. MacQueen, Haydn H. Murray, Melvin C. Schroeder.

#### **COMMITTEE ON PENROSE CONFERENCES**

Bruce B. Hanshaw (Chairman, 1978-80), Tanya M. Atwater (1978-80), Gregory A. Davis (1979-81), Lee J. Suttner (1980-82).

#### **PROGRAM REVIEW COMMITTEE**

William R. Dickinson (Chairman), J. Jeffrey Fawcett (1978 JTPC Chairman), Richard W. Berry (1979 JTPC Chairman), Robert D. Hatcher, Jr. (1980 JTPC Chairman), Norman Hester (1981 JTPC Chairman).

#### **COMMITTEE ON PUBLICATIONS**

Burrell C. Burchfiel (Chairman, 1978-80), Porter M. Kier (1978-80), Robert H. Dott, Jr. (1979-81), E.R.W. Neale (1979-81), Gerald M. Friedman (1980-82), E. G. Wermund (1980-82). Conferees: Robert E. Davis (Past Chairman), John C. Frye (Executive Director), Vernon E. Swanson (Science Editor), James R. Clark (Publications Manager).

#### **COMMITTEE ON RESEARCH GRANTS**

Walter Alvarez (Chairman, 1979-81), Emile A. Pessagno, Jr. (1979-81), Robert K. Fahnestock (1980-82). Conferee: Robin Brett.

#### **AD HOC COMMITTEE ON MINORITIES IN THE GEOSCIENCES**

Louis A. Fernandez (Chairman), Charles A. Baskerville, David A. Lopez, Louis C. Pakiser.

#### **GSA STEERING COMMITTEE ON "DECADE OF NORTH AMERICAN GEOLOGY"**

This committee is in the process of formation. As of January 21, 1980, the committee consists of:

Leon T. Silver (Chairman), Laurence L. Sloss, Howard R. Gould, Albert W. Bally, Robin Brett, Diego A. Cordoba, Gabriel Dengo, Charles L. Drake, William R. Keefer, Raymond A. Price, John O. Wheeler; (not appointed at press time), Program Coordinator; John C. Frye, Executive Director, Ex Officio.

#### **CENTENNIAL DEVELOPMENT COMMITTEE**

James Boyd (Chairman), Clarence E. Brehm, Kenneth H. Crandall, Robert E. Folinsbee, Robert L. Fuchs, George Grow, Jr., Michel T. Halbouty, Caswell Silver. Ex Officio: Leon T. Silver.

#### **GSA REPRESENTATIVES TO AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE (AAAS)**

Robert E. Riecker (1979-81): Section E—Geology & Geography. Phyllis M. Garman (1979-81): Section W—Atmospheric & Hydrospheric Sciences).

#### **GSA DESIGNEES TO NORTH AMERICAN COMMISSION ON STRATIGRAPHIC NOMENCLATURE (NACSN)**

GSA has three representatives (commissioners) each year and one commissioner-elect on the NACSN. The term is for three years. Appointments terminate and commence at the end of the NACSN annual meetings which are held during the GSA annual meetings. The commissioner-elect takes office one year following his appointment.

Robert S. Houston (1977-80), Clarence A. Hall, Jr. (1978-81), Malcolm P. Weiss (1979-82), Allison R. Palmer (1980-83): Commissioner-elect; term begins during NACSN meeting in Atlanta.

#### **GSA DESIGNEES TO JOINT ASCE-GSA-AEG COMMITTEE ON ENGINEERING GEOLOGY (AMERICAN SOCIETY OF CIVIL ENGINEERS)**

John B. Ivey (July 1, 1978-June 30, 1981), Cole R. McClure, Jr. (July 1, 1979-June 30, 1982).

#### **GSA DESIGNEE TO U.S. NATIONAL COMMITTEE ON ROCK MECHANICS (USNCORM)**

Fitzhugh T. Lee (July 1, 1977-June 30, 1980), George A. Kiersch (July 1, 1980-June 30, 1983).

#### **GSA DESIGNEE TO U.S. NATIONAL COMMITTEE ON TUNNELING TECHNOLOGY**

Don U. Deere (July 1, 1977-June 30, 1980), Howard A. Coombs (July 1, 1980-June 30, 1983).

#### **GSA DESIGNEES TO GSA-SSSA INTER-DISCIPLINARY COMMITTEE (SOIL SCIENCE SOCIETY OF AMERICA)**

Leon R. Follmer, John W. Hawley, Robert V. Ruhe, Peter W. Birkeland.

#### **GSA MEMBER OF THE AGI GOVERNING BOARD**

Leon T. Silver (November 1979-November 1980).

#### **GSA DESIGNEE TO THE STEERING COMMITTEE OF COSUNA (CORRELATION OF STRATIGRAPHIC UNITS OF NORTH AMERICA)**

Robert R. Jordan.

#### **GSA REPRESENTATIVE TO ASSEMBLY OF MATHEMATICAL & PHYSICAL SCIENCES (NRC)**

John C. Frye (Effective May 1, 1975).

#### **GSA DESIGNEE TO U.S. NATIONAL COMMITTEE ON SCIENTIFIC HYDROLOGY**

David A. Stephenson (1978-81), Paul A. Witherspoon (Alternate).

#### **GSA REPRESENTATIVE TO COMMITTEE FOR EVALUATION OF EARTHQUAKE PREDICTIONS**

Clarence R. Allen.

## GENERAL INFORMATION ABOUT THE GSA EMPLOYMENT SERVICE

Throughout the year, GSA maintains a computer file of geoscientists seeking jobs. The information on this file includes the applicant's areas of interest, years of experience, and educational background. When an employer submits a request form, we run a computer match between the job requirements and applicant's qualifications and send the employer a computer printout. Resumes for each applicant are available upon request at no additional charge. It is up to the employers to make contact with applicants they are interested in.

We would also like to tell you about our Employment Service held in conjunction with GSA's annual meeting each fall. Printouts of applicants are sent to employers in advance of the annual meeting so that they may contact applicants they wish to interview during the meeting. Interview booths are provided to employers for a nominal fee, and staff is available to help with the scheduling of interviews.

For 1980, the cost of a printout of applicants is \$50

for two specialty listings and \$14 for each additional specialty. The entire applicant file may be obtained for \$135.

Applicant registration is \$15 per year and includes participation in the Annual Meeting Interview Service. The GSA Employment Service is operated by the Membership Department as a benefit to the profession. You do not need to be a member of GSA to use this service.

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APPLICANT AND EMPLOYER FORMS  
ARE BACK-TO-BACK ON THE FOLLOWING PAGES

## UPDATE

### Articles in *Bulletin, Part II*, May 1980

Articles in *Bulletin, Part II* are listed below. (Summaries only of these articles are in *Bulletin, Part I*.) Articles in *Part II* are not on the separates subscription.

Paper copies of *Part II* in its entirety are available at cost (\$6/month) as a special service to those users (members and nonmember subscribers) who request them. Any such order should be addressed to the Publication Sales Department and be accompanied by advance payment, and no discount can be offered for multiple orders or orders for a sequence of months.

1. An alkali-basalt through trachyte suite, Mesa Chivato Mount Taylor volcanic field, New Mexico, by L. S. Crumpler. Doc. no. M00501. (On microfiche: 39 p., 8 figs., 5 tables)
2. Petrology of the Castle Crags pluton, Klamath Mountains, California, by Walter R. Venum. Doc. no. M00502. (On microfiche: 62 p., 12 figs., 3 tables)
3. Decollement in the Hudson River Valley, by Philip J. Murphy, Timothy L. Bruno, and Nicholas A. Lanney. Doc. no. M00503. (On microfiche: 22 p., 7 figs.)

### In May *Geology* (separates not available)

1. Upper Cretaceous and lower Tertiary chalks of the Albuskjell area, North Sea: Deposition in a slope and a base-of-slope environment, by N. L. Watts, J. F. Lapré, F. S. van Schijndel-Goester, A. Ford
2. Chemical mass-wasting of the northern Yucatan Peninsula by groundwater dissolution, by B. B. Hanshaw, W. Back
3. Degradation of the Hebgen Lake fault scarps of 1959, by R. E. Wallace
4. Intensity of systematic joints: Methods and application, by R. L. Wheeler, J. M. Dixon
5. Evaluation of multispectral middle infrared aircraft images for lithologic mapping in the East Tintic Mountains, Utah, by A. B. Kahle, L. C. Rowan
6. Angular, oriented microtubes in metamorphic plagioclase, by S. B. Shirey, G. Simmons, E. R. Padovani
7. Fines-depleted ignimbrite in New Zealand—The product of a turbulent pyroclastic flow, by G.P.L. Walker, C.J.N. Wilson, P. C. Froggatt
8. Surface folding and viscosity of rhyolite flows, by J. Fink

### Notice from Meetings Department—Field trips for 1981 Cincinnati meeting

Proposals for field trips for the 1981 Annual Meeting in Cincinnati should be received no later than June 15, 1980. Mailing address: Department of Geology

University of Kentucky  
Lexington, KY 40506

ATTENTION: Lois J. Campbell  
Thomas G. Roberts

### Symposium set on Hudson/James Bay

April 28–30, 1981, has been set as a date for a Symposium on Multidisciplinary Studies on Hudson/James Bay, at the University of Guelph, at Guelph, Ontario.

For information on the symposium, address Professor I. P. Martini, Department of Land Resource Science, Ontario Agricultural College, University of Guelph, Guelph, Ontario N1G 2W1.



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Foreign languages \_\_\_\_\_ Spoken (fluency) \_\_\_\_\_ Written \_\_\_\_\_

**ACADEMIC TRAINING**

College or University	Degree (rec'd or expected)	Year	Major	Minor

Postgraduate work beyond highest degree in (field) \_\_\_\_\_ Number of years \_\_\_\_\_

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| 101. coal geology                       | 223. stable isotopes      | 351. computer science        | 454. paleobotany              | 622. photogrammetry            |
| 102. geothermal, etc.                   | 224. unstable isotopes    | 352. statistical geology     | 455. paleoecology             | <b>630. Science Editing</b>    |
| 103. metallic deposits                  | <b>250. Geomorphology</b> | <b>400. Mineralogy</b>       | <b>500. Petroleum Geology</b> | <b>650. Sedimentology</b>      |
| 104. nonmetallic deposits               | 251. Pleistocene geology  | 401. crystallography         | 501. exploration              | <b>700. Seismology</b>         |
| 105. mining geology                     | <b>300. Geophysics</b>    | 402. clay mineralogy         | 502. subsurface stratigraphy  | <b>720. Stratigraphy</b>       |
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| 121. rock mechanics                     | 302. paleomagnetism       | <b>420. Oceanography</b>     | 521. igneous                  | 722. Mesozoic                  |
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| <b>200. General Geology</b>             | 321. hydrochemistry       | <b>450. Paleontology</b>     | <b>550. Planetology</b>       | <b>750. Structural Geology</b> |
| <b>220. Geochemistry</b>                | 322. ground water         | 451. invertebrate            | <b>600. Regional Geology</b>  | 751. tectonics                 |
| 221. organic                            | 323. surface water        | 452. vertebrate              | <b>620. Remote Sensing</b>    | 752. tectonophysics            |
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**Fee—\$15.00.** Payment must accompany form. Make check payable to the Geological Society of America.

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101. coal geology	223. stable isotopes	351. computer science	454. paleobotany	622. photogrammetry	
102. geothermal, etc.	224. unstable isotopes	352. statistical geology	455. paleoecology	630. Science Editing	
103. metallic deposits	250. Geomorphology	400. Mineralogy	500. Petroleum Geology	650. Sedimentology	
104. nonmetallic deposits	251. Pleistocene geology	401. crystallography	501. exploration	700. Seismology	
105. mining geology	300. Geophysics	402. clay mineralogy	502. subsurface stratigraphy	720. Stratigraphy	
120. Engineering Geology	301. exploration	410. Museum (curator)	520. Petrology	721. Cenozoic	
121. rock mechanics	302. paleomagnetism	420. Oceanography	521. igneous	722. Mesozoic	
150. Environmental Geology	303. theoretical	421. marine geology	522. metamorphic	723. Paleozoic	
151. public education and communication	320. Hydrogeology	422. coastal geology	523. sedimentary	724. Precambrian	
200. General Geology	321. hydrochemistry	450. Paleontology	550. Planetology	750. Structural Geology	
220. Geochemistry	322. ground water	451. invertebrate	600. Regional Geology	751. tectonics	
221. organic	323. surface water	452. vertebrate	620. Remote Sensing	752. tectonophysics	
	330. Library			800. Volcanology	

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- Government
- Industry
- Other \_\_\_\_\_

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- B.A. or B.S.
- M.A. or M.S.
- Ph.D.

**Minimum professional experience**

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- 1-5 yrs
- 6-plus

**Experience desired (yrs)**

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See page 36 for current fee schedule.

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## MAY BULLETIN SEPARATES

### Summaries

*At the request of members, the Summaries section may be ordered as one separate by those who have purchased the separates option. To order, write "May Summaries" on coupon.*

• S00501—An alkali-basalt through trachyte suite, Mesa Chivato Mount Taylor volcanic field, New Mexico: Summary.

*L. S. Crumpler, Department of Planetary Sciences, University of Arizona, Tucson, Arizona 85721. (3 p., 2 figs.)*

• S00502—Petrology of the Castle Crags pluton, Klamath Mountains, California: Summary.

*Walter R. Vennum, Department of Geology, Sonoma*

*State University, Rohnert Park, California 94928. (4 p., 1 fig.)*

• S00503—Decollement in the Hudson River Valley: Summary.

*Philip J. Murphy, Timothy L. Bruno, Nicholas A. Lanney, Stone & Webster Engineering Corporation, Boston, Massachusetts 02107. (5 p., 2 figs.)*

### Bulletin Briefs

*Titles and abstracts of conventional articles in the May 1980 GSA Bulletin, Part I are provided on the following pages to aid members who have purchased the separates option to select Bulletin, Part I separates of their choice. See instructions for ordering on page 79.*

• 00504—Evidence for two fossil spreading ridges in the southeast Pacific.

*J. Mammerickx, Scripps Institution of Oceanography, La Jolla, California 92093; E. Herron, Lamont-Doherty Geological Observatory of Columbia University, Palisades, New York 10964; L. Dorman, Scripps Institution of Oceanography, La Jolla, California 92093. (9 p., 6 figs.)*

Two different sets of extinct spreading ridge segments (Pacific-Farallon and Pacific-Nazca) are identified from

bathymetric and magnetic data in the southeast Pacific. The older set is composed of several topographically subdued segments of a fossil ridge (Pacific-Farallon) that trends northwest, parallel to and about 175 to 550 km distant from the younger side of anomaly 7 (26 m.y. B.P.). The younger set trends north-northeast subparallel to the present East Pacific Rise (EPR), at an angle of about 45° to the older fossil ridge. The younger ridge forms the Galapagos Rise and includes a set of west-northwest-trending fracture zones. This was the original site of the EPR before it jumped west-



ward to its present position. Oligocene magnetic anomalies (7-12) were generated at the older northwest-trending ridge rather than from the younger northeast-trending Galapagos Rise. The change in ridge orientation from the older Pacific-Farallon to the younger Pacific-Nazca direction is likely to be associated with the birth of the Cocos-Nazca spreading ridge system, about 20 to 25 m.y. ago.

- 
- 00505—The Heart Mountain break-away fault, northwestern Wyoming.

*William G. Pierce, U.S. Geological Survey, Menlo Park, California 94025. (10 p., 7 figs.)*

The Heart Mountain break-away fault was the last of the four phases of the Heart Mountain detachment fault to be discovered and is the only fault of this type yet recognized and described. The descriptive term, "break-away fault," was introduced in 1960 for the steep surface along which the rocks of the Heart Mountain decollement fault mass separated from the stationary block on the west.

The break-away fault, located near the northeast entrance to Yellowstone National Park, has a known linear extent of 37 km. The northern one-third trends north, and the remainder trends southeast and south. Rocks on its western side are Paleozoic carbonate rocks and Eocene volcanic rocks; the volcanic rocks are pre-Heart Mountain fault in age. The rocks on its eastern side are younger and consist of Eocene volcanic rocks which were deposited against and over the fault. Thus the break-away fault is unusual in that one side is a fault surface and the other side is a depositional surface, and in that respect is similar to parts of the bedding-plane phase of the Heart Mountain detachment fault.

Slickensides and brecciation in the Madison Limestone adjoining the break-away indicate horizontally directed compressive shear. Movement was probably right lateral, and then laterally southeastward away from the fault at an angle of about 45°.

To the north, in Wolverine Pass and in the valley of Soda Butte Creek, the break-away fault extends down to a bed in the basal part of the Bighorn Dolomite where it joins or terminates at the bedding plane phase of the Heart Mountain detachment fault; movement of upper-plate rocks away from the break-away fault increases from about 0.25 km at the northernmost trace of the fault to more than 1.5 km on the south side of Soda Butte Creek valley. Several kilometres southeastward, in Cache Creek valley, the Heart Mountain break-away fault terminates downward in volcanic rocks of the undivided Lamar River and Cathedral Cliffs Formations and joins a low-angle fault in those rocks. This low-angle fault probably steps downward to the east where it reaches the Heart Mountain detachment fault surface. Three kilometres farther to the southeast, the break-away fault is presumably represented by a low-angle fault in these volcanic rocks that probably also steps down to the northeast beneath the volcanic cover to join the Heart Mountain detachment fault. Erosion in this area probably has removed rocks that contained the high-angle part of the fault.

The south end of the break-away fault is overlapped and concealed by the Wapiti Formation. It presumably con-

tinues southward, but it probably does not join a normal fault near Black Mountain, although Voight (1974) has suggested that it does.

- 
- 00506—Stratigraphic sequence of the Gile Mountain and Waits River Formations near Royalton, Vermont.

*George W. Fisher, Paul Karabinos, Department of Earth and Planetary Sciences, Johns Hopkins University, Baltimore, Maryland 21218. (5 p., 7 figs.)*

The stratigraphic sequence of the Gile Mountain and Waits River Formations, two major Silurian-Devonian lithostratigraphic units in eastern Vermont, has long been controversial. This uncertainty has given rise to numerous difficulties in interpreting the regional structure of eastern Vermont. Extensive sequences of compositionally graded beds at 19 localities across the Gile Mountain belt near Royalton, Vermont, show that the Gile Mountain Formation is younger than the Waits River Formation, indicating that the belt is a syncline.

- 
- 00507—Age of zircon from volcanic rocks of the central North Carolina Piedmont and tectonic implications for the Carolina volcanic slate belt.

*James E. Wright, Department of Geological Sciences, University of California, Santa Barbara, California 93106 (present address: Department of Geology and Geophysics, University of California, Berkeley, Berkeley, California 94720); Victor M. Seiders, U.S. Geological Survey, 345 Middlefield Road, Menlo Park, California 94025. (8 p., 5 figs., 1 tbl.)*

U-Pb analyses of four fractions of zircon from felsic volcanic rocks in the upper part of the Uwharrie Formation plot on a concordia diagram along a chord between 586 and 340 m.y. These data indicate an Early Cambrian or late Precambrian age of  $586 \pm 10$  m.y. for deposition of the upper part of the Uwharrie. The lower concordia intercept at 340 m.y. might represent a time of episodic lead loss, perhaps indicating Acadian metamorphism in the area. However, all data points cluster near the upper concordia intercept, and the lower intercept is not accurately defined. A continuous lead-loss model cannot be ruled out. The zircon ages from the Uwharrie show that in central North Carolina the conformable volcanic and sedimentary sequence ranges from rocks older than 586 m.y. up to beds about 552 m.y. old containing probable Middle Cambrian trilobites. This contrasts with relations reported from the Roxboro-Durham area to the northeast, where a similar volcanic and sedimentary sequence with a  $620 \pm 20$ -m.y. zircon age was folded and faulted by the Virgilina deformation before emplacement of a  $575 \pm 20$ -m.y.-old pluton. The events of the Roxboro-Durham area can be correlated with those of central North Carolina in three possible ways that are consistent with the radiometric and fossil data: (1) The stratigraphic sequences of the two areas are partly correlative. The Virgilina deformation was synchronous with



deposition of the upper part of the central North Carolina sequence, but the deformation did not extend into the central North Carolina area. (2) The stratigraphic sequences of the two areas are correlative, and the Virgilina deformation was younger than the central North Carolina sequence but was weak or absent in that area. (3) The central North Carolina sequence is entirely younger than the Virgilina deformation, and the volcanic rocks may represent an extrusive phase of the plutonism of the Roxboro-Durham area. Interpretation 1 is preferred because it harmonizes best with both lithologic correlations and ages. Interpretation 2 offers the poorest agreements as to age, and interpretation 3 conflicts with the suggested lithologic correlation of the two stratigraphic sequences.

• 00508—Geology and paleontology of two late Wisconsin sites in western New York State.

*Parker E. Calkin, Department of Geological Sciences, State University of New York at Buffalo, Buffalo, New York 14214; John H. McAndrews, Department of Botany, Royal Ontario Museum, and Department of Botany, University of Toronto, Toronto, Ontario M5S 2C6, Canada. (12 p., 5 figs., 6 tbls.)*

Upper Pleistocene deposits with organic materials at Nichols Brook and Winter Gulf sites about 50 km south of Buffalo, New York, provide information on the glacial sedimentation, date of ice retreat, and paleoenvironment in western New York State. Four  $^{14}\text{C}$  dates from successive levels of woody peat above outwash at Nichols Brook indicate that glacial retreat from the Lake Escarpment-Valley Heads moraine just to the north had probably occurred by 15,000 B.P. (during the Port Bruce Stadial or following Mackinaw Interstadial). At Winter Gulf, dates of  $12,730 \pm 220$  and  $12,610 \pm 200$  B.P. on wood from peat are palynologically correlated with a similarly dated horizon at Nichols Brook and provide minimum ages for lowering of glacial Lake Whittlesey and ice retreat from the correlative Hamburg moraine.

Pollen assemblages associated with the interval between 14,900 and 10,000 B.P. are at both sites dominated by spruce; cones and needles of white spruce and tamarack are also present. This and the lack of abundant birch or balsam fir suggest an open boreal woodland vegetation similar to that of subarctic Ontario between lat  $50^\circ$  and  $52^\circ\text{N}$ . Floral evidence is lacking for tundra vegetation or for more than a slight warming trend during the  $^{14}\text{C}$ -dated interval. In contrast, analysis of insect fauna from the Winter Gulf spruce horizon that accumulated within 21 to 80 km of the ice margin suggests a shift to markedly temperate conditions.

• 00509—Experimental folding of rocks under confining pressure, Part VIII—Forced folding of unconsolidated sand and of lubricated layers of limestone and sandstone.

*M. Friedman, R.H.H. Hugman III, J. Handin, Center for Tectonophysics, Texas A&M University, College Station, Texas 77843 (present address, Hugman: Atlantic-Richfield Co., Anchorage, Alaska 99510). (6 p., 6 figs., 2 tbls.)*

Field and laboratory data suggest that variations in structural style are associated with differences in lithologic composition, stratigraphic sequence, and the mechanical behavior of the layers that are drape (forced) folded by differential vertical movements of underlying essentially rigid blocks. This hypothesis is tested by study of experimental, faulted, drape folds in veneers of loose, dry, unconsolidated sand and in multilithologic layered sequences with lubricated interfaces produced under confining pressures to 200 MPa (2 kb) at  $25^\circ\text{C}$ . Deformation of the sand veneer provides a classic example of cataclastic flow. Forced folds develop as a result of microfracturing, rigid-body rotation of grains and fragments, and faulting and gouge development. The sand veneer is thinned drastically in the zone of faulting. The multilithologic, layered veneers with lubricated interfaces exhibit the same magnitudes of "bedding-plane" slip and somewhat more variability in the senses of slip than do specimens not lubricated. With lubrication, however, there is less deformation of the leading edge of the forcing block, less extensile faulting in the upthrown block, and more folding without faulting in the veneer.

• 00510—Diatremes and shock features in Precambrian rocks of the Slate Islands, northeastern Lake Superior: Reply. (2 p.) (Reply to a discussion by H. C. Halls, published in the *Bulletin, Part I*, v. 90, p. 1084-1086.)

*R. P. Sage, Ontario Geological Survey, Ministry of Natural Resources, 77 Grenville Street, Toronto, Ontario M5S 1B3, Canada.*

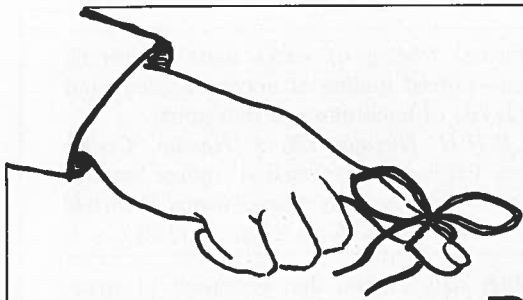
• 00511—Diatremes and shock features in Precambrian rocks of the Slate Islands, northeastern Lake Superior: Reply. (2 p., 1 fig.) (Reply to a discussion by P. B. Robertson and R.A.F. Grieve, published in the *Bulletin, Part I*, v. 90, p. 1087-1088.)

*R. P. Sage, Ontario Geological Survey, Ministry of Natural Resources, 77 Grenville Street, Toronto, Ontario M5S 1B3, Canada.*

## ORDERING SEPARATES FOR 1980

The system for ordering separates is as follows: those members who have purchased separates of conventional articles for 1980 have received, or will receive in the near future, 10 coupons and instructions for ordering separates in 1980.

It is not too late to purchase separates for 1980. The price to members having paid their basic membership dues is \$10.00 for 10 separates. All orders and inquiries should be addressed to Bulletin Separates Division, Geological Society of America, P.O. Box 9140, Boulder, Colorado 80301.



## REMINDER

Deadline for receipt of abstracts at GSA headquarters for the Annual Meeting in Atlanta is June 13, 1980. Mail abstracts to Abstracts Secretary, Geological Society of America, P.O. Box 9140, Boulder, CO 80301.

# ABSTRACTS DEADLINE JUNE 13



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