GSA news & information

VOLUME 2, NUMBER 3

MARCH 1980

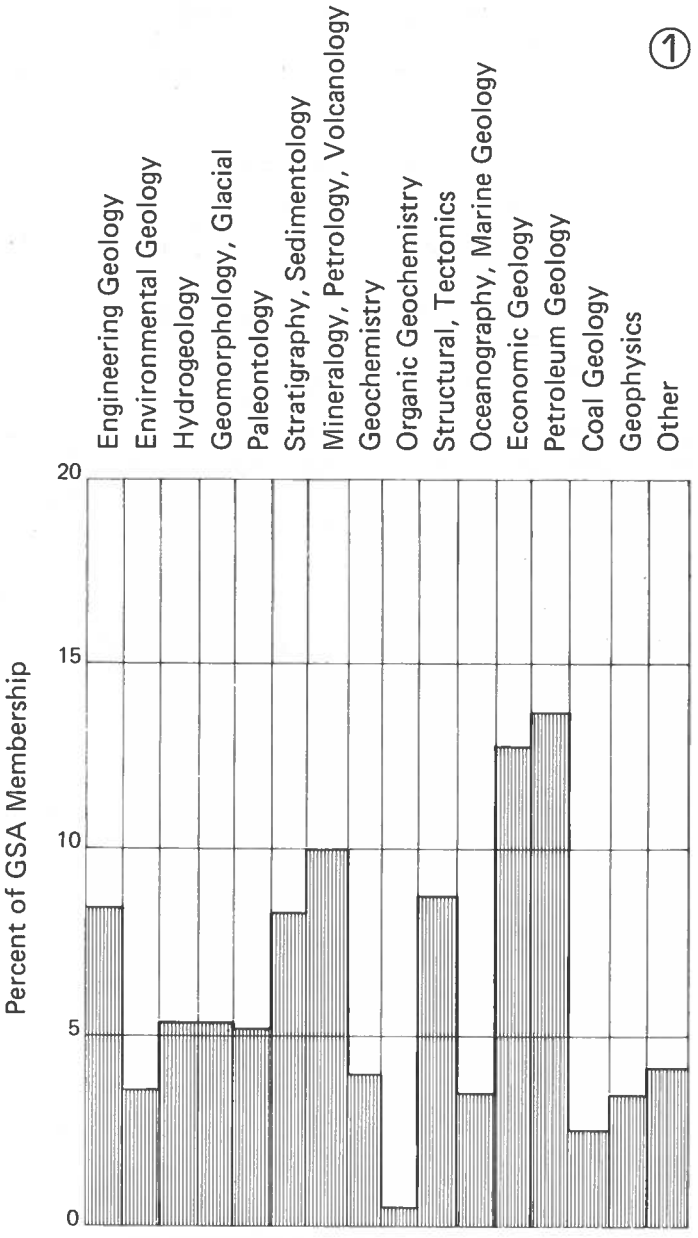
Areas of major interest of the GSA membership

The 1980 membership dues statement included a questionnaire asking each member to check his or her ***major*** area of professional interest. Members were asked to check only one of the 16 categories, and many members undoubtedly had difficulty in deciding which of several areas of interest was indeed the ***major*** one.

At the time of this writing in early January, significantly more than half of the dues statements had been returned to headquarters, and the data from these questionnaires have been tabulated. Although there may be some slight shifts when all questionnaires are in, judging from past experience the percentages will change only slightly, and it seemed more important to make the information available to the membership quickly than wait for a slightly higher degree of precision.

Chart No. 1 shows the percentage distribution of the membership among the 16 categories listed in the questionnaire. Petroleum Geology and Economic Geology rank first and second, respectively; combined, they represent about one-fourth of our members. It is interesting to compare these percentages with last year's employment questionnaire. The percent last year listing Petroleum Company as their employment was only slightly larger than the percent listing Petroleum Geology as their major interest. However, it is probable that some of the 8% last year who indicated they were self employed actually have Petroleum Geology as a major interest.

(continued on following page)



From the 1980 dues statement—Percentage distribution of GSA membership by major professional interest.

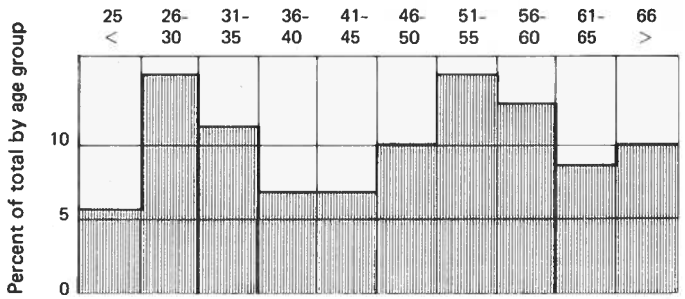
(continued from p. 33)

In the second largest category of major interest, Economic Geology, 13% listed it as their major professional interest this year, whereas last year less than 10% were employed by non-petroleum mineral industries. Apparently there is a significant number of members in academic or government employment, or who are self employed, who have a major professional interest in Economic Geology.

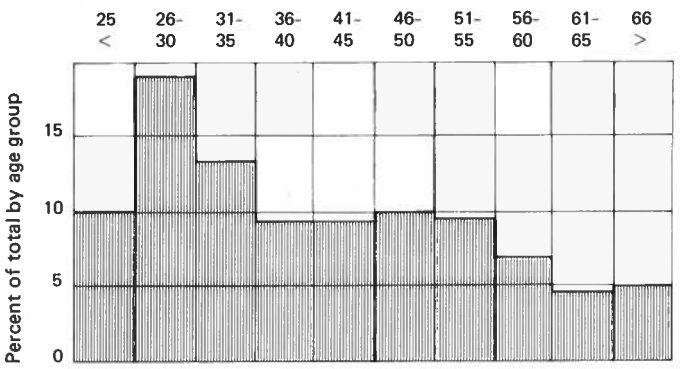
Four other categories of major interest, each slightly less than 10%, form a second major group of interests, following Petroleum and Economic Geology: Mineralogy-Petrology-Volcanology, Structural Geology–Tectonics, Engineering Geology, and Stratigraphy-Sedimentology. Combined, this group accounts for about one-third of the members. However, these and most of the other ten remaining categories on the 1980 questionnaire cannot be readily associated with employment categories.

In order to attempt to forecast the dominant interests of the Society's membership in the future, the six largest categories on the 1980 survey have been plotted against age

Petroleum Geology (13.6%) ②

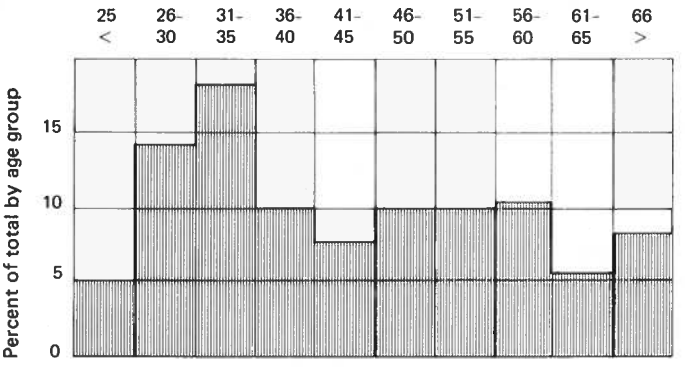


Structural Geology, Tectonics (8.8%) ⑤

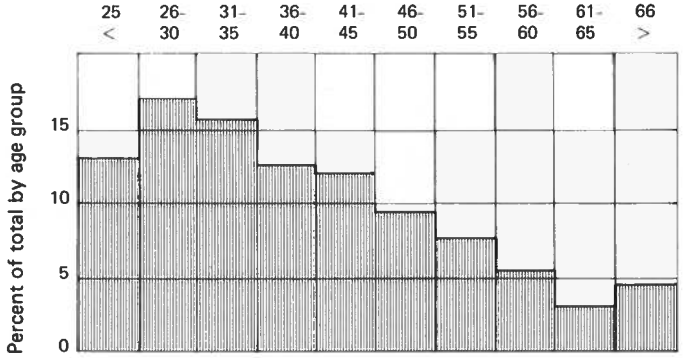


Economic Geology (12.8%) ③

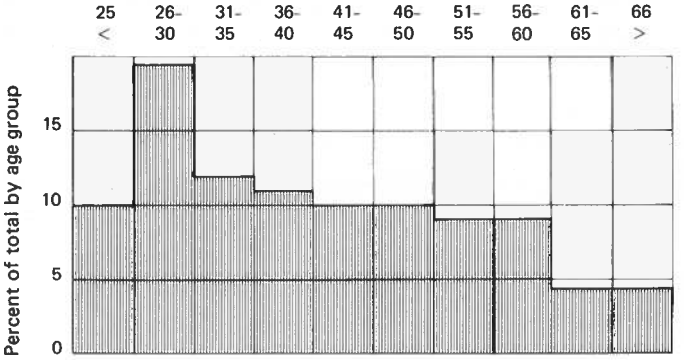
Engineering Geology (8.5%) ⑥



Mineralogy, Petrology, Volcanology (10%) ④



Stratigraphy, Sedimentology (8.3%) ⑦



groups. These six, in order of size, are Petroleum Geology, Economic Geology, Mineralogy-Petrology-Volcanology, Structural Geology–Tectonics, Engineering Geology, and Stratigraphy-Sedimentology. The age distribution ranges widely among the six categories. Petroleum Geology (Chart No. 2) is strongly bimodal with the largest percentages in the 26–30 and the 51–56 age groups. Economic Geology (Chart No. 3) is less strongly bimodal, with the largest percentage in the 31–35 age group. With the largest percentage in the 26–30 age group, and lacking a bimodal distribution, are Mineralogy-Petrology-Volcanology (Chart No. 4), Structural Geology–Tectonics (Chart No. 5), and Stratigraphy-Sedimentology (Chart No. 7). However, Engineering Geology (Chart No. 6), with the maximum in the 31–35 age group and an indistinct bimodal distribution, resembles the pattern of Economic Geology.

Overall, the results of the survey serve to emphasize the broad spectrum and relatively even distribution of the geological sciences that are represented by the membership of GSA, and the balance between applied and basic science. Further, age-distribution charts suggest that both the breadth and balance of the Society will continue in the future.

Distribution by subject of papers published in *Geology*

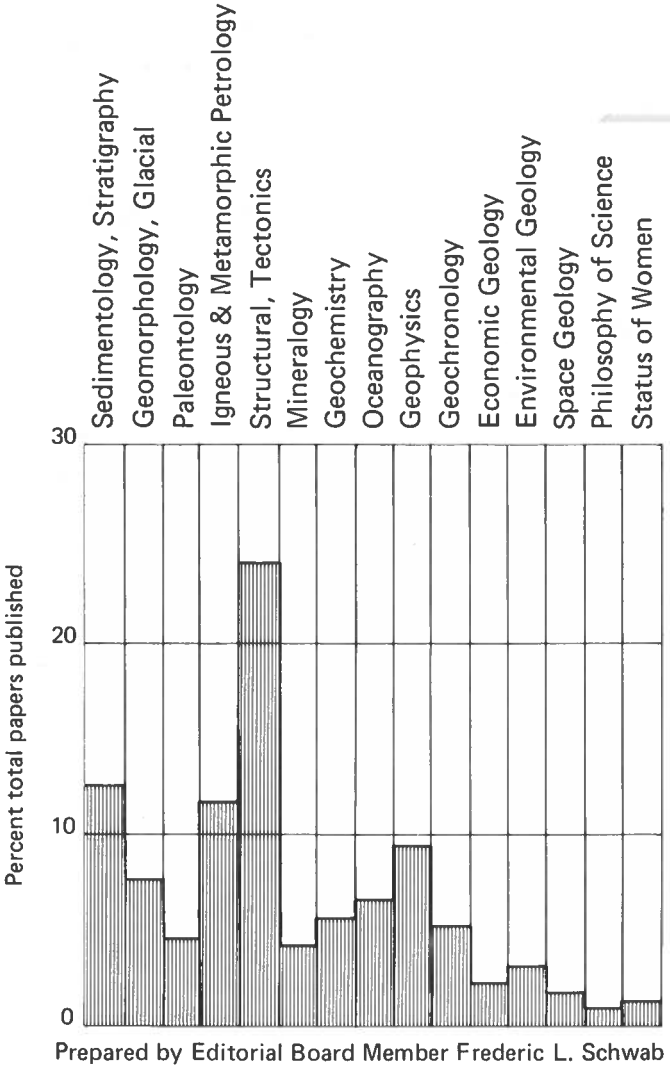
A member of the Editorial Board of *Geology*, Frederic L. Schwab, has made an analysis of the subject-matter categories of papers published in *Geology* during the six-year period of its existence. Although this analysis was prepared for the benefit of the Editorial Board and GSA's publications department, it is our thought that many members might be interested in the results, so therefore they are presented here graphically in the following chart:

The many and varied subject categories range widely in the percent of the 666 articles that have appeared in the journal, but more important is the fact that some papers have been published in all 15 categories. In other words, *Geology* is truly a broad-spectrum, general journal for the geological sciences.

The chart also can be used for comparison of the subject categories in *Geology* with the indicated major professional interest of the GSA membership, as reported in the preceding article. Such a comparison must at best be imprecise because, except for a few, the categories selected by Frederic L. Schwab are not the same as those used for the membership survey.

However, a few comments can be made. The Structural Geology–Tectonic category is by far the most popular in *Geology*, and is also one of the largest areas of major interest among the membership. The Sedimentology-Stratigraphy category is second in popularity in *Geology* and also is a large area of major interest among the membership. Geochemistry and Mineralogy-Petrology seem to be somewhat in the same proportion between the two, as does Environmental Geology, but from here on the comparisons do not appear to be very meaningful. Petroleum Geology and Economic Geology, the two largest areas of professional interest of GSA members, are reflected by only a very few percent of articles in *Geology*, combined under Schwab's Economic Geology category. Presumably, most articles on petroleum and economic geology find their outlet in more specialized journals.

Distribution by subject of 666 papers published in *Geology* – 1974–1979



Prepared by Editorial Board Member Frederic L. Schwab

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.

Additional information may be obtained by writing to

Joan Heckman
Membership Coordinator
Geological Society of America
P.O. Box 9140
Boulder, CO 80301
(303) 447-2020

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

UPDATE

Articles in *Bulletin, Part II,* March 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. Stratigraphy, structure, and metamorphism in the central Panamint Mountains (Telescope Peak quadrangle), Death Valley, California, by Theodore C. Labotka, Arden L. Albee, Marvin A. Lanphere, and S. Douglas McDowell. Doc. no. M00301. (On microfiche: 91 p., 20 figs., 3 tables)
2. An alternative to the barrier-shoreline model for deposition of Mississippian and Pennsylvanian rocks in northeastern Kentucky, by Frank R. Ettensohn. Doc. no. M00302. (On microfiche: 123 p., 30 figs., 1 table)
3. Calculations of flows needed to transport coarse fraction of Boulder Creek alluvium at Boulder, Colorado, by W. C. Bradley and A. I. Mears. Doc. no. M00303. (On microfiche: 34 p., 5 figs., 4 tables)
4. Pre-Quaternary microfossils—A guide to errors in radiocarbon dating, by E.M.V. Nambudiri, J. T. Teller, W. M. Last
5. Bioturbation of deep-sea sediments: Oxygen isotopes and stratigraphic uncertainty, by W. H. Hutson
6. Stromatactis—Origin related to submarine-cemented crusts in Paleozoic mud mounds, by R.G.C. Bathurst
7. Effects of changes in drainage-basin boundaries on sedimentation in Eocene Lakes Gosiute and Uinta of Wyoming, Utah, and Colorado, by R. C. Surdam, K. O. Stanley
8. Morphologic evidence for reorientation of sea-floor spreading in the West Philippine Basin, by J. E. Andrews
9. Tectonostratigraphic evolution of the Zagrosides of Iran, by M. Alavi
10. Formation of metamorphic aureoles beneath ophiolites—Evidence from the St. Anthony Complex, Newfoundland, by R. A. Jamieson
11. Penrose Conference report: Komatiites, by N. Arndt, C. Brooks

In March *Geology*

(separates not available)

1. Time of Pinedale deglaciation in north-central Colorado: Further considerations, by R. F. Madole

GSA News & Information

Vol. 2, no. 3 March 1980

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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.

THE
GEOLOGICAL SOCIETY
OF AMERICA
3300 Penrose Place · Boulder, Colorado 80301

APPLICATION FOR EMPLOYMENT MATCHING SERVICE

(Please type or print legibly with **Black Ink**)

A _ _ _ _ -1

Name _____ Date _____
(last name first)

Mailing address _____

A _ _ _ _ -2

City _____ State _____ Zip code _____ Telephone number ( ) _____
Area code Number

Date available _____ If not U.S. citizen, list visa _____

TYPE OF POSITION DESIRED

Specialty Codes (see list below)

Choose as many as three that best describe your expertise in order of importance.

1. _____ 2. _____ 3. _____

Interested in

- ☐ Academic
- ☐ Government
- ☐ Industry
- ☐ Other

Specific interest

- ☐ Administrative
- ☐ Exploration/Production
- ☐ Field
- ☐ Research
- ☐ Teaching

Seeking

- ☐ Full-time
- ☐ Part-time
- ☐ Summer

Will accept employment in

- ☐ U.S. only
- ☐ U.S. with foreign assignments
- ☐ Either

A _ _ _ _ -3

EXPERIENCE

Present specialty (see Specialty Code list) _____ Years of experience in this specialty _____

Present employer _____ May he be contacted? Yes ☐ No ☐

If you do not wish to be listed for employment with a specific organization, check here ☐ and list organization on an attached sheet.

Give number of years experience for any of the following that are applicable:

Administrative _____ Exploration/Production _____ Field _____ Research _____ Teaching _____ Total geological working experience _____

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 _____

SPECIALTY CODES

Select those that best describe your ability. Use codes in bold face only when other breakdowns are inadequate.

100. Economic Geology
101. coal geology
102. geothermal, etc.
103. metallic deposits
104. nonmetallic deposits
105. mining geology

120. Engineering Geology
121. rock mechanics

150. Environmental Geology
151. public education and communication

200. General Geology

220. Geochemistry
221. organic
222. inorganic
223. stable isotopes
224. unstable isotopes

250. Geomorphology
251. Pleistocene geology

300. Geophysics
301. exploration
302. paleomagnetism
303. theoretical

320. Hydrogeology
321. hydrochemistry
322. ground water
323. surface water

330. Library

350. Mathematical Geology
351. computer science
352. statistical geology

400. Mineralogy
401. crystallography
402. clay mineralogy

410. Museum (curator)

420. Oceanography
421. marine geology
422. coastal geology

450. Paleontology
451. invertebrate
452. vertebrate
453. micropaleontology
454. paleobotany
455. paleoecology

500. Petroleum Geology
501. exploration
502. subsurface stratigraphy

520. Petrology
521. igneous
522. metamorphic
523. sedimentary

550. Planetology

600. Regional Geology

620. Remote Sensing
621. photogeology
622. photogrammetry

630. Science Editing

650. Sedimentology

700. Seismology

720. Stratigraphy
721. Cenozoic
722. Mesozoic
723. Paleozoic
724. Precambrian

750. Structural Geology
751. tectonics
752. tectonophysics

800. Volcanology

Résumé must be attached. Only one page typewritten on one side will be accepted for reproduction to employers. Include concise detail of work experience and college majors and minors on degrees.

Fee—$15.00. Payment must accompany form. Make check payable to the **Geological Society of America.**

I agree to release GSA or their representatives from responsibility for errors that may occur in processing or distributing this data. I understand that GSA makes no guarantee of contact by an employer in this service. I agree to notify GSA Employment Service immediately of (1) change of address, (2) acceptance of a position.

I will attend the 19___ GSA Annual Meeting in _____.

_____
Signature (required)

This application will be active for 1 year.

1/80

THE
GEOLOGICAL SOCIETY
OF AMERICA
3300 Penrose Place · Boulder, Colorado 80301

EMPLOYER'S REQUEST FOR EARTH SCIENCE APPLICANTS

(Please type or print legibly with **Black Ink**)

R _ _ _ _ -1

Name _____ Date _____

Organization _____

Mailing address _____

R _ _ _ _ -2

City _____ State _____ Zip code _____ Telephone number ( ) _____
Area code Number

SPECIALTY CODES (see list below)

List the specialty code numbers that you wish to order, or ☐ check here if you want entire file of applicants in ALL specialties.

1. _____ **2.** _____ **3.** _____ **4.** _____ **5.** _____ **6.** _____

SPECIALTY CODES

100. Economic Geology
101. coal geology
102. geothermal, etc.
103. metallic deposits
104. nonmetallic deposits
105. mining geology

120. Engineering Geology
121. rock mechanics

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700. Seismology

720. Stratigraphy
721. Cenozoic
722. Mesozoic
723. Paleozoic
724. Precambrian

750. Structural Geology
751. tectonics
752. tectonophysics

800. Volcanology

Applicants seeking employment in:

☐ Academic
☐ Government
☐ Industry
☐ Other _____

Minimum degree required

☐ None
☐ B.A. or B.S.
☐ M.A. or M.S.
☐ Ph.D.

Minimum professional experience

☐ None
☐ 1-5 yrs
☐ 6-plus

Experience desired (yrs)

	None	1-5	6-plus
Administrative	☐	☐	☐
Exploration/Production	☐	☐	☐
Field	☐	☐	☐
Research	☐	☐	☐
Teaching	☐	☐	☐

I am interested in interviewing applicants through the GSA Employment Service at the 19____ Annual Meeting in _____.

See page 36 for current fee schedule.

1. I agree to use this service for valid recruiting purposes.
2. I agree that no placement charges will be assessed to any applicant participating in the GSA Employment Matching Service.

Total fee enclosed . . . . . $_____

or invoice requested . . . $_____

_____

Signature (required)

Three Penrose Conferences for 1980

The Penrose Conferences, sponsored by the Geological Society of America, provide the opportunity for exchange of current information and exciting ideas pertaining to the science of geology and related fields. They are intended to stimulate and enhance individual and collaborative research and to accelerate the advance of the science by the interactions and development of new ideas.

It is essential that the conferences be informal. Groups should be small enough that personal discussion among all participants is encouraged, and large enough to provide diversity and depth. As an empirical rule, the maximum number for success is about 70. Normally, the minimum number required to convene a conference is 50.

Anyone interested in attending a specific conference is encouraged to contact the conveners of that conference. Conveners initially invite a few key speakers necessary to the organization and success of the conference. Aside from these invitations issued in the early planning stages of a conference, the conveners utilize indications of interest from those actively working in the field to complete the list of conference participants. Participation is not restricted to members of the Geological Society of America. GSA members, however, will receive preference when there is a choice between equally qualified persons. The final decision on participation will be made by the conveners, whose decision shall not be subject to appeal. Acceptances for participation are not transferable.

Anyone interested in convening a Penrose Conference may submit a proposal; but at least one of the conveners must be a member of the Geological Society of America.

Proposals are now being accepted for 1981 Penrose Conferences and are reviewed, as received, by the Penrose Conference Committee. In acceptance of a proposal, the Penrose Conference Committee may offer advice, which in some cases may be a condition of acceptance. The committee chairman will address an advisory letter to the conveners calling attention to any matters that seem likely to pose a problem that must be resolved if the conference is to be successful. Proposals are then recommended for approval or rejection by the Society's Executive Committee which reserves full authority for the final approval.

Requests for information about Penrose Conferences in general should be sent to Penrose Conference Coordinator, The Geological Society of America, 3300 Penrose Place, P.O. Box 9140, Boulder, CO 80301.

Proposals for Penrose Conferences should be sent to the Executive Director at the above address.

Calendar of Penrose Conferences for 1980

April 28–May, 2, 1980, *Tectonics and Geophysics of the Appalachians*

Unicoi Conference Center
Helen, Georgia

Conveners:

Robert D. Hatcher, Jr.
Department of Geology
Florida State University
Tallahassee, FL 32306

Harold Williams
Department of Geology
Memorial Univ. of Newfoundland
St. Johns, Newfoundland A1B 3X5

Isidore Zietz
USGS, MS 927
Reston, VA 22092

May 18–23, 1980, *The Role of Pressure Solution and Dissolution Phenomena in Geology*

Mohonk Mountain House
New Paltz, New York

Conveners:

Walter Alvarez
Dept. of Geol. & Geophys.
Univ. of California
Berkeley, CA 94720

Terry Engelder
Lamont-Doherty Geol. Obsver.
Palisades, NY 10964

Peter A. Geiser
U-45
Univ. of Connecticut
Storrs, CT 06268

September 28–October 4, 1980, *Silicic Volcanism: Ash-Flow Tuffs, Calderas, and Associated Hydrothermal Systems*

Pagosa Lodge
Pagosa Springs, CO
and
Golconda Resort
Lake City, CO

Conveners:

Philip M. Bethke
USGS, MS 959
Reston, VA 22092

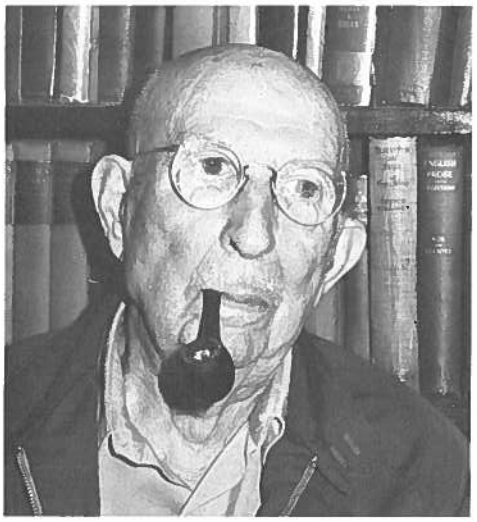
Peter W. Lipman
USGS
Box 25046, Fed. Center
Denver, CO 80225

Hugh P. Taylor, Jr.
Div. of Geol. & Planetary Sci.
Calif. Inst. of Tech.
Pasadena, CA 91125

GSA MEDALS AND AWARDS

The Geological Society of America medals and awards for 1979 were presented at the annual meeting of the Society in San Diego, November 5–8, 1979. The complete citations and replies from the recipients are to be published in their entirety in the *GSA Bulletin, Part II,* April 1980.

Penrose Medal



J Harlen Bretz

J Harlen Bretz was honored with GSA's highest award, the Penrose Medal. M. King Hubbert, in his citation, praised Bretz's contributions to the science of geology in three separate fields: first, his recognition in the 1920s that the unique features of the Scabland topography of the Columbia plateau in southeastern Washington could only have been formed by a sudden catastrophic flood of a magnitude previously unknown in geologic science; second, Bretz's confirmation of the earlier conclusions of William Morris Davis that the limestone caverns of the Ozark Uplift of southern Missouri were formed by water circulating below the water table, and of Davis' theory of the cycle of erosion and of peneplanation; and third, Bretz's unusually effective teaching work which promoted his students' independence and thoroughness in research and field work.

Bretz, in his acceptance, expressed sincere appreciation for the award, noting " . . . surprise and great satisfaction to learn that my peers and superpeers think so well of my efforts. Perhaps," he said, "I can be credited with reviving and demystifying legendary Catastrophism and challenging a too rigorous Uniformitarianism."

* * *

The Penrose Medal was made possible by a grant from R.A.F. Penrose, Jr., to GSA for the purpose of awarding a gold medal in recognition of contributions to the science of geology. The first medal was awarded to T. C. Chamberlin in 1927. Since then there have been 49 recipients of the medal.

Arthur L. Day Medal

Walter Elsasser

Allan Cox presented the Arthur L. Day Medal citation to Walter Elsasser in recognition of two major contributions to the earth sciences: his explanation of how the Earth's magnetic field is produced by fluid motions and electrical currents in the Earth's core; and his model of the role of the lithosphere, aesthenosphere, and mesosphere in thermal convection.

Elsasser studied nuclear physics under Max Born at Gottingen, then he immigrated to the United States in 1936, whereupon he entered the field of geophysics. His subsequent work laid the theoretical groundwork for the theory of the geomagnetic dynamo and developed a mathematical formalism to express the coupling between magnetic fields, fluid motions, and electrical currents in the Earth's core.

He later turned his attention to the mantle, developing his basic convective model for plate tectonics. The most recent of Elsasser's papers addresses the main issues of mantle-wide convection " . . . with great elegance and simplicity—qualities which have characterized so much of Elsasser's work in geophysics."

"Men are at their best," Elsasser said in his acceptance, "when they help each other—and science is at its best when one branch of it illuminates other branches."

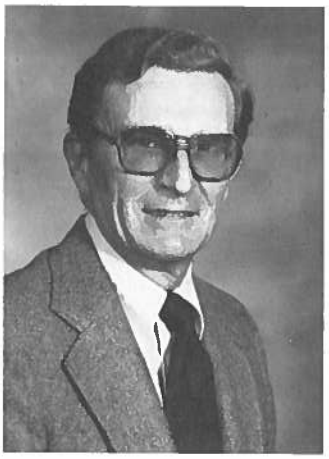
* * *

The Arthur L. Day Medal was established by a grant from Arthur L. Day to recognize the application of chemistry and physics to the advancement of the science of geology. There have been 31 recipients of the medal since 1948.

GSA MEDALS AND AWARDS

Kirk Bryan Award

The Kirk Bryan Award, presented by the Quaternary Geology and Geomorphology Division of GSA, was given to Stanley A. Schumm in recognition for his book, "The Fluvial System." The book presents concepts about erosional, transportational, and depositional aspects of landscapes.



Stanley A. Schumm

Schumm's work ranged from the Perth-Amboy badlands of New Jersey to the Riverine Plains of New South Wales, Australia. The philosophy that emerged from his work helped pioneer concepts about fluvial landscapes and their dynamics. "The interrelations between processes and landforms that he stressed are those attributes of geomorphic open systems that the rest of us now apply in our work," noted William B. Bull, Chairman of the Quaternary Geology and Geomorphology Division, who presented the award.

"His [Schumm's] approach has formed a solid basis for better understanding of the interaction of humans with their environment and therefore it [his book] is of great value to geomorphologists and other earth scientists."

O. E. Meinzer Award

John M. Sharp, Jr.

Patrick A. Domenico

The O. E. Meinzer Award, given by the Hydrology Division of GSA, was presented to co-recipients John M. Sharp, Jr., and Patrick A. Domenico.

The paper for which Sharp and Domenico were honored is "Energy Transport in Thick Sequences of Compacting Sediment." George White, presenting the citation, said, "In this paper the theory of energy transport is developed by rigorous mathematical analysis, then is applied to the character and history of the sediments of the northern Gulf of Mexico, explaining the occurrence of geopressurized zones."

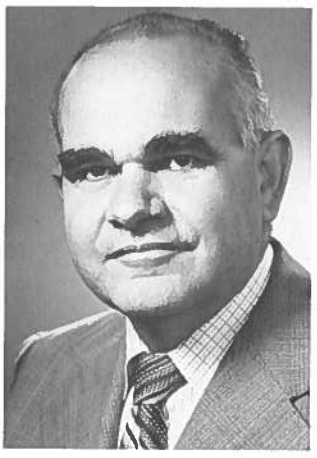
"The great importance of this theory for geopressurized fluids, especially gas in the sedimentary rocks and elsewhere, is obvious," White said.

E. B. Burwell, Jr., Memorial Award

This award of the Engineering Geology Division of GSA was presented to two co-recipients, Evert Hoek and John W. Bray, by Richard H. Jahns, Chairman of the Engineering Geology Division.

In his citation, Jahns spoke of "the most tangible form of the rock support work . . . " done by Bray and Hoek, their 1974 monograph, *Rock Slope Engineering*. In this "handbook of rock slope design" they presented an orderly, well-illustrated system of developing geologic data into an assessment of the geometry of the rock mass and estimation of its material properties.

Accepting the award for both recipients, Hoek commented, "In spite of our lack of geological training, John Bray and I have . . . tried to honor those geological principles which we understand . . . ."



Evert Hoek

John W. Bray

(continued next page)

GSA MEDALS AND AWARDS

(continued from page 41)

Peter A. Hacquebard

Gilbert H. Cady Award

The Gilbert H. Cady Award of the Coal Division of GSA was presented to Peter A. Hacquebard to acknowledge his exceptional achievements in coal geology. Beginning with his thesis studies of the coals of Limburg, in the Netherlands, his entire professional efforts have been directed toward advancing knowledge in the physical constituents of coal. Such efforts have led to important extensions of old fields in Nova Scotia through his recognition of coal facies and types, to introduction of a coalification curve for the Maritime Provinces, and the demonstration of vitrinite rank to be a significant guide to regional oil and gas occurrences in eastern and Rocky Mountain provinces of Canada.

For many years he directed a group of experts in detailed petrographic descriptions of coal beds. Through such a team effort he established systems of bed correlation and bed characteristics currently in use. The results of these studies have been published by him and jointly with others in more than 40 articles, many of which have attracted international attention.

The award was presented by Alex R. Cameron.

NOTE:

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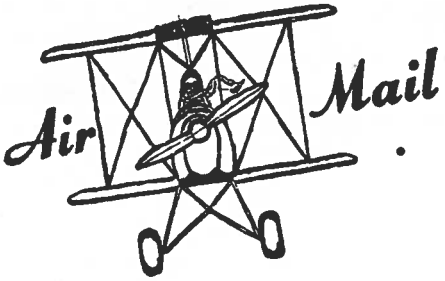

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SOUTH-CENTRAL
Wichita State University, Wichita, Kansas
March 3-4, 1980

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Benjamin Franklin Hotel, Philadelphia, Pennsylvania
March 13-15, 1980

CORDILLERAN
Oregon State University, Corvallis, Oregon
March 19-21, 1980

SOUTHEASTERN
Birmingham Hyatt House, Birmingham, Alabama
March 27-28, 1980

NORTH-CENTRAL
Indiana University, Bloomington, Indiana
April 10-11, 1980

ROCKY MOUNTAIN
Weber State College, Ogden, Utah
May 16-17, 1980

GSA AND ASSOCIATED SOCIETIES ANNUAL MEETING
Atlanta Marriott and Georgia World Congress Center
November 17-20, 1980

Officers of associated societies, 1980

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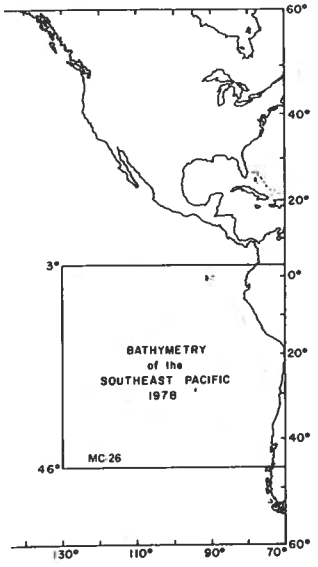

MC-26

Bathymetry of the Southeast Pacific. J. Mammerickx and S. M. Smith. 1978. In color, 43" x 46". Scale at equator, 1:6,442,194 or 1.74 cm per degree of longitude. Contour interval: 1,000 metres.

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MC-29

Geologic Map of the Ronda Ultramafic Complex, Southern Spain. Margaret T. Lundeen and Masaaki Obata. 1979. In color, 45" x 41". Scale, 1:50,000. With 4-page text by John S. Dickey, Jr., M. T. Lundeen and M. Obata.

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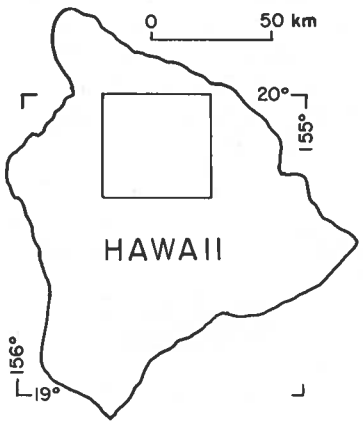

MC-30

Geologic Map of Mauna Kea Volcano, Hawaii. Stephen C. Porter. 1979. In color, 50" x 33". Scale, 1:50,000. With 4-page text. Note: The Quaternary stratigraphy and chronology of Mauna Kea is described in detail in *Geological Society of America Bulletin*, Part 1, v. 90, p. 609–611; Part 2, v. 90, p. 980–1093, July 1979.

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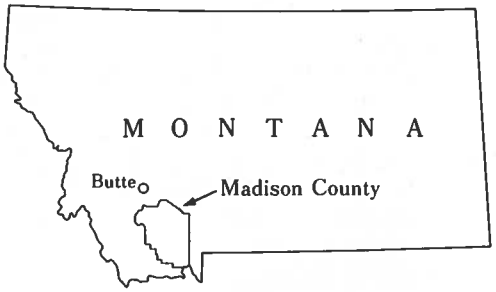

MC-31

Geologic Map of Southern Tobacco Root Mountains, Madison County, Montana. Charles J. Vitaliano and William S. Cordua. 1979. In color, 32" x 45". Scale, 1:62,500. With 8-page text.

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UPDATE

AGI establishes Congressional Science and Engineering Fellowship

The American Geological Institute (AGI), in cooperation with the American Association for the Advancement of Science (AAAS), invites postdoctoral scientists or engineers and professionals in the geological field to apply for the recently established AGI Congressional Science and Engineering Fellowship.

By working for one year, beginning September 1, 1980, as a special legislative assistant on the staff of a Member of Congress or congressional committee, the AGI Fellow will have an opportunity to contribute to the public policy-making process within Congress. The program includes an orientation on congressional and executive branch operations and a year-long seminar program on issues involving science and public policy.

A prospective Fellow must demonstrate exceptional competence in some area of geology; be cognizant of many nonscientific areas; be flexible; articulate; and have a strong interest or some experience in applying scientific knowledge toward the solution of societal problems. An applicant must be a member of one of AGI's member societies.

Stipend is $19,500 annually. Up to an additional $1,500 is available for travel and relocation expenses. Deadline for receipt of applications is March 15, 1980. The award recipient will be announced by mid-May.

AGI thus joins approximately 20 other professional scientific and engineering societies that sponsor Congressional Science and Engineering Fellows. In addition to sponsoring or cosponsoring Fellows with participating societies, AAAS coordinates the entire program, arranges the orientation and year-long seminar programs, and assists in the selection process.

GSA, as a member society of the American Geological Institute, along with other member societies, is supporting the Congressional Fellowship Program.

For further details, including application information, write to Dr. A. G. Unklesbay, American Geological Institute, 5205 Leesburg Pike, Falls Church, VA 22041.

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MARCH 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 "March Summaries" on coupon.

• S00301—Stratigraphy, structure, and metamorphism in the central Panamint Mountains (Telescope Peak quadrangle), Death Valley area, California: Summary.

Theodore C. Labotka, Arden L. Albee, Division of Geological and Planetary Sciences, California Institute of Technology, Pasadena, California 91125 (present address, Labotka: Department of Earth and Space Sciences, State University of New York at Stony Brook, Stony Brook, New York 11794); Marvin A. Lanphere, Branch of Isotope Geology, U.S. Geological Survey, 345 Middlefield Road, Menlo Park, California 94025; S. Douglas McDowell, Department of Geology and Geological Engineering, Michigan Technological University, Houghton, Michigan 49931. (5 p., 2 figs.)

• S00302—An alternative to the barrier-shoreline model for deposition of Mississippian and Pennsylvanian rocks in northeastern Kentucky: Summary.

Frank R. Ettensohn, Department of Geology, University of Kentucky, Lexington, Kentucky 40506. (6 p., 3 figs.)

• S00303—Calculations of flows needed to transport coarse fraction of Boulder Creek alluvium at Boulder, Colorado: Summary.

William C. Bradley, Department of Geological Sciences, University of Colorado, Boulder, Colorado 80309; A. I. Mears, Natural Hazards Consultant, 222 East Gothic Avenue, Gunnison, Colorado 81230. (4 p., 3 figs., 1 tbl.)

• S00304—Geologic cross section of the central Klamath Mountains, California: Summary.

Gregory A. Davis, Department of Geological Sciences, University of Southern California, Los Angeles, California 90007; Clifford J. Ando, Department of Geological Sciences, Cornell University, Ithaca, New York 14853; Patricia H. Cashman, Department of Geology, Bates College, Lewiston, Maine 04240; Lee Goullaud, Department of Geological Sciences, University of Washington, Seattle, Washington 98195 (deceased). (4 p., 1 fig.)

• S00305—Interpretation of the Cenozoic geologic history, central Oregon continental margin: Cross-section summary.

Parke D. Snavely, Jr., Holly C. Wagner, Diane L. Lander, U.S. Geological Survey, 345 Middlefield Road, Menlo Park, California 94025. (4 p., 1 fig.)

Bulletin Briefs

Titles and abstracts of conventional articles in the March 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 47.*

• 00306—Crustal structure of the southern Rocky Mountains from seismic measurements.

Claus Prodehl, Geophysikalisches Institut der Universität Fridericiana, Karlsruhe, West Germany; L. C. Pakiser, U.S. Geological Survey, Federal Center, Denver, Colorado 80225. (9 p., 8 figs.)

A seismic investigation of crustal structure of the southern Rocky Mountains in 1964 and 1965 resulted in traveltime curves that have been interpreted to indicate an average crustal thickness of 48 km in the San Juan Mountains, the Sawatch Range, and the Park Range; 52 km in the Front Range; and 37 km in the Laramie Range. The upper crust west of the Front Range includes a low-velocity zone, and the velocity in the lower crust there increases gradually to 7.1–7.3 km/sec just above the Moho. The crust in the Front Range is distinctly separated into upper and lower units. The upper-mantle velocity in the Southern Rocky Mountains is about 7.9 km/sec.

The average density and velocity of the crust are lower in the San Juan Mountains, the Sawatch Range, and the Park Range than those in the Front Range. The crust in the Colorado Plateau is thinner than that in the Southern Rocky Mountains, but the crust in the Great Plains is as thick or nearly as thick as that in the Front Range.

• 00307—The significance of fission-track ages of apatite in relation to the tectonic history of the Front and Sawatch Ranges, Colorado.

Bruce Bryant, C. W. Naeser, U.S. Geological Survey, Federal Center, Denver, Colorado 80225. (9 p., 4 figs., 1 tbl.)

Fission-track ages of apatite in the Mount Evans area of the Front Range show that the Late Cretaceous 100 °C isotherm, which was 4 km below the sea floor, is now at an altitude of 3.5 km. Assuming a geothermal gradient of 25 °C per kilometre, the projected level of the latest Cretaceous sea floor, represented by the Fox Hills Sandstone, is at an altitude of 7.5 km, about 3.2 km above the top of Mount Evans, and the structural relief from that projection of the Fox Hills on the crest of the Front Range uplift to the deepest part of the Denver Basin to the east is 6.5 km.

Ages of apatite in Precambrian rock along the Elkhorn fault on the west margin of the Front Range uplift show that in the area of maximum stratigraphic displacement, the fault must have a very low dip and that the east margin of the Paleocene South Park basin must have been nearby.

Ages in the Sawatch Range suggest that significant uplift occurred during or after Eocene time. Ages on the east side of the range reflect development of the Arkansas Valley graben and concomitant uplift of the east margin of the modern Sawatch Range in Miocene time.

• 00308—Discontinuities in the composition surface of a zoned pluton, Criffell, Scotland.

W. E. Stephens, Department of Geology, University of St. Andrews, Purdie Building, St. Andrews, Fife KY16 9ST, Scotland; A. N. Halliday, Isotope Geology Unit, Scottish Universities Research and Reactor Centre, East Kilbride, Glasgow G75 0QU, Scotland. (6 p., 4 figs., 2 tbls.)

On the basis of the distribution of major elements, as represented by bulk chemical analyses of 180 samples and with the aid of a new spatial derivative technique, the Criffell pluton is shown to be composite, with a complex boundary zone of intermediate composition. Sr isotope data on 15 samples indicate that the boundary zone may be explained by interaction between chemically distinct melts. The granitic melt was derived from a source richer in radiogenic Sr than the granodiorite melt, and the granite in the interior of the pluton underwent crystal fractionation. The apparently simple zoned Criffell pluton is actually a composite of unzoned and zoned components, and the boundary between components is of a transitional character of variable chemical gradient.

• 00309—Slaty cleavage unrelated to tectonic dewatering: The Siamo and Michigamme slates revisited.

Edward C. Beutner, Department of Geology, Franklin and Marshall College, Lancaster, Pennsylvania 17604. (8 p., 12 figs., 1 tbl.)

Clastic dikes in slate in the Precambrian Michigamme and Siamo Formations of northern Michigan have been described as being parallel to slaty cleavage; this relationship was then used to support the hypothesis that the cleavage formed in response to tectonic dewatering. Careful measurement of cleavage and dike attitudes at the two previously studied localities demonstrates that the dikes are *not* parallel with cleavage. The dikes and other soft-sediment structures in these rocks are cut by the cleavage and were deformed by the strain that accompanied cleavage formation. In addition, it appears that deformed calcareous concretions in the Michigamme Formation were spheroids variably flattened in bedding when tectonic deformation began. As a result, the *ab* plane of many ellipsoidal concretions does not coincide with cleavage. Considering all of the data, there is no evidence in these rocks or anywhere else that tectonic dewatering has been a significant factor in the formation of regional slaty cleavage.

• 00310—Submarine-canyon complex among Cretaceous island-arc sediments, western Jamaica.

J. Grippi, K. Burke, Department of Geological Sciences, State University of New York at Albany, Albany, New York

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12222 (present address, Grippi: Department of Geological Sciences, University of California, Santa Barbara, California 93106). (6 p., 5 figs.)

Mapping a Cretaceous, island-arc, sedimentary basin revealed a northerly trending submarine canyon complex 4.5 km long and 2 km wide at its southern end. It widens to 4 km in the north, in a downslope direction. The canyon complex cuts across regional stratigraphy and is incised as much as 500 m into a shelf sequence of thinly bedded shale and reef-type limestone. The canyon fill consists of massive, unbedded, mafic, volcanic conglomerate (Tom Spring Formation) and an underlying sequence of volcaniclastic sandstone, calcarenite, shale, and minor conglomerate (Georgia complex) that was penecontemporaneously deformed.

Structures of the Georgia complex suggest a range of deformation mechanisms, including rigid body rotation of bedded blocks, folding, and mass flow. The variation in structural style is attributed to primary variability in rheological properties and to geometry of the basin floor. The deformation of the Georgia complex is attributed to the catastrophic emplacement of the overlying Tom Spring volcanic conglomerate and to gravity-driven processes within the submarine canyon.

• 00311—Mechanics of thin-skinned fold-and-thrust belts: Discussion. (3 p., 2 figs.)

Discussion: *David Elliott, Department of Earth and Planetary Sciences, Johns Hopkins University, Baltimore, Maryland 21218.*

• 00312—Mechanics of thin-skinned fold-and-thrust belts: Discussion. (1 p.)

Discussion: *Emile Rod, 9 Minns Road, Gordon, New South Wales 2072, Australia.*

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