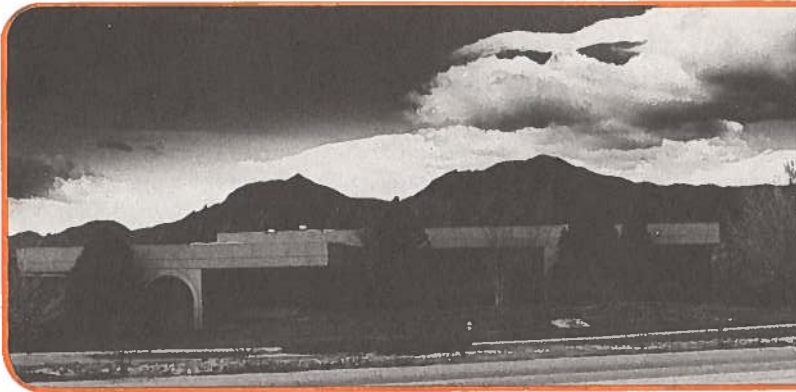


GSA NEWS & INFORMATION

Monthly Newsletter of
The Geological Society of America



VOLUME 7, NUMBER 9

SEPTEMBER 1985

WELCOME TO ORLANDO

from the General Chairman of the 1985 GSA Annual Meeting

Greetings from the "Sunshine State." This year's GSA Annual Meeting is scheduled for late October, a perfect time in Florida because the tourists are gone, the weather is warm and dry, and the prices for hotels and attractions are low. The meeting is hosted by the University of Florida, Florida State University, the University of South Florida, and the University of Central Florida. Your hard-working local committee has had just 18 months to prepare for this meeting, but we're certain you will be pleased with the results of its effort.

Orlando represents the new Florida, glittering, vibrant, and dynamic. A new international airport facility offers convenient and economic air service. The new Orange County Convention Center will be the site for the technical sessions, exhibits, employment service, science theater, and registration. It is an outstanding facility that will enhance the meeting appreciably. The hotels are conveniently located; the Orlando Marriott (headquarters) is only 2 miles from the convention center and there are almost no traffic lights between them. Shuttles will be provided for all GSA-selected hotels.

Seven premeeting field trips, one during-meeting trip (self-guided), and six postmeeting trips have been organized. Locales include the Bahamas, Haiti, the Galapagos Islands, and Ecuador, as well as domestic trips to the southern Appalachians, the Piedmont, and the Atlantic and Gulf coastal plains. Twenty-five symposia addressing timely and controversial subjects begin on

Sunday, October 27, and continue throughout the meeting. Some 70 oral-presentation and poster sessions have been scheduled, providing comprehensive coverage of geoscience topics. GSA is sponsoring five courses: Geowriting, Introduction to Planetary Geology, Remote Sensing, Making Use of UNIX in Geological Applications, and An Outline of Balanced Cross Sections. Five other short courses, dealing with deep-sea sedimentation, tectonics, crystallography, mollusks, and the epithermal environment, are being offered by other societies and divisions.

Special events will include the traditional welcoming party, alumni night, Mardi Gras dinner theater, and a gala evening at Sea World. Special arrangements have been made to offer discount passes to the Walt Disney World resort complex, which includes the Magic Kingdom and EPCOT Center. The guest program promises a variety of interesting activities highlighted by an informative tour of the Kennedy Space Center. Add to these events a tennis tournament, a 5K/10K race, and a no-hit, no-slapshot ice hockey game and you have the makings of a delightful time for everyone. Orlando even has its own version of Boston's infamous "combat zone," the devilish, merrymaking establishments along Orange Blossom Trail.

The members of the local committee have my heartfelt thanks for their dedication and labors. I commend them on their superb work and hope you come to appreciate their efforts first-hand in October.

Tony Randazzo
General Chairman



1985 GSA Annual Meeting Local Committee. Left to right: Phillip Ware, Joe Donoghue, Tony Randazzo, Lynne Randazzo, Jim Cowart, Doug Jones, Paul Ciesielski, Dick Strom, Doug Smith, Jim Tull, Sam Upchurch, Frank Kujawa (missing from photo: Mike Perfit).

New Sedimentary Geology Division To Offer Symposium at Orlando Meeting

The newly formed GSA Sedimentary Geology Division will hold its inaugural sessions at the 1985 GSA Annual Meeting, in Orlando, Florida. The symposium, to take place on Monday afternoon, October 28, is titled "Sedimentological Consequences of Convulsive Geologic Events" and is organized by H. Edward Clifton of the U.S. Geological Survey, Menlo Park. A panel discussion dealing with the symposium topic will take place on Tuesday evening, October 29, in the Lemon Room of the Marriott Hotel, after the Division business meeting at 7:30 p.m. Beer and other liquid refreshments will be available.

Symposium speakers and their topics are as follows:

H. E. Clifton: Introduction: The Relevance of Convulsive Events

R. A. Morton: Nearshore Responses to Great Storms—Catastrophic Historic Events but Common Sedimentologic Features

G. W. Moore and J. G. Moore: Large-scale Bedforms in Boulder Gravel Produced by a Great Wave in Hawaii

A. Malinverno and W.B.F. Ryan: Large Avalanche Scars on the Continental Margin, Nice, France

D.J.W. Piper, A. N. Shor, and J. Hughes Clark: The 1929 Grand Banks Earthquake, Slump, and Turbidity Current

D. J. Stanley: "Stop-and-go" Redeposition of Mud by Gravity and Traction Rather Than by Hemipelagic Settling: Convulsive Events and Deep Ocean Basin Sedimentation

W. Alvarez, A. Montanari, F. Asaro, H. V. Michel, and L. W. Alvarez: The Sedimentary Deposits of Major Impact Events

H. Glicken: Deposits of Large Volcanic Debris Avalanches at Mount St. Helens and Mount Shasta Volcanoes

K. M. Scott: Origin, Behavior and Sedimentology of Catastrophic Lahars, Mount St. Helens

R. J. Janda and D. F. Meyer: Fluvial Sedimentation Following Quaternary Eruptions of Recent Volcaniclastic Landforms, Mount St. Helens, Washington

G. S. Fraser and N. K. Bleuer: Sedimentologic Consequences of Two Catastrophic Flows in the Late Wisconsin Wabash Valley

K. J. Hsü: Substantive Uniformitarianism and Darwinism

The evening session on Tuesday, October 29, will feature a discussion of the symposium concepts and brief, informal presentations from the floor that describe other possible examples of sediment influences by catastrophic events. The discussion will be enlarged by a panel whose members are R. N. Ginsburg, E. L. Winterer, Jan Smit, D. J. Stanley, and K. J. Hsü. If you wish to participate in this discussion by making a brief (5 minutes or less) presentation, please contact Ed Clifton at U.S. Geological Survey, MS-999, 345 Middlefield Road, Menlo Park, CA 94025; list the title of your presentation, give a brief description of subject matter, indicate the number of slides, and specify any other requirements needed for your presentation.

Members and Fellows of GSA who are interested in sedimentary geology are encouraged to attend these events and to join the Sedimentary Geology Division and help plan its future symposia and other activities. Those wishing to join should notify Clara Hodgson, GSA Membership Dept., P.O. Box 9140, Boulder, CO 80301. Annual division dues are \$5.00. All current and prospective division members are encouraged to attend the first short division business meeting at 7:30 p.m. on Tuesday, October 29, prior to the start of the panel discussion in the Lemon Room of the Marriott Inn. Division officers for 1985-1986 are George deVries Klein (chairman), Robert Raymond, Jr. (first vice-chairman), Lee J. Suttner (second vice-chairman), and Robert H. Osborne (secretary-treasurer), all of whom may be contacted for further information.

CORRECTION: Sedimentary Geology Division

H. Edward Clifton, who has organized the first Sedimentary Geology Division symposium, to be held at the 1985 GSA Annual Meeting (see *GSA News & Information*, June 1985, p. 85), is president-elect of the Society of Economic Paleontologists and Mineralogists (SEPM). Orrin H. Pilkey is the current SEPM president.

No Increase in 1986 Dues

Dues Statements Coming This Month

The 1986 GSA membership dues statements are now being prepared for mailing about mid-month. Please note that all dues-paying Fellows, Members, and Student Associates receive three monthly publications, the *Geological Society of America Bulletin*, *Geology*, and *GSA News & Information* as part of their membership package.

The annual dues for a Fellow or Member for 1986 will be \$62 (the same as for 1984 and 1985) for the entire package, including membership and 12 issues each of *Bulletin*, *Geology*, and *GSA News & Information*. The required dues for Student Associates for the same package will be \$32 (also the same as for 1984 and 1985). Senior dues-exempt members may choose to receive the two journals for 1986 at a cost of \$32 (they already receive *GSA News & Information*).

Married couples who are both current GSA members will be allowed a reduction in 1986 dues. Married couples will pay \$62 for the first member (\$32 for Student Associates) and \$26 for the second. They will receive a single subscription to the *Bulletin* and *Geology*, but both members will continue to receive *GSA News*

& *Information*, ballots, and other miscellaneous mailings. Please identify your spouse and indicate in the spaces provided on the back of the dues form who is requesting a reduction in dues. Please submit separate dues statements. If a spouse is not currently a member, do NOT send dues payment without requesting and completing an application for membership. The policy for married couples will apply only upon specific instructions from you.

Please inform us as soon as possible of any address change, as it usually takes 6 to 8 weeks to correct the files. Meanwhile, publications continue to be mailed to your former address. They are sent second class; therefore, the Post Office will not forward them without special instructions (and expense to you).

We must receive your 1986 dues payment no later than **November 27, 1985**, to avoid a delay in receipt of your 1986 GSA publications. If you have any questions or do not receive your 1986 dues statement, please contact the Membership Department.



CENTENNIAL NEWS

By Allison R. (Pete) Palmer

Final Coordinating Conferences

The eleventh Final Coordinating Conference for volumes of *The Geology of North America* was held in Denver June 8-9, 1985. This conference brought together the authors of the chapters of the *Ground Water Hydrogeology* volume to work out final details in the production of their book. A target was set for publication in late 1986. Joe Rosenshein has joined Bill Back and Paul Seaber as a co-editor of this volume.

The twelfth Final Coordinating Conference will have been held by the time this is published. It involved the volume *The Eastern Pacific Ocean and Hawaii* and was held at Menlo Park, California, July 20-21.

In addition, Final Coordinating Conferences are now scheduled for *Surface Water Hydrology* January 18-19, 1986; *North America and Adjacent Oceans During the Last Deglaciation* January 24-25, 1986; and the coal section of the volume *Economic Geology: U.S.* February 15-16, 1986, all in Denver.

Outline for Section on Oil and Gas in the DNAG Volume *Economic Geology: U.S.*

The second of three sections of this volume is now in its developmental stage following the organizational meeting held in May. The outline is given below, and a Final Coordinating Conference has been set for April 25-26, 1986.

Economic Geology: U.S.—Section on Oil and Gas
 Edited by D. D. Rice

- I. Introduction—D. D. Rice

- II. Geology of Petroleum
 1. Generation, Expulsion, and Migration—F. Meissner
 2. Entrapment—W. R. Almon
 3. Exploration Techniques—N. Foster
- III. Regional Synthesis of Selected Provinces
 4. Appalachian Basin—W. deWitt
 5. Michigan Basin—M. Bricker
 6. Gulf Coast—D. M. Curtis
 7. Anadarko Basin—H. G. Davis
 8. Permian Basin—B. Hanson
 9. San Juan Basin—J. Fassett
 10. Powder River Basin—G. Dolton
 11. Overthrust Belt—M. A. Warner
 12. Basin and Range—N. Foster
 13. San Joaquin Basin—D. C. Callaway
 14. Santa Maria Basin—D. W. Reynolds
 15. North Slope of Alaska—K. J. Bird

The regional syntheses will develop the characteristics of each area as they relate to hydrocarbon occurrence and production and will largely complement geological discussions of some of these areas in other DNAG volumes.

A New Volume Approved

The DNAG Steering Committee has approved the addition of a 28th volume to *The Geology of North America*. This volume, *Quaternary Nonglacial Geology of the Conterminous United States*, to be edited by R. B. Morrison, will have its organizational meeting August 24-25, 1985, in Denver.

DNAG DNAG

DNAG DNAG

Southeastern Section Speakers Program

The Southeastern Section has a new list of Speakers available for the 1985-1986 academic year. Representing more than 20 colleges and universities, 81 speakers are offering 138 talks on topics ranging from archaeological geology to tectonics. Otto C. Kopp, University of Tennessee, has organized the program and keeps track of its progress. The program for the coming year was made available to Southeastern Section Campus Representatives last May so that plans could be made for the speakers during the fall term.

For a copy of the list of speakers, write or call the Membership Department, GSA, P.O. Box 9140, Boulder, CO 80301; (303) 447-2020. Interested parties in the Southeastern Section who somehow did not get word about the program but who would like to be included should contact Otto C. Kopp, Department of Geological Sciences, University of Tennessee, Knoxville, TN 37916; (615) 974-2366 before September 30th. An addendum will be provided in October for the remainder of the academic year.

IN MEMORIAM

Sherman S. Comstock
 Ft. Collins, Colorado

Lore R. David
 Santa Rosa, California
 May 10, 1985

Robert E. King
 Venice, Florida

Robert A. Laurence
 Knoxville, Tennessee
 December 10, 1984

Donald H. McLaughlin
 Berkeley, California
 December 31, 1984

Frank A. Melton
 Norman, Oklahoma
 May 11, 1985

Robert C. Morris
 Fayetteville, Arkansas
 May 26, 1985

Jorge Munoz-Reyes
 La Paz, Bolivia
 September 1984

Marcus Thompson
 Urbana, Illinois
 February 3, 1985

Geology Summer Field Camps Are Open to Outside Students Again

by Thomas E. Hendrix

Director, NAGT Summer Field Course Clearinghouse Service

After nearly 10 years of full rosters and long waiting lists, summer field camps are open again to outside students. The drop in summer field course enrollments this past summer is estimated to be 25%-33% compared to 1984, reflecting the drop in undergraduate geoscience majors nationwide.

I received the first indication of this drop in the spring of 1984 when requests from students for help in getting into summer field courses stopped suddenly, and field camp directors called to tell me their alternates had "vanished." The signs intensified during the 1984-1985 academic year, when fewer than 10 students used the NAGT Summer Field Course Clearinghouse Service compared to an average of 200 per year previously, but about two dozen field camps called for help in finding students. Finally it was confirmed when I sent out a questionnaire to field camp directors. This questionnaire solicited information about the number of undergraduate majors; whether a summer field camp was required, recommended, or not recommended; and, if recommended, what percentage of their majors usually attended a summer field camp. The purpose of the questionnaire was twofold. First, I wanted to compare current statistics about field camp attendance with those I had developed in a 1967 study of summer field camps (T. E. Hendrix 1967, "NAGT looks at summer field courses," *Journal of Geological Education*, v. XV, p. 73-77). Second, I wanted to try to get some idea of the market for summer field courses for the years ahead.

To date I have received 242 responses to the questionnaire. The data on the questionnaire and unsolicited comments added by some respondents suggest that field camp enrollments are off significantly this year. Some institutions that had begun to offer their own field camps 3-5 years ago, when large enrollments made it feasible or necessary to have their own, have now abandoned that effort or are contemplating doing so for next year. Mid-level camps are hurting for enrollments this year, and several directors report that they will be hard pressed to stay in business next year if enrollments don't increase. The larger, better known camps are still healthy for the most part, although some of them are down as much as 40% from the full enrollments of the past 10 years. If enrollments continue to decline, some of these camps might find themselves forced to drop the second session they added 10-15 years ago.

The responses I have received indicate clearly that the enrollment decline will most probably continue and that we have not yet seen the bottom of the curve. It is my guess that undergraduate geology enrollments, at least as they affect summer field camp enrollments, will not increase for the remainder of the current decade.

Finally, the survey revealed that about 40% of the undergraduate degree-granting departments still do not require field camp for their students. The percentage of students from these schools who take a summer field course ranges from 5% to 95% and averages about 45%. The actual number of students who could (or should) take a summer field course but don't is about 400/year or about 12%-15% of the total summer field camp enrollment. This number is a conservative one and takes into account, insofar as possible, the B.A. students who usually are not required to take a summer field course.

There isn't any quick "fix" for the undergraduate geology enrollment picture, but there is something we can do to ease the enrollment picture for field camps for 1986 and 1987 if geology departments nationwide act right now: increase the percentage of students who take field camp from departments that recommend but don't require it. If only half of those students who could but don't take field camp were to do so next year, field camp enrollments could be increased by about 7% over projected enrollments, and 1986 field camp enrollments, instead of declining a further 5%-10%, could be stabilized at 1985 levels. For some students it's simply a matter of pointing out that next summer it will be possible for them (in all probability) to get into the field camp of their choice. For others it will take considerable encouragement, including careful financial planning and aid if possible, but in all cases the effort will be worthwhile. Geology faculty still view the summer field course as one of the most important courses in the undergraduate program. Also, stabilizing enrollments will help to preserve that endangered species—the summer field camp—and will allow us to respond effectively when the cycle reverses and geology enrollments increase once again.

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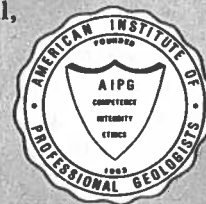
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(303) 431-0831



Call for Nominations for 1986 Penrose and Day Medals

Nominations for GSA's two most prestigious awards, the Penrose and Day Medals, are due at headquarters by February 1, 1986. Members and Fellows of the Society are encouraged to participate in this important process by nominating candidates for these high honors.

Penrose Medal

The Penrose Medal was established in 1927 by R.A.F. Penrose, Jr., to be awarded in recognition of eminent research in pure geology, for outstanding original contributions or achievements which mark a major advance in the science of geology. The award is made only at such time as the Council may decide. Nominees are selected by the Council, may or may not be members of the Society, and may be from any nation. Penrose's sole object in making the gift was to encourage original work in purely scientific geology.

Day Medal

The Day Medal was established in 1948 by Arthur L. Day to be awarded annually, or less frequently, at the discretion of the Council, for outstanding distinction in contributing to geologic knowledge through the application of physics and chemistry to

the solution of geologic problems. Day's intent was to recognize outstanding achievement and inspire further effort, rather than to reward a distinguished career.

How to Nominate

To ensure thorough consideration by the respective subcommittees, submit for each candidate a brief biographical sketch, such as used in *American Men and Women of Science*, a summary of the candidate's scientific contributions to geology, and a selected bibliography of no more than 20 titles. In choosing candidates, scientific achievements should be considered rather than contributions in administration and service.

The form for submitting the name of a candidate for either the Penrose or Day medal is on p. 167 and 168.

Each nomination **MUST BE SUPPORTED** by the signatures of five GSA members.

The names of unsuccessful candidates proposed to the Council will remain for consideration by the respective subcommittees for three years.

Recipients of the Penrose and Day Medals to date are listed below.

PENROSE MEDALISTS

1927	Thomas Chrowder Chamberlin	1947	Arthur Louis Day	1967	Herbert Harold Read
1928	Jakob Johannes Sederholm	1948	Hans Cloos	1968	J. Tuzo Wilson
1929	<i>No award given</i>	1949	Wendell P. Woodring	1969	Francis Birch
1930	François Alfred Antoine Lacroix	1950	Morley Evans Wilson	1970	Ralph Alger Bagnold
1931	William Morris Davis	1951	Pentti Eskola	1971	Marshall Kay
1932	Edward Oscar Ulrich	1952	George Gaylord Simpson	1972	Wilmot H. Bradley
1933	Waldemar Lindgren	1953	Esper S. Larsen, Jr.	1973	M. King Hubbert
1934	Charles Schuchert	1954	Arthur Francis Buddington	1974	William Maurice Ewing
1935	Reginald Aldworth Daly	1955	Maurice Gignoux	1975	Francis J. Pettijohn
1936	Arthur Philemon Coleman	1956	Arthur Holmes	1976	Preston Cloud
1937	<i>No award given</i>	1957	Bruno Sander	1977	Robert P. Sharp
1938	Andrew Cowper Lawson	1958	James Gilluly	1978	Robert M. Garrels
1939	William Berryman Scott	1959	Adolph Knopf	1979	J Harlen Bretz
1940	Nelson Horatio Darton	1960	Walter Herman Bucher	1980	Hollis D. Hedberg
1941	Norman Levi Bowen	1961	Philip Henry Kuenen	1981	John Rodgers
1942	Charles Kenneth Leith	1962	Alfred Sherwood Romer	1982	Aaron C. Waters
1943	<i>No award given</i>	1963	William Walden Rubey	1983	G. Arthur Cooper
1944	Bailey Willis	1964	Donnel Foster Hewett	1984	Donald E. White
1945	Felix Andries Vening-Meinesz	1965	Philip Burke King	1985	Rudolf Trümpy
1946	T. Wayland Vaughan	1966	Harry H. Hess		

ARTHUR L. DAY MEDALISTS

1948	George W. Morey	1961	Willard F. Libby	1974	A. E. Ringwood
1949	William Maurice Ewing	1962	Hatten Schuyler Yoder	1975	Allan Cox
1950	Francis Birch	1963	Keith Edward Bullen	1976	Hans Ramberg
1951	Martin J. Buerger	1964	James Burleigh Thompson, Jr.	1977	Akiho Miyashiro
1952	Sterling Hendricks	1965	Walter H. Munk	1978	Samuel Epstein
1953	John F. Schairer	1966	Robert M. Garrels	1979	Walter M. Elsasser
1954	Marion King Hubbert	1967	O. Frank Tuttle	1980	Henry G. Thode
1955	Earl Ingerson	1968	Frederick J. Vine	1981	Donald L. Turcotte
1956	Alfred O. C. Nier	1969	Harold C. Urey	1982	Eugene M. Shoemaker
1957	Hugo Benioff	1970	Gerald J. Wasserburg	1983	Harmon Craig
1958	John Verhoogen	1971	Hans P. Eugster	1984	Wallace S. Broecker
1959	Sir Edward C. Bullard	1972	Frank Press	1985	Freeman Gilbert
1960	Konrad B. Krauskopf	1973	David T. Griggs		

Call for Nominations for Honorary Fellows

Honorary Fellows of the Society are selected from geologists throughout the world who have distinguished themselves as geological investigators or who have rendered special service to the Society. The candidates are usually residents outside North America.

The following information is required for each candidate:

- Biographical data similar to that found in *American Men and Women of Science* and *Who's Who in America*

- 200-word-or-less summary of the candidate's contributions to geology

- Selected bibliography of no more than 20 titles

Deadline for receipt of nominations at headquarters: February 1, 1986.

The form for submitting the name of a candidate is on the next two pages.

Current Honorary Fellows

Antonio Almela	Douglas S. Coombs	Harold Jeffreys	Desmond A. Pretorius	Boris S. Sokolov
Neil Armstrong	Kingsley C. Dunham	Huang Jiqing	Hans Ramberg	John Sutton
Jean A. Aubouin	Stanislaw Dzulynski	Teiichi Kobayashi	P.G.K. Ramdohr	Bernard P. Tissot
Ralph A. Bagnold	William S. Fyfe	Dmitri S. Korzhinskii	John G. Ramsay	Livio Trevisan
V. V. Belousov	Augusto Gansser	Henno Martin	Alfred Rittmann	Rudolf Trümpy
Krzysztof L. Birkenmajer	Martin F. Glaessner	Michael W. McElhinny	Hitoshi Sakai	Seitaro Tsuboi
Roland Brinkmann	Jean Goguel	A. V. Peive	Mircea Sandulescu	Harry B. Whittington
S. Warren Carey	Dorothy Hill	Wallace S. Pitcher	Harrison H. Schmitt	Alwyn Williams
Michael Collins	Kenneth J. Hsü	Jean Piveteau	Eugen Seibold	Quido Zaruba
William Compston	Emilie Jager	Ferdinand Prantl	Ahti J. Simonen	

Penrose Conference on Migmatites Slated

"Migmatites and Crustal Melting," will be the subject of a GSA Penrose Conference to be held June 8-13, 1986, probably at the University of Massachusetts Conference Center, Amherst, Massachusetts. Conveners are Robert J. Tracy, Department of Geology and Geophysics, Yale University, New Haven, CT 06511, (203) 436-3539; Fred Barker, Branch of Alaskan Geology, USGS, 4200 University Drive, Fairbanks, AK 99508, (907) 786-7435; and Elaine R. Padovani, Office of Earthquakes, Volcanoes, and Engineering, USGS, Reston, VA 22092, (703) 860-7875.

Conference Goals

Many earth scientists from a wide variety of disciplines are now working on diverse aspects of melting in Earth's crust, and the time is opportune for getting these investigators together to discuss their data and models. The objective of this Penrose Conference is to discuss crustal melting and migmatite formation with respect to (1) the nature of the melts formed, (2) subsequent deformation of the molten terrane, and (3) the tectonic environments in which melting may occur.

Major Topics and Questions

Discussion topics will include tectonics (both convergent regimes involving crustal thickening and divergent ones involving crustal thinning), physical and chemical conditions of melting, phase equilibrium in melting systems, major- and minor-element geochemistry of melt-solid systems, structural mechanisms operating in partially molten materials, and thermal modeling and thermal energy considerations. Major questions to be addressed include (1) how is melting initiated in the crust; (2) what are the sequences of melting reactions in different protoliths; (3) how are the elemental and isotopic characters of the melts related to melting reactions and protoliths; (4) how should the field geologist deal with migmatites—what features are most significant and how should collecting and description be systematized; (5) can plutons emplaced at shallow levels be related to crustal melting and migmatite formation at depth; and (6) which subdisciplines of the earth sciences should be brought together in collaborative projects aimed at developing a coherent picture of crustal melting.

Field Trip

The conference location in the classic high-grade metamorphic terrane of central New England presents the opportunity to examine several well-characterized field occurrences of crustal melting and migmatite formation. A one-day field trip midway through the conference will allow many of the discussion topics to be argued "on the outcrop."

Registration

Interested persons should write to Robert J. Tracy at the above address. They should note specific reasons for wanting to attend the conference and include a description of past or present research relevant to the conference theme. Graduate students are welcome to apply but should be actively involved in research related to crustal melting. Limited support will be available to a few qualified graduate students. Although most of the conference will be devoted to discussion, there will be opportunities for oral and poster papers to be presented. Persons interested in making a presentation should note this in their applications. **Deadline for applications is February 1, 1986.** The registration fee has not been established but is expected to be about \$500 or less, including lodging, meals, and the field trip.

PEOPLE

GSA Fellow **John F. Dewey**, University of Durham, has been elected a fellow of the Royal Society and appointed professor of geology at the University of Oxford.

Fellow **Donald L. Blackstone, Jr.**, professor of geology emeritus, University of Wyoming, received an honorary Doctor of Laws degree from the University of Wyoming at its 1985 commencement.

GSA Fellows and USGS geologists **George E. Ericksen**, **Thor H. Kiilsgaard**, **Harold Masursky**, **Steven S. Oriel**, and **Sam H. Patterson** received Distinguished Service Awards, the highest award of the Department of the Interior, in April.

THE GEOLOGICAL SOCIETY OF AMERICA

Nomination for Penrose Medal, Day Medal, or Honorary Fellowship

(please circle one)

DEADLINE: Please return this form to headquarters by February 1.

NAME OF CANDIDATE:

ADDRESS:

BIOGRAPHICAL INFORMATION: (suggested sources)

American Men and Women of Science

Who's Who in America

GSA Service Record (obtainable from headquarters)

Other

SUMMARY OF SCIENTIFIC CONTRIBUTIONS TO GEOLOGY:

(not more than 200 words)

(over)

SELECTED BIBLIOGRAPHY:
(no more than 20 titles)

A nomination for the Penrose Medal or Day Medal must be supported by the signatures of five GSA Fellows or Members. Signed supporting letters from five GSA Fellows or Members may be attached to this form in lieu of the signatures. A nomination for Honorary Fellowship requires only this form with name, address, and signature of the person making the nomination (no other signatures required) and supporting letters, if any.

1. (Name of person making the nomination) _____

Address: _____

Date: _____ Signature: _____

2. _____

3. _____

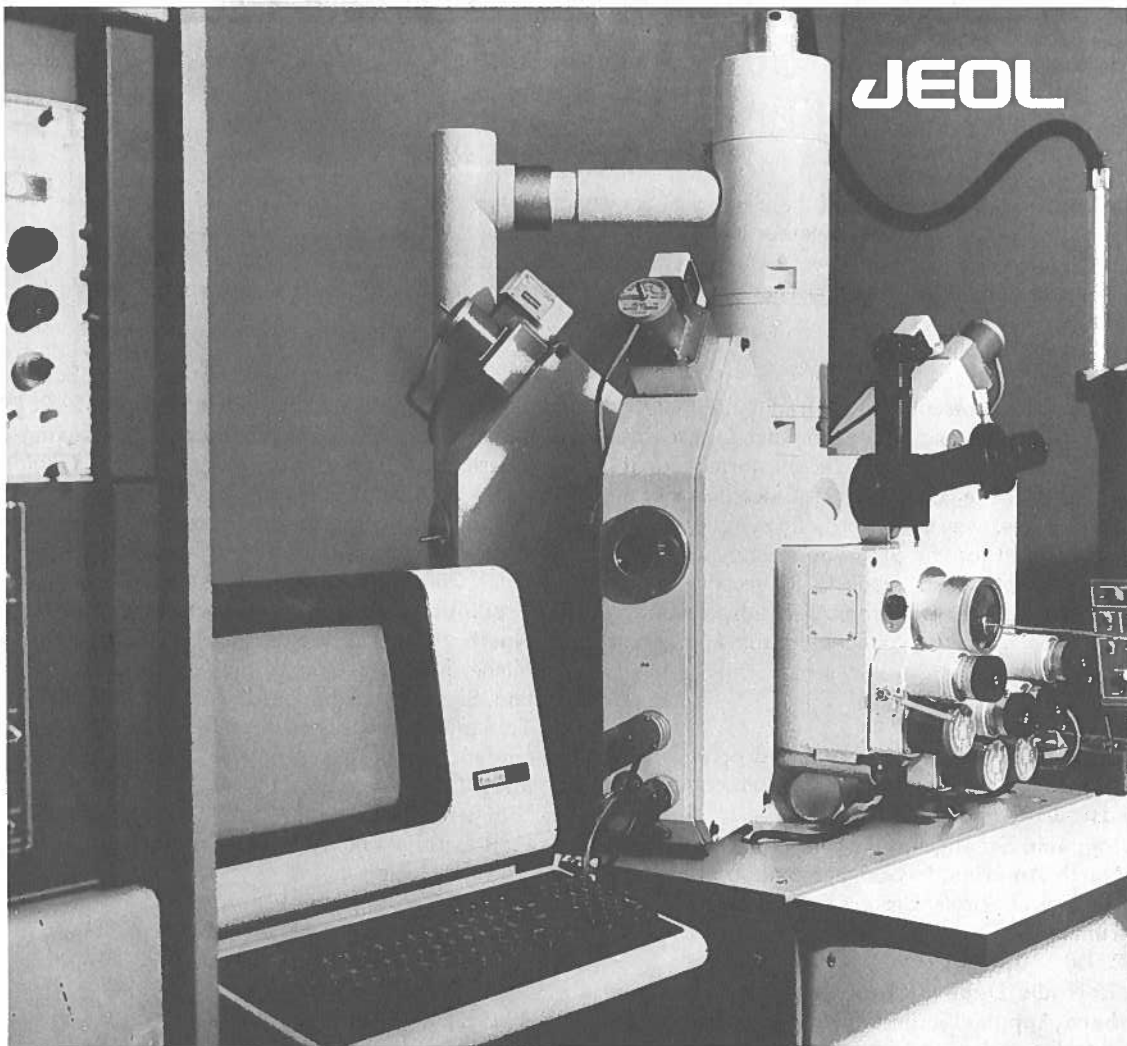
4. _____

5. _____

6. _____

RETURN TO: Executive Director
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Boulder, CO 80301
(303) 447-2020

DEADLINE: Please return this form to headquarters by February 1.



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PRELIMINARY ANNOUNCEMENT AND CALL FOR PAPERS

NORTHEASTERN SECTION, GSA, 21st Annual Meeting
Kiamesha Lake, New York
March 12-14, 1986

The **Northeastern Section** of the Geological Society of America will meet at the Concord Resort Hotel in Kiamesha Lake, New York, together with the Eastern Section of the Society of Economic Paleontologists and Mineralogists, the Northeast Section of the Paleontological Society, and the Eastern Section of the National Association of Geology Teachers. The meeting is sponsored by the State University of New York, College at Oneonta.

CALL FOR PAPERS

Papers are invited for presentation at traditional technical poster sessions as well as symposia. Fifteen minutes for presentation and five minutes for discussion will be the format for the technical session. Papers of regional interest to geologists in the northeastern United States, as well as those of general geological interest, will be considered for the program. Poster papers are encouraged. Every attempt will be made to assure that poster sessions will not conflict with related technical sessions. Abstracts for symposia should be submitted directly to the appropriate convener.

SYMPOSIA

The following symposia have been organized or are in the final stages of organization. For further information, contact the convener(s) of individual symposia.

1. **Geochronology and Stratigraphy of Precambrian Rocks of Eastern North America:** In Commemoration of the New York State Geological Survey Sesquicentennial. Douglas G. Mose, Department of Geology, George Mason University, Fairfax, VA 22030
2. **Cyclic and Episodic Deposition of the Siluro-Devonian of the Northern Appalachians:** In Commemoration of the New York State Geological Survey Sesquicentennial. Carleton E. Brett, Department of Geological Sciences, University of Rochester, Rochester, NY 14627; Gordon C. Baird, Department of Geology, SUNY, College at Fredonia, Fredonia, NY 14063
3. **James Hall and the Products of His Factory:** In Commemoration of the New York State Geological Survey Sesquicentennial. Robert Fakundiny, New York State Geological Survey, New York State Museum and Science Service, State Education Department, Albany, NY 12230; Ellis L. Yochelson, E-501 Museum of Natural History, Washington, DC 20560
4. **Facies Origin and Age of Diamicts in the Northeast.** G. Gordon Connolly, GGC, Inc., 468 W. Ferry Street, Buffalo, NY 14213
5. **Contaminant Source Characterization and Elimination: The Key to Aquifer Restoration?** Stan Seenstra, Xenon Environmental Corporation, 845 Harrington Court, Burlington, Ontario L7N 3P3, Canada
6. **Practical Species Concepts in Colonial and Other Invertebrates.** Thomas E. Bolton, Geological Survey of Canada, 601 Booth Street, Ottawa 5, Ontario, Canada; Colin W. Stearn, Department of Geological Sciences, McGill University, Montreal, PQ H3A 2A7, Canada
7. **Comparative Tectonics of Northern Appalachian Basement Massifs.** Nicholas M. Ratcliffe, U.S. Geological Survey, MS 925, National Center, Reston, VA 22092; James B.

Thompson, Jr., Department of Geological Sciences, Harvard University, 24 Oxford Street, Cambridge, MA 02138

8. **The Stratigraphic Significance of Shallowing-Up Cycles.** Charlotte J. Mehrtens, Department of Geology, University of Vermont, Burlington, VT 05401
9. **Depositional Processes Interpreted from Bedforms in Clastic Rocks.** Kathleen M. Gerety, Department of Geology, Smith College, Northampton, MA 01063
10. **Precious Metals in Polymetallic Sulfides in Eastern North America.** Walter A. Anderson, State Geologist of Maine, Maine Geological Survey, Department of Conservation, State House Station 22, Augusta, ME 04333
11. Title to be announced. Peter Robinson, Department of Geology and Geography, University of Massachusetts, Amherst, MA 01003

For general information on the symposia, contact

Robert Fakundiny, Symposia Chairman
State Geologist
NYS Geological Survey
NYS Museum and Science Service
State Education Department
Albany, NY 12230
(518) 474-5816

SPECIAL POSTER SESSION

Classic Field Sites for Teaching Earth Science in the Northeast. James V. O'Connor, Department of Environmental Science, University of the District of Columbia (Van Ness Campus) Washington, DC 20008

PUBLIC INFORMATION SEMINAR

AGI Public Forum: Geology, Environment, and Public Policy. Andrew J. Verdon, Jr., Director of Education, American Geological Institute, 4220 King Street, Alexandria, VA 22302

ABSTRACTS

Abstracts are limited to 250 words and must be submitted camera-ready on the official 1986 abstract form, available from

Abstracts Coordinator	or	Duane D. Wohlford
Geological Society of America		Earth Science Department
P.O. Box 9140		State University College
Boulder, CO 80301		Oneonta, NY 13820-1380
(303) 447-8850		(607) 431-3707

Send one original and five copies of abstracts to be considered for technical sessions and poster sessions to the Technical Program Chairman

Duane D. Wohlford
Earth Science Department
State University College
Oneonta, NY 13820-1380

(continued)

NORTHEASTERN SECTION (continued)

Send one original and five copies of abstracts for symposia directly to the convener (first name following the symposium topic or title above). Acceptance or rejection of all abstracts will be based on review by the Technical Program Committee. Abstracts will be judged on the basis of scientific merit, informative content, readability, and relevance to geologic problems of the Northeast. There is no limit to the number of abstracts that may be submitted, but no more than two abstracts bearing an individual's name as first author will be accepted for the program. No author may give more than one oral presentation. Authors will be notified of acceptance during November 1985.

ABSTRACTS ARE DUE OCTOBER 15, 1985

STUDENT PAPERS

Students are encouraged to submit abstracts. Awards will be made for outstanding student papers presented in the technical sessions. To be eligible and judged, an abstract must be authored exclusively by a student and must be designated on the abstract form as a student paper.

PROJECTION EQUIPMENT

All slides must be 2" x 2" and fit a standard 35-mm carousel tray. Only one projector and screen will be provided in each of the technical sessions. Overhead projectors will not be available. Please bring your own loaded carousel tray, if possible.

EXHIBITS

Exhibits will be adjacent to technical session rooms. The cost of booths for educational and nonprofit institutions will be reduced. For further information contact

John Fauth
Department of Geology
SUNY, College at Cortland
Cortland, NY 13045

SPECIAL EVENTS

A welcoming party will be held Wednesday, March 12, and the Annual Banquet will be held Thursday evening, March 13.

Guest activities will include golf, tennis, swimming, health club, etc.

DETAILED INFORMATION

Information concerning registration, accommodations, and activities will appear in a future issue of *GSA News & Information* and as part of *Abstracts with Programs* for 1986. Requests for additional information or suggestions should be addressed to the General Chairman

P. Jay Fleisher
Earth Science Department
State University College
Oneonta, NY 13820-1380
(607) 431-3707

PRELIMINARY ANNOUNCEMENT AND CALL FOR PAPERS

SOUTHEASTERN SECTION and SOUTH-CENTRAL SECTION, GSA, Annual Meeting

Memphis, Tennessee

April 2-4, 1986

The **Southeastern** and **South-Central Sections** of the Geological Society of America will meet at the Peabody Hotel in Memphis, Tennessee, together with the Southeast Section of the Paleontological Society, the Southeastern Section of NAGT, and the Pander Society. The meeting is sponsored jointly by Memphis State University and the Arkansas Geological Commission.

CALL FOR PAPERS

Papers are invited for presentation at traditional technical and poster sessions and symposia. A maximum of 15 minutes for presentation and 5 minutes for discussion will be allowed for the technical sessions. Papers of regional interest to geologists in the Southeast and southern mid-continent as well as those of general geologic interest will be considered for the program. Abstracts not accepted for symposia may be considered for regular technical sessions.

SYMPOSIA

1. **Seventh Symposium on Coastal Sedimentology.** William F. Tanner, Department of Geology, Florida State University, Tallahassee, FL 32306
2. Pander Society Sponsorship. Symposium topic to be announced. Carl Rexroad, Indiana Geological Survey, 611 North Walnut Grove, Bloomington, IN 47405; (812) 335-1350
3. **Stratigraphy and Deformation of the Westernmost Ocoee Basin and Overlying Paleozoic Passive Margin: Southern Appalachian Orogen.** John Costello and Keith

- McConnell, Georgia Geological Survey, Room 400, 19 Martin Luther King, Jr., Dr., S.W., Atlanta, GA 30334; (404) 656-3214
4. **Paleoecology of the Ouachitas and Southern Appalachians.** Sponsored by the Southeast Section of the Paleontological Society. Thomas Broadhead, Department of Geological Sciences, University of Tennessee, Knoxville, TN 37916; Patricia H. Kelley, Department of Geology and Geological Engineering, University of Mississippi, University, MS 38677
5. **Mesozoic and Cenozoic Magmatism and Tectonism in the Southeastern and South-Central United States.** Dennis Nelson, Department of Geology, Sul Ross State University, Alpine, TX 79832; Paul C. Ragland, Department of Geology, Florida State University, Tallahassee, FL 32306
6. **Cretaceous Stratigraphy and Paleontology of the Gulf Coast.** Ernest A. Mancini, Geological Survey of Alabama, P.O. Drawer O, University, AL 35486; Charles Smith, Tenneco Oil Company, P.O. Box 2888, Houston, TX 77001; Ernest E. Russell, Department of Geology & Geography, Mississippi State University, Mississippi State, MS 39762

(continued on p. 172)

FIELD TRIPS

1. **Seismotectonic Features in the Upper Mississippi Embayment.** Richard G. Stearns
2. **Upper Cretaceous Marine and Nonmarine Sedimentology in the Eastern Mississippi Embayment.** Ernest E. Russell, Donald Keady, Ernest A. Mancini, Charles Smith
3. **Tertiary-Quaternary Geology of Crowley's Ridge.** W. L. Prior, M. J. Guccione
4. **Buffalo National River Geofloat.** John David McFarland
5. **Ouachita Mountain Geology.** Charles G. Stone

ABSTRACTS

Abstracts are limited to 250 words and must be submitted camera-ready on official 1986 abstract forms available from
Abstracts Coordinator or Robert W. Deininger
Geological Society of America Dept. of Geology
P.O. Box 9140 Memphis State University
Boulder, CO 80301 Memphis, TN 38152
(303) 447-8850 (901) 454-2177

Symposium abstracts should be sent to the appropriate coordinator. Technical and poster-session abstracts should be sent to

John David McFarland III
Arkansas Geological Commission
3815 W. Roosevelt Rd.
Little Rock, AR 72204
(501) 371-1488

One original and five copies must be submitted.

ABSTRACTS ARE DUE NOVEMBER 1, 1985

PROJECTION EQUIPMENT

Equipment will be provided for 2" x 2" slides, single projectors only. Please bring your own loaded carousel trays, if possible.

EXHIBITS

Exhibits representing education, research, and industry will be on display at the meeting site. For further information, contact

Wayne Ault
Geology Department
Memphis State University
Memphis, TN 38152

DETAILED INFORMATION

Information concerning registration, accommodations, and activities will appear in a future issue of *GSA News & Information* and as part of *Abstracts with Programs* for 1986.

Inquiries, additional information, requests, or suggestions should be addressed to

Robert W. Deininger
Geology Department
Memphis State University
Memphis, TN 38152
or
John David McFarland III
Arkansas Geological Commission
3815 W. Roosevelt Rd.
Little Rock, AR 72204

PRELIMINARY ANNOUNCEMENT AND CALL FOR PAPERS

CORDILLERAN SECTION, GSA, 82nd Annual Meeting Los Angeles, California March 25-28, 1986

The **Cordilleran Section** of the Geological Society of America will meet at California State University, Los Angeles (CSULA). The meeting will be hosted by the Department of Geology and will be held jointly with the Paleontological Society, Pacific Coast Section.

CALL FOR PAPERS

Technical sessions of the meeting will include the topics listed on the GSA abstract form. Papers on those topics and other subject areas are solicited. Specialized sessions may be arranged by the local program committee after review of all abstracts.

REGISTRATION

Preregistration will be by mail. On-site registration will take place on Monday, March 24, 1986, from 1200 to 2100 hours at the Huntington Sheraton; on Tuesday, March 25, from 0730 to 1700 hours at CSULA, and for the duration of the meeting at CSULA. Preregistration fees will be \$40 for GSA members—professional; \$55 for non-GSA members—professional; \$10 for GSA Student Associates; and \$20 for other students. On-site registration will be \$50 for GSA professionals, \$65 for non-GSA professionals, \$15 for GSA Student Associates, and \$25 for other students. One-day registration will be \$35 for all professionals and \$15 for all students. Please take advantage of the lower preregistration rates. **PRE-REGISTER BY FEBRUARY 21, 1986.**

SYMPOSIA

1. **Episodicity of Quaternary Processes.** R. Weldon, M. Stout
2. **Landfill Leachate Monitoring.** G. Brown
3. **Landslide/Landslide Mitigation.** A. Keene, J. Slosson
4. **Cordilleran Metamorphism.** G. Ernst
5. **Nonmetallic Mineral Deposits.** J. Childs, A. Barth
6. **Cal Crust.** E. Frost
7. **Pelona/Related Schists.** P. Ehlig, G. Haxel
8. **Southern California Neotectonics.** T. Rockwell
9. **Subaqueous Volcaniclastic Rocks: Processes and Products.** E. Brooks
10. **Southwestern USA Xenolith Suite of the Lower Crust and Upper Mantle.** J. Noller
11. **Planetary Geomorphology.** L. Rossbacher, D. Rhodes (sponsored by the Planetary Geology Division of GSA)
12. **Environmental Biogeochemistry.** R. Hurst, T. Davis

(continued)

Cordilleran Section (continued)

13. **Tertiary Geology of the Mojave Desert.** J. Nielson-Pike, A. Glazner
14. **Neogene Tectonics of the Basin-Range.** B. Troxel, L. Wright, M. Reynolds, M. Carr
15. **Hydrogeology of the Los Angeles Groundwater Basin.** P. Saint, R. Bean
16. **History of California Geology.** D. Steller (sponsored by the History of Geology Division of GSA)
17. **Urban Landslides.** F. B. Leighton
18. **Computer Applications to Geological Problems.** G. Novak
19. **Archaeological Geology.** J. Erickson
20. **Nature of the Crust in Southern California.** K. Howard, W. Hamilton
21. **Damage and Damages; Ground Failures in the Urban Setting.** E. Chase
22. **Mesozoic of Baja California.** C. Busby-Spera, J. Boles
23. **Paleomagnetism: Southern Cordilleran.** S. Lund, D. Champion
24. **San Andreas Fault System: Distribution, History, Palinspastic and Paleogeographic Reconstructions.** J. C. Matti, R. E. Powell, R. J. Weldon
25. **Geology of the Peninsular Ranges.** D. Morton, V. Todd

FIELD TRIPS (tentative)

1. **Gold Mineralization—Detachments.** E. Frost
2. **Neotectonics of the Northern Elsinore Fault Zone.** T. Rockwell
3. **Pliocene and Younger Detachment Faulting, North-eastern Baja California.** G. Gastil, T. Rockwell
4. **Valmy Formation, Baja California.** G. Gastil
5. **Neotectonics of the Central Transverse Ranges.** L. Stitt, W. Cotton
6. **Coastal Landsliding along the Tijuana-Ensenada Toll Road, Baja California, and the Agua Blanca Fault.** M. Hart, T. Kuper, D. Mills, D. Schug
7. **Hydrology of Owens Valley and the Mono Basin.** M. Blevins, W. Hutchinson
8. **Mesozoic Stratigraphy and Structure of the Eastern Wall Rocks of Sierra Nevada Batholith, East-Central California.** G. Dunne, C. Stevens
9. **Urban Landslides of Southern California.** L. Cann
10. **Santa Ana Sandstone, San Bernardino Mountains.** P. Sadler
11. **Stratigraphy and Structure of Metamorphic Framework Rocks, Lake Isabella Area.** J. Saleeby
12. **Los Angeles Coastal Region Landslides.** A. Keene, J. Slosson
13. **McCoy Mountain—Palen Pass.** P. Stone
14. **Nonmetallic Mineral Deposits.** J. Childs, A. Barth
15. **Southwestern USA Xenolith Suite of the Lower Crust and Upper Mantle.** J. Noller, R. Stull, H. Wilshire
16. **Tertiary Geology of the Mojave Desert.** J. Nielson-Pike, A. Glazner
17. **Neogene Tectonics of the Basin-Range.** B. Troxel, L. Wright, M. Reynolds, M. Carr
18. **Quaternary Geology and Mining History, Catalina Island.** P. Davis, H. Pouncey
19. **Geology of the Southwestern San Bernardino Mountains.** R. Weldon

20. **Hydrogeology of the Los Angeles Basin in Relation to Hazardous Waste Sites.** P. Saint, R. Barto
21. **Geology of the Peninsular Ranges.** D. Morton, V. Todd

For further information on symposia and field trips, contact the convener.

POSTER SESSIONS

Considerable space is available for poster sessions, and we strongly encourage both student and professional participation. We hope to have half of the papers as poster sessions. Poster sessions are to be so identified on the abstract form.

ABSTRACTS

GSA abstracts for oral presentations and poster sessions, which are limited to 250 words, **MUST** be submitted camera-ready on official abstract forms available from

Abstracts Coordinator	or	GSA Campus
Geological Society of America		Representatives,
P.O. Box 9140		all college and
Boulder, CO 80301		university campuses

ABSTRACTS ARE DUE NOVEMBER 15, 1985

Acceptance or rejection of an abstract will be based on the abstract as submitted by the author.

Send one original and five copies to

GSA ABSTRACTS

Gary A. Novak

Department of Geology

California State University, Los Angeles

Los Angeles, CA 90032

All papers in ordinary sessions will be 15 minutes, plus 5 minutes for discussion. Poster presentations will be on display for one-half day.

All abstracts will be reviewed for informative content, correct structure, reliability of data, appropriate geographic coverage, and originality. Only one paper will be accepted from a single author; if papers are co-authored, no more than one paper may be presented by an author. These restrictions apply to technical sessions other than invited symposia. If papers are accepted, they are *expected* to be presented by the designated author, **NOT** a last-minute appointee. Authors will be notified of acceptance well in advance of the meeting.

PROJECTION EQUIPMENT

Equipment will be provided for 2" x 2" slides and single projectors only. Please bring your own loaded carousel trays, identified with your name.

SHORT COURSES

Short courses are being planned in engineering geology methodology, including computer applications; geomorphology; and sea-water chronostratigraphy.

BUSINESS MEETING

The Cordilleran Section will hold its business meeting luncheon at CSULA at 1200 hours on Thursday, March 27, 1986.

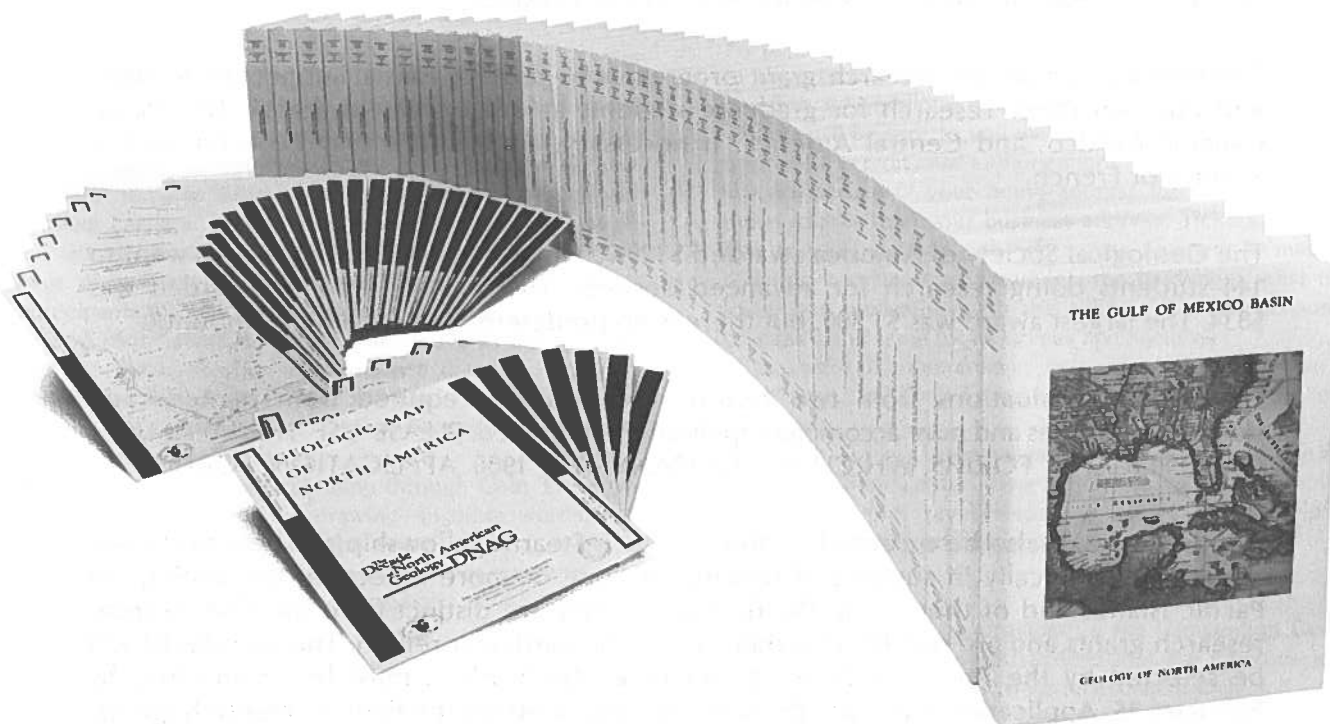
EXHIBITS

Exhibits of educational and commercial organizations will be on display at CSULA. Exhibit space must be reserved by January
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The Decade of North American Geology DNAG

Publications begin arriving this fall!

Watch for your personal prospectus coming in early September describing this new synthesis of the geology of North America and adjacent ocean regions.



The Decade of North American Geology (DNAG) publications will include 28 volumes of geology, 6 field guides, 4 special volumes, 23 continent-ocean transects, and 7 continent scale geologic maps of North America. The project is sponsored by the Geological Society of America to celebrate its centennial decade, 1980-1989. Publications will appear throughout the decade.



Geological Society of America
3300 Penrose Place • P.O. Box 9140
Boulder, Colorado 80301
(303) 447-2020

THE GEOLOGICAL SOCIETY OF AMERICA

These publications are funded, in part, by the Geological Society of America Foundation.

1985 Technical Program Highlights

by **James F. Tull** and **Joseph Donoghue**
Technical Program Chairmen

The technical program for the 1985 GSA Annual Meeting in Orlando, October 27-31, 1985, will include 18 invited symposia sponsored by the GSA divisions and affiliated societies, plus seven at-large symposia. All of the symposia feature 8 to 12 speakers selected by the conveners for their expertise in a particular area of geology. Some of the symposia are mentioned here because of their timeliness or their appeal to a broad audience.

Appalachian geology will be featured in three symposia. Gail S. Russell, Jo Laird, and Stephen A. Kish will convene a session to discuss metamorphic histories of possible Appalachian microplates. J. Wright Horton and Nicholas Rast will chair a session on recognizing and interpreting melanges and olistostromes of the Appalachians. Robert D. Hatcher and Francis G. Stehli have organized a symposium to discuss the geophysical and geochemical studies to be carried out in the proposed ultradeep drill hole in the southern Appalachians.

Geological and engineering problems associated with low-energy coastlines—including bays, estuaries, lagoons, deltaic plains, and marsh-mangrove coasts—will be examined in two back-to-back symposia. The Engineering Geology Division will sponsor "Engineering Geology of Low-Energy Coastlines," convened by Robert L. Schuster. Albert C. Hine and Daniel F. Belknap will chair the Quaternary Geology and Geomorphology

Division session "Sedimentary Processes and Deposits of Low-Energy Coastlines."

The increasingly popular study of Cenozoic climate change will be the topic of two symposia. The Cushman Society's session "Climate Change and the Species" will be convened by Thomas M. Cronin, and an at-large symposium, "The First 50,000,000 Years of Cenozoic Climate," is being organized by Thomas J. Crowley. Another popular topic will be dealt with in the Sedimentology Geology Division's session "Sedimentologic Consequences of Convulsive Events." Chaired by H. Edward Clifton, the symposium will feature papers on catastrophic floods, meteorite impacts, and earthquake effects.

Geological issues of particular interest to the U.S. East and Southeast will be discussed in three symposia. A Presidential Symposium on the DNAG project, convened by Robert E. Sheridan and John A. Grow, will examine recent advances in understanding the geology and structure of the Atlantic coastal plain and continental margin. The effect of the Holocene sea-level rise on Atlantic and Gulf of Mexico shorelines will be the subject of a symposium convened by Frank W. Stapor. The Hydrogeology Division's symposium, organized by John Vecchioli, will discuss multi-use aquifers, with particular attention to the important Floridan aquifer system.

Photographing Your Own Slides

by **Bruce A. Schell**

Senior Geologist, The Earth Technology Corporation
3777 Long Beach Boulevard, Long Beach, California 90807

Have you taken your own photographs of maps, illustrations, or rock samples for a slide presentation only to discover that the slides are so dark or out of focus that they are virtually unreadable? The large number of unintelligible slides at GSA meetings suggests that this is a common occurrence. Several very basic and simple methods can be used to avoid poor slides.

One of the most frequent problems, dark or murky slides, generally stems from a lack of understanding about how a camera's light meter works. Most modern 35 mm cameras have through-the-lens metering with built-in light meters. These meters measure the light from either the entire field of view or from only the central portion of the field of view and are calibrated to render the metered area a medium shade of gray. Therefore, if your subject has a large amount of white or light pastel colors such as a map, a simple line drawing, or a small sample against a white background, the meter reads the light background and tells the photographer to adjust the lens opening to render the white a medium shade of gray in the photograph; any medium- or dark-colored objects will turn out even darker. Such a photograph will be unreadable when projected to a screen across a large dark room. To get a photograph with whiter whites and brighter colors, the picture must be overexposed. That is, the camera lens

must be opened to a larger aperture. Rather than haphazardly estimating the correct amount of "overexposure," a simple, virtually foolproof method is to use an 18% gray card. These cards are a standard photographer's tool and can be purchased at any camera shop for very little cost. Before taking your photographs, move in near the object to be photographed with the gray card in hand. If your camera has a match-needle-type light-metering system, simply place the gray card several inches in front of the lens, making sure it is illuminated by the same light and is at the same angle to the light as the object to be photographed. Then, take the light reading and set the f-stop to the indicated setting, remove the card, compose your picture, focus, and take the photograph. Ignore any impulse to reset the f-stop once you remove the card, because the meter may now give you a false reading; trust the card reading. If your camera has automatic exposure control, you must set the camera on manual mode so you can control the aperture setting yourself. Some variations can be expected due to brightness and angle of lighting. To be absolutely certain of a good photograph, bracket your exposure—that is, take three photographs, one at the setting indicated by the gray card, one at the next higher full f-stop, and one at the next lower f-stop. When photographing small rock samples or fossils, use the gray card as your background and you will get a perfect exposure.

In addition to the light metering, there are several other aspects the geologist/photographer should be aware of to make better slides. One of these is depth of field. When you are taking

(continued on p. 178)

This is part of a series of articles intended to improve technical presentations at GSA meetings. Reprints of this and other articles are available by contacting the Meetings Coordinator, GSA, P.O. Box 9140, Boulder, CO 80301, (303) 447-2020.

Photographing Your Own Slides (continued from p. 177)

close-ups of a printed page or map, the edges of the photograph may end up out of focus. To ensure complete focus across the entire slide, you need as much depth of field as possible. To get this depth of field, use a small lens opening (f-11 or f-16). This smaller aperture will require a slower shutter speed, which in turn may necessitate the use of a tripod. The end result will be a sharp slide from border to border.

Another important aspect is the type of lighting. When photographing indoors with outdoor film (most common films are balanced for natural outdoor sunshine) your slides will take on a greenish pall if the light is from fluorescent bulbs or a yellowish-red cast if the lights are regular tungsten-filament bulbs. These color discrepancies can be corrected by color-compensating filters, but a cheaper way is to move outdoors and shoot your pictures in the light for which the film was intended.

Another common problem, especially in outdoor lighting, is

shadows caused by wrinkles, folds, or bulges when you photograph large maps or illustrations. To get an even, shadowless exposure, the object must be flat. The easiest way is to tape it to an outside wall, but if the sun is high in the sky, every slight fold or wrinkle will cause a shadow. Most geologists are aware of the virtues of low-sun-angle photography, but this is not the place for it. Shadows will be less severe on cloudy days, but the light colors and whites may turn out much duller. The best way is to tape the object to a sheet of stiff plywood that can be tilted to receive the light at the most direct angle and also allow the map to lie flatter. The resulting photograph will have an even illumination and bright colors and be much more readable.

These few simple hints should provide some insight on how to make better slides for your presentations. If your audience realizes you took your own photographs, then your slides are probably inadequate or marginal. Not only will better slides make your talk more informative and enjoyable for your audience, but they will likely give your talk more credibility.

GSA Short Courses at 1985 Annual Meeting

Courses sponsored by GSA will be held before and after the meeting. The courses will be in several different hotels near the Convention Center. Each hotel has an outdoor swimming pool and good restaurants, so you can both expand your professional knowledge and enjoy the surrounding comforts found in Orlando. The courses are arranged so that you will be able to enjoy a day at one of Orlando's many attractions with family and friends, since the best airfares are for trips that include a Saturday-night stay.

Enrollment. Course participation is open to GSA members and nonmembers. See the August issue of *GSA News & Information* for a preregistration form. **PREREGISTRATION DEADLINE IS SEPTEMBER 27.** On-site registration will be \$10 additional.

Cancellations. Fees will be refunded if we are notified by October 4. Substitutions may be made at any time. No refunds will be made following the course.

For more information, contact

Course Registrar
GSA Headquarters
P.O. Box 9140
Boulder, CO 80301
(303) 447-2020

Geowriting

Two one-day workshops on Saturday, October 26, and Sunday, October 27, 8:00 a.m. to 5:00 p.m., Marriott Hotel

This is a *practical* workshop that will help you break writer's block, organize for fast, efficient writing, and work smoothly with editors. It includes an easy method for dealing with grammar without pain, and also an introduction to writing in the computer age.

Faculty: Wendell Cochran, science writer, editor, and photographer. He was editor of *Geotimes* for more than 20 years and is senior editor of *Geowriting* and co-author of *Into Print*. Cochran holds a master's degree in geology as well as a degree in journalism. He is a charter member of the Society for Scholarly Publishing and of the Association of Earth Science Editors. Since 1979 he has held many workshops on science writing, notably at the annual meetings of GSA and AAPG.

Limit: 25; Fee: \$75

Introduction to Planetary Geology

Saturday, October 26, and Sunday, October 27, 8:00 a.m. to 5:00 p.m., Holiday Inn International, Orlando

Co-sponsors: GSA Planetary Geology Division and NASA, Office of Planetary Geology

This course is for junior faculty members who want to broaden their knowledge of planetary geology. The objective is to provide an introduction to the methods used in the geological study of the planets and to discuss past, current, and planned activities in NASA's program of solar system exploration. The method of instruction involves lectures by active planetary geology investigators, demonstrations to illustrate important planetary processes, and "hands-on" activities. The fee includes planetary maps, photographs, lecture notes, and NASA books. It also includes a reception the evening of Friday, October 25, and a dinner the evening of Saturday, October 26. The dinner speaker will be Arden Albee, California Institute of Technology, addressing "Future Missions and Long-Term Goals of NASA for Solar System Exploration."

Organizer: Ronald Greeley, principal investigator, NASA Planetary Geology Program

Principal faculty: Kathryn Sullivan, geologist-astronaut, Johnson Space Center; James Head and Paul Schultz, Brown University; and Ray Arvidson, Washington University. Four other leading planetary geoscientists will also participate.

Limit: 60; Fee: \$100.

An Outline of Balanced Cross Sections

Friday, November 1, and Saturday, November 2, 8:00 a.m. to 5:00 p.m., Holiday Inn International, Orlando

Co-sponsor: GSA Structural Geology and Tectonics Division

The objective is to present how and why balanced, or retrodeformable, cross sections work and are useful and to teach the techniques of constructing balanced sections. Topics to be covered include a review of thrust belt geometries, the fundamentals of the methods of section construction, practical assumptions of retrodeformable sections, the use of relationships between fold and fault shapes (dip-spectral analysis; fault-bend folding; fault-propagation folding), restoring other people's sections, drawing a

(continued)

Short Courses (continued)

retrodeformable section, and applications to seismic interpretation. The two-day course will be divided into seven lecture blocks (four on the first day and three on the second) and seven sets of exercises, which alternate. The first day covers the fundamentals, and the second covers applications. Participants are encouraged to bring their own geologic or seismic sections to contribute to the discussion on the second morning. Participants are expected to be at the graduate level and to have a nodding acquaintance with thrust and fold belts.

Faculty: Steven E. Boyer, senior petroleum geologist at Sohio Petroleum Company, has twelve years of experience working in the Appalachian Blue Ridge province and throughout the Rocky Mountain Region; his paper with David Elliot on thrust systems (*AAPG Bulletin*) is a landmark in thrust belt studies. John Suppe, professor of geology at Princeton University, has twenty years experience in thrust-faulted terrains in the western U.S. and the Far East; he is the author of a new, advanced-level, structural geology text, and his "Geometry and Kinematics of Fault-Bend Folding" (*American Journal of Science*) places the geometric organization of thrust and fold belts onto a new clear footing. Nicholas B. Woodward, assistant professor at the University of Tennessee, has eleven years experience in mapping and structure studies in the Rocky Mountains, the southern Appalachians, northern New England, and Alaska; he has edited a compilation of thirty-four balanced sections of the central and southern Appalachians (University of Tennessee Studies in Geology).

The fee includes course notes, lunch both days, and a reception the evening of Thursday, October 31.

Limit: 60; Fee: \$160

Remote Sensing for Earth Scientists

Sunday, October 27, 8:00 a.m. to 5:00 p.m., Marriott Hotel.

The course provides equal time for lectures and "hands-on" interpretation of representative images by participants. Lectures and interpretation projects cover the major aspects of remote sensing—Landsat, thermal infrared, and radar images, plus digital processing of image data. Course fee includes copies of the "Remote Sensing Laboratory Manual" and "Instructors Key."

Faculty: F. F. Sabins, Senior Research Associate, Chevron Oil Field Research Company. Sabins holds a B.S. degree from the University of Texas, Austin, and his Ph.D. from Yale University. He has been with Chevron since 1955. He also teaches in the Earth and Space Sciences Department at UCLA, received the Allan Gordon Award from the American Society of Photogrammetry, and most recently was recognized with the 1983 Pecora Award, given by the Department of the Interior and NASA for contributions to the science of remote sensing. Sabins wrote the widely used text *Remote Sensing—Principles and Interpretation*.
Limit: 100; Fee: \$100

Making Use of UNIX in Geological Applications

Sunday, October 27, 8:00 a.m. to 5:00 p.m., Marriott Hotel

The objective of the course is to introduce geologists to this state-of-the-art operating system, which has become the de facto standard for the geoscientist. UNIX is a remarkable programming and engineering computing environment. UNIX, now available on many types of hardware, has emerged as the only truly portable multiuser operating system on the horizon within the constructs of software engineering.

The course will demonstrate the variety of effective software tools provided by the system. UNIX is an extremely portable (machine independent) system allowing applications to move between different computing environments along with system-independent implementation of data, programming constructs, I/O, and data manipulation. The system employs the powerful C language and is extremely user friendly.

The course gives an overview of the applications for UNIX, as well as hands-on exercises. This includes discussion of the UNIX environment, C language, and program development. The fee includes computer access, course notes, and lunch.

Faculty: Fritz W. Ehlers, senior analyst, UNIX system, Sperry Corporation, has had 13 years of experience in computers and the geosciences. He has also been employed by Boeing Corp., and Moore McCormick Co. Resources. He is a member of AAAS, GSA, IEEE, and ACM.

Limit: 60; Fee: \$100

Memorial Preprints

The following memorial preprints are now available, free of charge, by writing to GSA, P.O. Box 9140, Boulder, CO 80301.

William Burnside Arper, by V. L. Yeats

Ira C. Bechtold, by Alex K. Baird

Benjamin Harrison Burma II, by Harold Victor Kaska

Clark Goodman, by John C. Allred, William R. Stratton,

Robley D. Evans, and M. Stanley Livingston

Harold Alvin Gorrell, by C.A.S. Bulmer

Jurgen Henning Illies, by Alan E. M. Nairn

Daniel John Jones, by John R. Coash

Donald Hamilton McLaughlin, by Charles Meyer

Frank Armon Melton, by Kenneth S. Johnson

Robert Hamilton Mitchell, by Wilson M. Laird

William Daniel Pitt, by George G. Huffman

James Stewart Williams, by Clyde T. Hardy

Students Get Outstanding Paper Awards at North-Central Section Meeting

GSA's North-Central Section awarded \$100 prizes to two students for outstanding papers given at the section's annual meeting, at Northern Illinois University, Dekalb, April 25-26, 1985.

The winners are K. A. Goebel, University of Iowa, for "Iatan Limestone (Pedee Group, Upper Pennsylvanian) of Northwestern Missouri and Its Northern Subsurface Extent"; and Danita Brandt Velbel, Yale University, for "Comparative Ordovician Paleogeology."

CORRECTION: 1985 Presidential Young Investigators

GSA members who are among the 200 engineers and scientists selected to receive Presidential Young Investigator Awards this year (see *GSA News & Information*, June 1985, p. 85) include **Leigh H. Royden**, Department of Earth, Atmospheric, and Planetary Sciences, Massachusetts Institute of Technology.

Southern Oklahoma Aulacogen Is Subject of Upcoming Penrose Conference

A GSA Penrose Conference, "Southern Oklahoma Aulacogen" will be held March 23-28, 1986, at Quartz Mountain State Park, Oklahoma. Conveners are M. Charles Gilbert, Department of Geology, Texas A&M University, College Station, TX 77843, (409) 845-2464 or 845-2451; John S. Wickham, University of Oklahoma, Norman, OK 73019; and R. Nowell Donovan, Oklahoma State University, Stillwater, OK 74078.

Conference Goals

The conference will examine all aspects of the aulacogen, particularly the following: (1) the early igneous development, (2) the lower Paleozoic sedimentary infill, (3) the upper Paleozoic tectonic history of the area in relationship both to structural style and sedimentary response, (4) recent rejuvenation of major structures in the area. Emphasis will be on both field and subsurface analysis of an important example of a fully developed, inverted, and nonquiescent aulacogen.

Field Trips

Two field-trip days are scheduled to alternate with discussion days. One field trip will concentrate on aspects of the igneous history of the Wichita Mountains, the other will examine Paleozoic sedimentation and styles of late Paleozoic deformation in the Slick Hills to the north of the basement igneous section.

Some Highlights

The aulacogen began to develop in Cambrian time. Control by a structural grain that was already in existence 1.2 Ga has been suggested but is problematic. Initial igneous activity was complex in both timing and petrogenesis. Particularly noteworthy are the layered gabbroic rocks and the enormous volumes of acid magma recorded in the Carlton Rhyolite Group and its intrusive equivalents. Initial Franconian transgression was siliciclastic in character but subsequently gave way to a highly prolific shallow-water carbonate factory, which in the Arbuckle Group (2000 m) produced one of the world's greatest limestone sequences. The relatively rapid rate of subsidence operative during Arbuckle time contrasts greatly with the crustal stability that prevailed from Late Ordovician to Mississippian time.

Continental closure during the late Paleozoic resulted in the

formation of a complex of uplifts (e.g., the Wichita and Arbuckle uplifts) and basins (e.g., the Anadarko and Ardmore) whose boundaries were controlled by the structural grain inherited from aulacogen development. The structural style operative at this time can perhaps best be modeled in terms of left-lateral transpression. A direct response between sedimentation and tectonism continued into the Permian. Episodic movements continued through the Mesozoic and Cenozoic as documented in the Texas panhandle. Recent movement on at least one (Meers) of the ancient faults has just been discovered.

The area has been the locus for much hydrocarbon exploration; as a result, some of the subsurface is known in considerable detail. Many of the surface outcrops are spectacular. The conference will provide a venue for the integration of work done both by surface and subsurface workers and by those interested in the problems of plate-tectonic modeling of the southern United States.

Registration

M. Charles Gilbert is the initial contact person and will coordinate the part of the conference dealing with igneous aspects of the aulacogen. John Wickham will coordinate structural interests, and Nowell Donovan will plan sedimentary aspects of the program. Interested persons should include specific reasons for attendance and a brief summary of relevant research and work experience. Graduate students with pertinent research interests are welcome to apply.

Much of the program will be devoted to discussion; however, oral and poster presentations are welcome and expected. A title and abstract should be received **NO LATER THAN NOVEMBER 1, 1985**, from persons interested in presenting an oral paper or poster.

The inclusive registration fee for the five-day conference will be \$400 (GSA members), \$410 (other professionals), and \$100 (students—limited number).

Please complete the accompanying conference application form and mail it **BEFORE NOVEMBER 1, 1985**, to M. C. Gilbert, Department of Geology, Texas A&M University, College Station, TX 77843.

Request to Attend Penrose Conference SOUTHERN OKLAHOMA AULACOGEN

Dates: Sunday, March 23 to Friday afternoon, March 28, 1986

Place: Quartz Mountain State Park Lodge, Lone Wolf, Oklahoma (air connections—Oklahoma City)

Conveners: M. C. Gilbert (409) 845-2464, J. S. Wickham (405) 325-4424, R. N. Donovan (405) 624-6374 (-6358)

Name: _____

Reason for wanting to attend:

Affiliation: _____

Address: _____

I will contribute:

Telephone: (_____) _____

(circle one) Professional, GSA member \$400
Professional, nonmember \$410
Student \$100

Others who should be contacted:

Return Form by November 1, 1985 to M. C. Gilbert, Department of Geology, Texas A&M University, College Station, TX 77843

MEETINGS

1985

6th International Conference on Basement Tectonics, September 16-20, 1985, Santa Fe, New Mexico. Information: M. J. Aldrich, Jr., Mail Stop D462, Los Alamos National Laboratory, Los Alamos, NM 87545; (505) 667-1495 or 7590.

American Institute of Professional Geologists Annual Meeting, September 17-21, 1985, St. Paul Minnesota. Information: Robert E. Pendergast, Geotechnical Engineering Corp., 1925 Oakcrest Ave., Roseville, MN 55113; (612) 636-7744.

Second International Mine Water Congress, September 17-21, 1985, Granada, Spain. Information: R. Fernandez Rubio, School of Mines, Technical University of Madrid, Rios Rosas, 21, Madrid 3, Spain.

Houston Geotech 85: Microcomputer Applications in Petroleum Geology, September 22-24, 1985, Houston, Texas. Information: Bruce Lemmon, AAPG Convention Dept., P.O. Box 979, Tulsa, OK 74101; (918) 584-2555.

Oil & Gas Markets Conference, September 22-24, 1985, Calgary, Alberta. Information: Canadian Energy Research Institute, 3512 - 33 St. N.W., Calgary, Alberta T2L 2A6, Canada; (403) 282-1231.

High Heat Production Granites, Hydrothermal Circulation and Ore Genesis, September 22-25, 1985, Cornwall, England. Information: Conference Office, Institution of Mining and Metallurgy, 44 Portland Pl., London W1N 4BR, England; 01-580 3802, Telex 261410 IMMG.

Symposium and Exposition on Ground Water Instrumentation, September 30-October 2, 1985, Los Angeles, California. Information: National Water Well Association, 500 W. Wilson Bridge Rd., Worthington, OH 43085; (614) 846-9355; Telex 241302.

Institute for Tertiary-Quaternary Studies (TER-QUA '85), Annual Meeting, September 30-October 2, 1985, Lawrence, Kansas. Information: Wakefield Dort, Jr., Dept. of Geology, University of Kansas, Lawrence, KS 66045.

Computer Applications in Oil and Gas Exploration and Development, October 3-5, 1985, Wichita, Kansas. Information: D. F. Merriam, Dept. of Geology, Wichita State University, Wichita, KS 67208; (316) 689-3140.

Association of Engineering Geologists Annual Meeting, October 7-11, 1985, Winston-Salem, North Carolina. Information: Norman R. Tilford, Ebasco Services, 2211 Meadowview, Greensboro, NC 27047; (919) 855-7500.

International Symposium on Management of Hazardous Chemical Waste Sites, October 9-10, 1985, Winston-Salem, North Carolina. Information: Norman R. Tilford, Dept. of Geology, Texas A&M University, College Station, TX 77843-3115; (409) 845-9682.

Forum on Geological Manpower—II, October 10-11, 1985, Columbus, Ohio. Information: Peter Webb, Dept. of Geology and Mineralogy, Ohio State University, Columbus, OH 43210-1398; (614) 422-2721.

Recent Advances in Interpretations of Late Paleozoic Cyclothems, Midcontinent SEPM Field Conference, October 11-13, 1985, Lawrence, Kansas. Information: W. L. Watney, Kansas Geological Survey, 1930 Constant Ave.—Campus West, Lawrence, KS 66044; (913) 864-4991.

Processing and Utilization of High Sulfur Coals, October 13-17, 1985, Columbus, Ohio. Information: Louise Larew, OSU Conferences & Institutes, 2400 Olentangy River Rd., Columbus, OH 43210; (614) 422-8571.

16th Annual Underwater Mining Institute, October 20-23, 1985, Halifax, Nova Scotia. Information: Helen Joseph, Ocean Mining Division, 355 River Rd., Ottawa, Ontario K1A 0E4, Canada; (613) 993-3760; or Allen H. Miller, UW Sea Grant Institute, 1800 University Ave., Madison, WI 53705; (608) 262-0645.

Geological Society of America Annual Meeting, October 28-31, 1985, Orlando, Florida. Information: Meetings Department, GSA, P.O. Box 9140, Boulder, CO 80301; (303) 447-2020.

Oceans '85: Ocean Engineering and the Environment, November 12-14, 1985, San Diego, California. Information: Oceans '85, P.O. Box 6830, San Diego, CA 92106.

Eastern Oil Shale Symposium, November 18-20, 1985, Lexington, Kentucky. Information: Connie S. Blakemore, Institute for Mining and Minerals Research, University of Kentucky, P.O. Box 13015, Lexington, KY 40512-3015.

1986

6th Offshore South East Asia Conference, January 28-31, 1986, Singapore. Information: D. H. Morgan, SEAPEX OSEA Committee, Marathon Petroleum Exploration, Ltd., P.O. Box 227, Tanglin Post Office, Singapore 9124.

International Volcanological Congress, February 1-9, 1986, New Zealand. Information: John A. Gamble, Victoria University, Private Bag, Wellington, New Zealand.

Second Annual McKelvey Forum—USGS Research on Energy Resources, February 5-6, 1986, Denver, Colorado. Information: Martin B. Goldhaber, Branch of Energy Minerals, U.S. Geological Survey, M.S. 916, P.O. Box 25046, Federal Center, Denver, CO 80225-0046.

Geotechnical and Geohydrological Aspects of Waste Management Symposium, February 5-7, 1986, Fort Collins, Colorado. Information: Eighth Annual Symposium on Geotechnical and Geohydrological Aspects of Waste Management, Geotechnical Engineering Program, Civil Engineering Dept., Colorado State University, Fort Collins, CO 80523; (303) 491-6081.

Symposium on Engineering Geology and Soils Engineering, February 26-28, 1986, Boise, Idaho. Information: Spencer H. Wood, Dept. of Geology and Geophysics, Boise State University, Boise, ID 83725; (208) 385-1631.

Symposium on Geochemistry of the Earth Surface and Processes of Mineral Formation, March 16-22, 1986, Granada, Spain. Information: R. Rodriguez Clemente, National Museum of Natural Sciences, c/ Jose Gutierrez Abascal, 2, 280006 Madrid, Spain; telephone (91) 2.62.25.13.

The Global Ocean: Its Chemistry and Resources, March 24-29, 1986, Woods Hole, Massachusetts. Information: P. A. Meyers, Oceanography Program, University of Michigan, 2455 Hayward Ave., Ann Arbor, MI 48109; (313) 764-0597.

Fourth Federal Sedimentation Conference, March 24-27, 1986, Las Vegas, Nevada. Information: Doug Glysson, U.S.

(continued on p. 182)

MEETINGS (continued from p. 181)

Geological Survey, 412 National Center, Reston, VA 22092; (703) 860-6834.

Geochemistry and Mineralisation of Proterozoic Volcanic Suites, April 2-5, 1986, Nottingham, England. Information: Tim Pharaoh, Deep Geology Research Group, British Geological Survey, Keyworth, Nottingham NG12 5GG, England.

International Symposium on Coal and Coal-bearing Strata, April 8-11, 1986, London. Information: A. C. Scott, Geology Dept., Chelsea College, 552 King's Road, London SW10 0UA, England.

Experimental Mineralogy and Geochemistry: Applications to Petrology and Ore Deposits, April 17-19, 1986, Nancy, France. Information: A. Weisbrod, E.N.S.G., B.P. 452, 54001 Nancy Cedex, France.

International Symposium on Environmental Geotechnology, April 21-24, 1986, Allentown, Pennsylvania. Information: H. Y. Fang, Geotechnical Engineering Div., Dept. of Civil Engineering, Lehigh University #13, Bethlehem, PA 18015; (215) 861-3549 or 3520.

Geological Association of Canada-Mineralogical Association of Canada Annual Meeting, May 19-21, 1986, Ottawa, Ontario. Information: J. A. Donaldson, Dept. of Geology, Carlton University, Ottawa, Ontario K1S 5B6, Canada; (613) 231-2630.

American Association for the Advancement of Science National Meeting, May 25-30, 1986, Philadelphia, Pennsylvania. Information: AAAS Meetings Office, 1333 H St., NW, Washington, DC 20005; (202) 326-6400.

Third International Conference on Geoscience Information, June 1-5, 1986, Adelaide, Australia. Information: Secretary, Organising Committee 3ICGI, Australian Mineral Foundation, PB97, Glenside, South Australia 5065.

27th U.S. Symposium on Rock Mechanics, June 23-25, 1986, University, Alabama. Information: Howard L. Hartman, Dept. of Mineral Engineering, University of Alabama, P.O. Box 1468, University, AL; (205) 348-6578. (Abstracts deadline is September 27, 1985.)

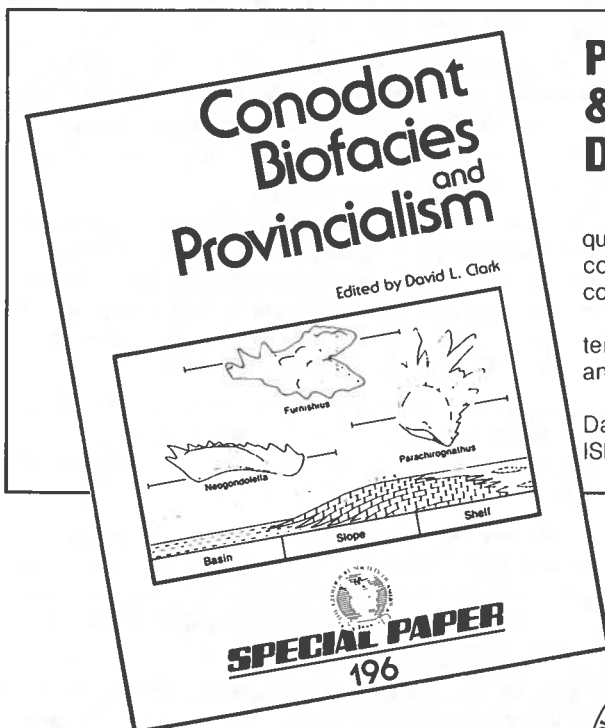
6th International Conference on Geochronology, Cosmochronology and Isotope Geology, June 30-July 4, 1986, Cambridge, England. Information: Organising Committee, Sixth International Conference, Dept. of Earth Sciences, University of Cambridge, Downing St., Cambridge CB2 3EQ, England.

Geocongress '86, July 7-11, 1986, Johannesburg, South Africa. Information: Symposium Secretariat, S. 339, CSIR, P.O. Box 395, Pretoria, Republic of South Africa 0001.

Deep Seismic Reflection Profiling of the Continental Lithosphere, July 15-17, 1986, Cambridge, England. Information: Bullard Laboratories, Madingley Rise, Madingley Rd., Cambridge CB3 0EZ, England.

Third International Humic Substances Society Meeting, August 4-8, 1986, Oslo, Norway. Information: Egil Gjessing, Norwegian Institute for Water Research, P.O. Box 333, Blindern Oslo 3, Norway, or Wesley L. Campbell, IHSS Standards & Reference Committee, 5293 Ward Rd., Arvada, CO 80002; (303) 236-3615.

(continued)



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The University of Texas at Austin is an equal opportunity/affirmative action employer. Send resumes to E.G. Wermund, Bureau of Economic Geology, University of Texas, Box X, University Station, Austin, TX 78713.

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Aangstrom Precision Corporation is conducting a national seminar series entitled "High Technology Computer Methods in Petroleum Exploration." The 2-day seminar is being conducted by Dr. F. Bryan Davies, President of Aangstrom, who has world-wide geological and computer applications experience in exploration. The next seminar is being held on September 12-13 in Tulsa, OK, followed by one in Dallas, TX on November 21-22. The price is \$295 with discounts given for prepayment and additional attendees. Call (517) 772-2232 for registration details.

MEETINGS (continued)

Fifth International Symposium on Water-Rock Interaction, August 8-17, 1986, Reykjavik, Iceland. Information: Halldor Armannsson, Orkustofnun — National Energy Authority Grensasvegur 9, 108 Reykjavik, Iceland.

Basins of Eastern Canada and Worldwide Analogues, August 13-15, 1986, Halifax, Nova Scotia. Information: Secretary, Dept. of Oceanography, Dalhousie University, Halifax, Nova Scotia, Canada B3H 4J1.

Circum-Pacific Energy and Mineral Resources Conference, August 17-22, 1986, Singapore. Information: Allen G. Hatley, c/o Gaffney, Cline & Assoc., P.O. Box 76309, Dallas, TX 75379.

International Association on the Genesis of Ore Deposits Seventh Symposium, August 18-22, 1986, Lulea, Sweden. Information: Inger Wallin, Centek Conference, S-951 87 Lulea, Sweden. (Abstracts due November 30, 1985.)

Third U.S. National Conference on Earthquake Engineering, August 24-28, 1986, Charleston, South Carolina. Information: James E. Beavers, Martin Marietta Energy Systems, Inc., Bldg. 9733-4, M/S 2, P.O. Box Y, Oak Ridge, TN 37831.

International Symposium on Large Rock Caverns, August 25-28, 1986, Helsinki, Finland. Information: International Symposium on Large Rock Caverns, Technical Research Center of Finland, Lehtisaarentie 2, SF-00340 Helsinki, Finland; telephone 358-0-4566172; Telex 122972 vttha sf.

Second International Conference on Paleocyanography, September 7-12, 1986, Woods Hole, Massachusetts. Information: W. A. Berggren, Dept. of Geology & Geophysics, Woods Hole Oceanographic Institution, Woods Hole, MA 02543.

1986 International Gas Research Conference, September 8-11, 1986, Toronto, Ontario. Information: 1986 International Gas Research Conference, c/o Gas Research Institute, 8600 West Bryn Mawr Ave., Chicago, IL 60631; (312) 399-8300, Telex 253812 or 503802.

GSA 1986

Penrose Conferences

Southern Oklahoma Aulacogen, March 23-28, 1986, Quartz Mountain State Park, Oklahoma. Information: M. Charles Gilbert, Dept. of Geology, Texas A&M University, College Station, TX 77843; (409) 845-2464 or 845-2451.

Reefal Development in a Terrigenous Province, May 17-21, 1986, Veracruz, Mexico. Information: Paul R. Krutak, ARCO Exploration Co., P.O. Box 51408, Lafayette, LA 70505; (318) 264-4452.

Migmatites and Crustal Melting, June 8-13, 1986, Amherst, Massachusetts. Information: Robert J. Tracy, Dept. of Geology and Geophysics, Yale University, New Haven, CT 06511; (203) 436-3539.

Annual Meeting—November 10-13, 1986, San Antonio, Texas.

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