



Quaternary Geologist and Geomorphologist

NEWSLETTER OF THE QUATERNARY GEOLOGY AND GEOMORPHOLOGY DIVISION

Volume 29, no. 2

August 1989

1989 DIVISION OFFICERS AND PANEL MEMBERS

OFFICERS:

Chairman	Dale F. Ritter
First Vice-Chairman	Kenneth L. Pierce
Second Vice-Chairman	Richard F. Madole
Secretary	John E. Costa

PANEL MEMBERS (1988-90): Julie Brigham-Grette
Vance T. Holliday
Karen L. Prestegaard

PANEL MEMBERS (1987-1989): Jon C. Boothroyd
John J. Clague
W. Hilton Johnson

A total of 1,026 ballots were mailed to the Division's voting affiliates for the 1989 election of officers and panel members, and 319 valid ballots were returned. Division officers and panel members elected in 1989 are:

OFFICERS:

Chairman	Kenneth L. Pierce
First Vice-Chairman	Richard F. Madole
Second Vice-Chairman	David M. Mickelson
Secretary	John E. Costa

PANEL MEMBERS (1989-1991): Deborah R. Harden
William D. McCoy
John D. Vitek

NOMINATIONS OF 1990-1992 PANEL MEMBERS

Clip out and mail this ballot before November 15, 1989, to:

John E. Costa
U.S. Geological Survey
Cascades Volcano Observatory
5400 MacArthur Blvd.
Vancouver, WA 98661

All members except Division officers, present or retiring Panel members, and Student Associates are eligible for nomination to the Panel. The six names receiving the highest number of nominations will appear on the annual ballot. Each voting affiliate of the Division (member other than Student Associate) may nominate up to three persons.

- (1) _____
(2) _____
(3) _____

Name of Nominator

QUATERNARY GEOLOGY & GEOMORPHOLOGY DIVISION STATEMENT OF FINANCIAL CONDITION

December 31, 1988

Division Fund Balance 12/13/87	\$ 285.24	
1988 Division Dues Income	<u>2778.00</u>	\$ 3063.24
Division Expenses:		
Composition & printing newsletters	1164.74	
Member labels	135.00	
Printing ballot & biodata	118.28	
Postage, handling & envelopes	731.48	
Phoenix - '87 adj.- photos	54.50	
Reimbursement to Division - A. Dreimanis	17.00	
'88 Meeting - Awards	92.50	
'88 Meeting - Reception/Lunch	503.21	
'88 Meeting - Luncheon tickets	<u>80.00</u>	
Total division expenses		<u>2862.71</u>
Sub Total		\$ 200.53
Transfer to J. Hoover Mackin Fund		<u>100.26</u>
Division Fund Balance 12/31/88		\$ 100.27

J. HOOVER MACKIN APPROPRIATED FUND

STATEMENT OF FINANCIAL CONDITION

December 31, 1988

Fund Balance 12/31/87	\$ 8009.41	
Contributions	273.89	
Division transfer	100.26	
Earnings through 12/31/88	<u>526.29</u>	
Total Fund Resources		\$ 8909.85
Grant Awards:		
Jay Stratton Noller	250.00	
Donald Templeton Rodbell	250.00	
Eric A. Oches	<u>500.00</u>	
Total Awards		<u>1000.00</u>
Fund Balance 12/31/88		\$ 7909.85

HOW TO HAVE INPUT TO THE DIVISION

1. Submit nominations for Division offices and awards.
2. Submit suggestions, gripes, etc., for consideration by the Division Management Board.

3. Submit contributions to the Division Newsletter.

Correspondence to the Division may be sent to our continuing Division Secretary:

John E. Costa
Cascades Volcano Observatory
U.S. Geological Survey
5400 MacArthur Blvd.
Vancouver, WA 98661

Or you may write directly to the Division Chairman (who changes each year). The present Chairman is:

Dale F. Ritter
Department of Geology
University of Southern Illinois
Carbondale, Ill 62901

Newsletters are mailed in February and August of each year. Members are encouraged to use their Division newsletter to communicate with other members. Deadline for the February Newsletter is January 15 and July 15 for the August Newsletter. Please send information to the Newsletter Editor at the following address:

William E. Scott
Cascades Volcano Observatory
U.S. Geological Survey
5400 MacArthur Blvd.
Vancouver, WA 98661
Phone (206) 696-7909

1989 MACKIN GRANT WINNERS

The Ph.D.-degree candidate selected for the J. Hoover Mackin Grant for 1989 is Andrew Fox of the Department of Geological Sciences at Cornell University. Fox is studying "Glacial history of the central Andes Mountains" under the supervision of Arthur Bloom.

The M.S.-degree candidate selected for the J. Hoover Mackin Grant is Garrett Jackson of the Department of Geological Sciences at the University of Arizona. Jackson is studying "Tectonic geomorphology of the Toroweap Fault, western Grand Canyon, Arizona" under the supervision of Bill Bull.

1989 MACKIN GRANT COMMITTEE

Applications for Mackin Grants are evaluated by a committee of seven composed of the Chairman and the First and Second Vice-Chairmen and four At-Large members. The four At-Large members are appointed by the Division Chairman and serve for one year.

Many thanks to the At-Large members of the Committee for 1989:

Edward B. Evenson
Richard Kesel
Larry Mayer
Leslie D. McFadden

MACKIN GRANT APPLICATIONS FOR 1990

The deadline for receipt of applications for the Mackin Grant for research in geomorphology or Quaternary Geology is February 15, 1990. Two awards will be given, one to a Ph.D. candidate and one to a Masters Degree candidate. Winners will be selected by April 15, 1990.

Application forms are available from the Division Secretary, John E. Costa, U.S. Geological Survey, Cascades Volcano Observatory, 5400 MacArthur Blvd., Vancouver, WA 98661.

RECIPIENTS OF THE MACKIN GRANT 1974-89

- 1974 Louis D. Carter, University of Southern California, Quaternary geology in Baja, California.
- 1975 P. Thompson Davis, University of Colorado, Cirque glacier fluctuations and lacustrine chronologies.
- 1976 Award date changed.
- 1977 Daniel R. Muhs, University of Colorado, Marine terraces-soil development, San Clemente Island, California.
- 1978 Lisa Osterman, University of Colorado, Quaternary geology of Frobisher Bay, Baffin Island.
- 1979 Donna Marron, University of California, Berkeley, Slope processes in Redwood National Park.
- 1980 Susan L. Gawarecki, Lehigh University, Origin of the Railroad Ridge diamicton.
- 1981 Mary L. Gillam, University of Colorado, Age and climate effects on soil development, Colorado and New Mexico.
- 1981 Julie Brigham, University of Colorado, Chronology of Pleistocene marine deposits in coastal Alaska.
- 1982 Thomas F. Bullard, University of New Mexico, Quaternary geomorphic evolution of a tributary to the Chaco River, northwestern New Mexico.
- 1982 J. Steven Kite, University of Wisconsin, Late-glacial and Holocene alluvial chronology, St. Johns drainage basin, northern Maine and southern New Brunswick and Quebec.
- 1983 Jonathan M. Harbor, University of Colorado, Chronology of Holocene events, geomorphic response, and eolian influx in alpine lakes in the Front Range, Colorado.
- 1983 David S. Shafer, University of Tennessee, Quaternary climatic change, landscape evolution, and paleoecologic history, southern Appalachians, western North Carolina.
- 1983 Carolyn H. Eyles, University of Toronto, Scarborough Bluffs, Lake Ontario basin, lithofacies codes and the model of diamict deposition below floating ice.
- 1984 Jim E. O'Connor, University of Arizona, Paleohydrology and hydraulics as interpreted from geologic evidence: Boulder Creek, Utah.
- 1984 Leonard H. Thorleifson, University of Colorado, The Quaternary stratigraphy of the Hudson Bay lowlands.
- 1985 Karin A. Hoover, University of Washington, The relation of fluvial processes to facies--The Holocene stratigraphy and sedimentology of the Wells Reservoir area, eastern Washington.
- 1985 Peter E. Lea, University of Colorado, Late-Quaternary stratigraphy and paleoenvironments of the Nushagak region, southwestern Alaska.
- 1986 Mark A. Gonzales, University of Wisconsin, Fluvial geomorphology, geochronology, and paleoclimatology of Paddock Creek, Little Missouri Badlands, southwestern North Dakota.

- 1986 **Christopher M. Menges**, University of New Mexico, Systematic and quantitative analyses of the landforms of a mountain front within a basin and range landscape in the northern Rio Grande rift near Taos, north-central New Mexico.
- 1986 **Dorothy I. Sack**, University of Utah, Geomorphology of alluvial fans in the Bonneville Basin, Utah--Modeling alluvial fan activity.
- 1987 **Kevin M. O'Dea**, Humboldt State University, Quaternary terrace formation and deformation on Yager Creek, Humboldt County, California.
- 1987 **Leal A.K. Mertes**, University of Washington, Morphology and construction of the Solimoes-Amazon River flood plain in Brazil.
- 1987 **Jim E. O'Connor**, University of Arizona, Hydraulics and sediment transport of Pleistocene Lake Bonneville flooding on the Snake River.
- 1988 **Jay S. Noller**, University of Colorado, History of El Nino in soil chronosequences of the Peruvian desert.
- 1988 **Donald T. Rodbell**, University of Colorado, Late Quaternary glacial and climatic history of the northern Peruvian Andes based on glacial geology, glaciolacustrine sedimentology, and soils.
- 1988 **Eric A. Oches**, University of Massachusetts, Late Quaternary paleotemperature estimates of the northern Mississippi and Illinois River valleys, U.S.A.
- 1989 **Andrew Fox**, Cornell University, Glacial history of the central Andes Mountains.
- 1989 **Garrett Jackson**, University of Arizona, Tectonic geomorphology of the Toroweap Fault, western Grand Canyon, Arizona

GLADYS W. COLE MEMORIAL RESEARCH AWARD FOR 1989

No Cole Award was made in 1989 because no one applied!! Unbelievably, in this time of tight research funds, those of you eligible to win this award passed up the opportunity for \$3,000 of support. The amount of the award will be increased to \$5,000 in 1990, so see the details below for application procedures. Don't pass up this fine funding opportunity.

COLE MEMORIAL RESEARCH AWARD APPLICATIONS FOR 1990

W. Storrs Cole passed away on June 14, 1989, at the age of 86. Dr. Cole had been a Fellow of the GSA for 58 years and was one of the Society's leading benefactors. He established the Gladys W. Cole Memorial Research Award Fund in 1980. This fund provides research support for investigations of the geomorphology of semiarid and arid terrains in the United States and Mexico. The amount of the award in 1990 will be \$5,000. It is given each year to a GSA Fellow between 30 and 65 years old who has published one or more significant papers on geomorphology. The application form for this grant is available from the Research Grants Administrator, Geological Society of America, P.O. Box 9140, Boulder, CO 80301; phone (303) 447-2020. Applications must be postmarked by February 15 each year to be eligible for the award, which is made in April.

KIRK BRYAN AWARD FOR 1989

Six publications were considered for the Kirk Bryan Award for 1989. The winning publication is by Kevin M. Scott of the U.S. Geological Survey, Cascades Volcano Observatory, **Origins, Behavior, and Sedimentology of Lahars and Lahar-Runout Flows in the Toutle-Cowlitz River System**, U.S. Geological Survey Professional Paper 1447-A, 74 p., published in 1988. Dr. Scott will receive the Kirk Bryan Award at the QG&G Division Luncheon at the 1989 Annual Meeting of the Geological Society of America.

Scott integrates geomorphology, sedimentology, stratigraphy, hydraulics, and fluid dynamics in this study of lahars and other stream-flow events associated with the 18 May 1980 and subsequent eruptions of Mount St. Helens, as well as with some prehistoric eruptions. He documents three phenomena that have significant implications for the study of ancient and modern alluvial deposits, for the development of facies models, and for the assessment of debris-flow hazards: (1) The first definitive description of the sedimentology of hyperconcentrated-flow deposits, based on sampling of the moving flows and on study of the resulting deposits; (2) the concept of flow transformations caused by sediment bulking and debulking along a flow path as stream flow incorporates sediment to become a debris flow and debris flows redeposit sediment to transform back to normal streamflow; and (3) the dynamics of high-concentration sediment-gravity-flow processes based on two heretofore poorly understood features--"whaleback" bars formed along stream channels and "sole layers" formed at the base of some debris-flow deposits.

NOMINATIONS FOR THE KIRK BRYAN AWARD FOR 1990

Nominations for the Kirk Bryan Award for 1990 will be accepted until December 1, 1989. The Kirk Bryan Award is given for a paper or book published within the past five years. The work may be single or multi-authored. Nominations are made by writing a letter that identifies the work and provides a statement about its significance. Send nominations to the Division Secretary, John E. Costa, U.S. Geological Survey, Cascades Volcano Observatory, 5400 MacArthur Blvd., Vancouver, WA 98661. You can also submit your nominations at the Division Cocktail Party at the 1989 Annual Geological Society of America Meeting in St. Louis.

RECIPIENTS OF THE KIRK BRYAN AWARD

- 1958 **Luna B. Leopold and Thomas J. Maddock, Jr.** (U.S. Geological Survey), The hydraulic geometry of stream channels and some physiographic implications: U.S. Geological Survey Professional Paper 252, 57 p., 1953.
- 1959 **Jack L. Hough** (University of Illinois), Geology of the Great Lakes: University of Illinois Press, 313 p., 1958.
- 1960 **John F. Nye** (University of Bristol), The distribution of stress and velocity in glaciers and ice sheets: Royal Society Academy, Proceedings A, v. 239, p. 113-133, 1957.
- 1961 **John T. Hack** (U.S. Geological Survey), Studies of longitudinal stream profiles in Virginia and Maryland: U.S. Geological Survey Professional Paper 294B, 97 p., 1957.
- 1962 **Anders Rapp** (University of Uppsala), Recent development of mountain slopes in Karkevagge and surroundings, northern Scandinavia: Geografiska Annaler, v. 42, p. 71-200, 1960.
- 1963 **Arthur H. Lachenbruch** (U.S. Geological Survey), Mechanics of thermal contraction cracks and ice-wedge polygons in permafrost: Geological Society of America Special Paper 70, 69 p., 1962.

- 1964 Robert P. Sharp (California Institute of Technology), Wind ripples: Journal of Geology, v. 71, p. 617-636, 1963.
- 1965 Gerald M. Richmond (U.S. Geological Survey), Quaternary stratigraphy of the La Sal Mountains, Utah: U.S. Geological Survey Professional Paper 324, 135 p., 1962.
- 1966 Charles S. Denny (U.S. Geological Survey), Alluvial fans in the Death Valley region: U.S. Geological Survey Professional Paper 466, 62 p., 1965.
- 1967 Clyde A. Wahrhaftig (University of California at Berkeley), Stepped topography of the southern Sierra Nevada, California: Geological Society of America Bulletin, v. 76, p. 1165-1190, 1965.
- 1968 David M. Hopkins (U.S. Geological Survey), Quaternary marine transgressions in Alaska, in The Bering Land Bridge: Stanford University Press, p. 47-90, 1967.
- 1969 Ronald L. Shreve (University of California at Los Angeles), The Blackhawk landslide: Geological Society of America Special Paper 108, 47 p., 1968.
- 1970 Harold E. Malde (U.S. Geological Survey), The catastrophic late Pleistocene Bonneville flood in the Snake River Plain, Idaho: U.S. Geological Survey Professional Paper 596, 52 p., 1968.
- 1971 A. Lincoln Washburn (University of Washington), Instrumental observations of mass wasting in the Mesters Vig district, northeast Greenland: Medd. Gronland, bd. 166, nr. 4, 1967; and Weathering, frost action, and patterned ground in the Mesters Vig district, northeast Greenland: Med. Gronland, bd. 166, nr. 4, 1969.
- 1972 Dwight R. Crandell (U.S. Geological Survey), Postglacial lahars from Mount Rainier volcano, Washington: U.S. Geological Survey Professional Paper 677, 75 p., 1971.
- 1973 John T. Andrews (University of Colorado), A geomorphological study of post-glacial uplift: London, Institute of British Geographers, Special Publication No. 2, 156 p., 1970.
- 1974 Robert V. Ruhe (Indiana University), Quaternary landscapes in Iowa: Iowa State University Press, 255 p., 1969.
- 1975 James B. Benedict (Colorado State University), Downslope soil movement in a Colorado alpine region--rates, processes and climatic significance: Arctic and Alpine Research, v. 2, p. 165-226, 1970.
- 1976 Geoffrey S. Boulton (University of East Anglia), Processes and patterns of glacial erosion: Binghamton, State University of New York, Proceedings of the 5th Geomorphology Symposium, 1974.
- 1977 Michael A. Church (University of British Columbia), Baffin Island sandurs: A study of Arctic fluvial processes: Geological Survey of Canada Bulletin 216, 208 p., 1972.
- 1978 Richard L. Hay (University of California at Berkeley), Geology of the Olduvai Gorge--a study of sedimentation in a semiarid basin: Berkeley, University of California Press, 1976.
- 1979 Stanley A. Schumm (Colorado State University), The Fluvial System: New York, John Wiley and Sons, 338 p., 1977.
- 1980 James A. Clark (Cornell University), William E. Farrel (University of California at Berkeley), and W. Richard Peltier (University of Toronto), Global changes in postglacial sea level--A numerical calculation: Quaternary Research, v. 9, p. 265-287, 1978.
- 1981 J. Ross Mackay (University of British Columbia), Pingos of the Tuktoyaktuk Peninsula area, Northwest Territories: Geographie Physique et Quaternaire, v. 33, no. 1, p. 3-61, 1979.
- 1982 Kenneth L. Pierce (U.S. Geological Survey), History and dynamics of glaciation in the northern Yellowstone Park area: U.S. Geological Survey Professional Paper 729-F, 90 p., 1979.
- 1983 Leland H. Gile, John W. Hawley, Robert B. Grossman (U.S. Soil Conservation Service), Soils and Geomorphology in the Basin and Range Area of Southern New Mexico--Guidebook to the Desert Project: New Mexico Bureau of Mines and Mineral Resources Memoir 39, 222 p., 1981.
- 1984 Steven M. Colman (U.S. Geological Survey), Chemical weathering of basalts and andesites--Evidence from weathering rinds: U.S. Geological Survey Professional Paper 1246, 51 p., 1982.
- 1985 No award given
- 1986 Ronald I. Dorn (University of California at Berkeley) and Theodore M. Oberlander (University of California at Berkeley), Rock varnish: Progress in Physical Geography, v. 6, no. 3, p. 317-367, 1982.
- 1987 Richard B. Waitt, Jr. (U.S. Geological Survey), Case for periodic, colossal jokulhlaups from Pleistocene glacial Lake Missoula: Geological Society of America Bulletin, v. 96, p. 1271-1286, 1985.
- 1988 Peter W. Birkeland (University of Colorado), Soils and Geomorphology: New York, Oxford University Press, 372 p. 1984.
- 1989 Kevin M. Scott (U.S. Geological Survey), Origins, behavior, and sedimentology of lahars and lahar-runout flows in the Toutle-Cowlitz river system: U.S. Geological Survey Professional Paper 1447-A, 74 p., 1988.

**1989 DISTINGUISHED CAREER AWARD TO
CLYDE WAHRHAFTIG**

The Quaternary Geology and Geomorphology Division is pleased to announce that Clyde Wahrhaftig, Professor Emeritus in the Department of Geology and Geophysics, University of California at Berkeley, and U.S. Geological Survey, Menlo Park, is the 1989 recipient of the Distinguished Career Award. The Award will be presented to Professor Wahrhaftig at the Division Luncheon during the 1989 Annual Meeting in St. Louis. Clyde's career is distinguished by significant contributions in three areas: Basic research related to a broad spectrum of earth-science topics, creative application of earth-science principles to the solution of resource-management problems, and teaching.

In addition to his classic 1965, Kirk-Bryan-Award-winning paper, "Stepped topography of the southern Sierra Nevada, California", Clyde has published important papers on late Cenozoic history and landscape development of the Alaska Range, Sierra Nevada, and Coast Ranges, Precambrian geology of the Alaska Range, and igneous petrology of the Sierra Nevada. He has also produced numerous detailed geologic maps of areas in Alaska and California.

Clyde has been keenly aware of the relevance of his work to societal problems. He has worked tirelessly in influencing land-use decisions in the San Francisco Bay area and in promoting a geological perspective in the development of forest-management practices, which led to his appointment to the California Board of Forestry. He also served as the first Chairman of the GSA Committee on Environment and Public Policy.

Clyde's former graduate students hold positions in government, academia, and industry and attest to his success as a teacher. He has also worked diligently to attract young people to geology, especially among the underprivileged and racial minorities. He was the first chairman of the GSA Committee on Minorities, and a member of the USGS Minority Program--Minority Participation in the Earth Sciences. For many years he has taken children from Boys' Clubs in San Francisco on field trips in the Bay Area.

In short, as pointed out by a former student, "Clyde Wahrhaftig is worthy of the Distinguished Career Award because of the ways in which his research has elucidated basic geomorphic principles, because of the ways in which he brought geology to people, and because of the ways in which he brought people to geology."

(Nominated by Donna Marron and a host of others).

NOMINATIONS FOR DISTINGUISHED CAREER AWARD FOR 1990

DEADLINE APRIL 15, 1990

The Distinguished Career Award was established in 1985 to recognize Quaternary geologists and geomorphologists who have demonstrated excellence in their contributions to science. This award complements the Kirk Bryan Award, which is for a single paper, by recognizing many years of distinguished contributions. The award is called the Distinguished Career Award because the Society bylaws allow for only one "named" award per Division, and the Kirk Bryan award is our Division's named award.

The Distinguished Career Award is open to all Quaternary geologists and geomorphologists who have demonstrated excellence in their contributions to science. The recipient need not be a member of the Geological Society of America or the QG&G Division. This is the fifth year for the DCA; former recipients are Richard P. Goldthwait (1986), Aleksis Dreimanis (1987), A. Lincoln Washburn (1988), and Clyde Wahrhaftig (1989).

Nominations for the award will be accepted at any time during the year, but the deadline for nominations for this year's award is April 15, 1990. Nominations should be submitted to the Division Secretary. The nominator should assemble the following for the candidate: (1) a brief biographical sketch, which may be photocopied from American Men and Women of Science, (2) a statement of no more than 200 words describing the candidate's scientific contributions to Quaternary geology and geomorphology, (3) a selected bibliography of no more than 20 titles, and (4) three letters of support from colleagues. The names of unsuccessful candidates proposed for this award will remain open to consideration without renomination for the three following years. Further consideration after this period will require renomination.

THE GEOLOGICAL SOCIETY OF AMERICA ANNUAL MEETING, ST. LOUIS, MISSOURI NOVEMBER 6-9, 1989

The Annual Meeting of the Geological Society of America will have several symposia, theme sessions, field trips, and short courses that will be of interest to QG&G Division members.

SYMPOSIA

Cenozoic Deep-Sea Foraminifera: Distribution and Environments. Sponsored by the Cushman Foundation. K.G. Miller and B.K. Sen Gupta, convenors.

Other symposia will be announced in the September and October issues of GSA News & Information.

FRONTIERS IN GEOSCIENCE THEME SESSIONS

- * Geological Mapping in the Next Several Decades
- * The Effects of Man on the Mississippi River and Its Delta
- * The Effects of Greenhouse Warming on North American Deserts: Holocene Analogues
- * Global Sedimentary Geology
- * A Growing Crisis in (Geo)Science Education
- * Volcanism and Climate
- * Application of Artificial Intelligence, Expert System, or Knowledge-Based System Methods in Geological Sciences
- * Geomorphic Processes and Landform Evolution
- * Hydrogeologic Challenges for the Next Decade

FIELD TRIPS

Archeological Geology and Geomorphology in the Central Mississippi-Lower Illinois Valley Region, Illinois and Missouri. Leaders: E.R. Hajic, R.W. Graham, and M.D. Wiant. November 5. Cost: \$60.

Surface Effects of the 1811-1812 New Madrid Earthquake Sequence in Seismotectonics of the New Madrid Seismic Zone, Western Tennessee, Northeast Arkansas, and Southeast Missouri. Leaders: E.S. Schweig III and R.W. Jibson. November 3-5. Cost: \$160.

Hydrogeology of Shallow Karst Ground-Water Systems in Southeastern Missouri. Leaders: Paul Blanchard and Cynthia Endicott. November 4-5. Cost: \$120.

Quaternary Loess and Glacial Record of Southwestern Illinois. Leaders: L.D. Follmer, E.D. McKay, and E.R. Hajic. November 10. Cost \$50.

SHORT COURSES

Glaciotectonic Structures and Landforms. Sunday, November 5, 8 a.m. to 5 p.m., Sheraton Hotel. Cosponsored by the Quaternary Geology and Geomorphology Division. Faculty: J.S. Abers. Limit: 30. Fee: \$80.

Creating Geological Applications with Macintosh HyperCard. Saturday and Sunday, November 4-5, 8 a.m. to 5 p.m., Cervantes Convention Center, cosponsored by National Association of Geology Teachers. Faculty: R.H. Burger. Limit: 40. Fee: \$140.

Fission-Track Analysis: Theory and Applications. Saturday and Sunday, November 4-5, 8 a.m. to 5 p.m., Sheraton Hotel. Faculty: K.D. Crowley, C.W. Naeser, N.D. Naeser. Limit: 75. Fee: \$140.

Quaternary Climates: The Ocean Sedimentary Record. Sunday, November 5, 8 a.m. to 5 p.m., Cervantes Convention Center. Faculty: D.K. Rea and Margaret Leinen. Limit: 75. Fee: \$95.

QG&G DIVISION COCKTAIL PARTY 1989 ANNUAL MEETING, ST. LOUIS

The Division Cocktail Party will be held Tuesday, November 7, 1989, from 7:30-10:30 PM in the St. Louis H Room of the Adam's Mark Hotel. There will be a box available for collecting nominations for the Kirk Bryan Award, if you become inspired during the meeting.

**QG&G DIVISION LUNCHEON
1989 ANNUAL MEETING, ST. LOUIS**

The Division Awards Luncheon will be held from Noon-2 PM, Wednesday, November 8, 1989, in the Promenade E Room of the Adam's Mark Hotel. New Division officers and Panel members will be announced, the Mackin Grant winners will be introduced, and the Kirk Bryan and Distinguished Career Awards will be presented.

**FRIENDS OF THE PLEISTOCENE
1989 FIELD TRIPS**

Southeast Cell: November 17-19, 1989

Slope evolution in the New River Valley of the Ridge and Valley Province of Virginia. The trip begins with an evening meeting on the 17th. The trip on the 18th will be led by Hugh Mills (Tennessee Tech) and will focus on terraces, weathering, slope processes and deposits, and perhaps periglacial features. Art Schultz (USGS-Reston) will lead the trip on the 19th to examine megalandslides, which are an important process in slope evolution in the area. If you would like to be added to the mailing list, contact Steve Kite, Department of Geology and Geography, West Virginia University, Morgantown, WV 26506. If you need specific information about the trip, contact Art Schultz, U.S. Geological Survey, National Center, Mail Stop 926, Reston, VA 22092; phone (703) 648-6501.

1990 SE FOP: Jim Quinlan (Uplands Research Lab) has agreed to run the 1990 SE FOP field trip at Mammoth Cave, Kentucky. Jim as promised an inexpensive trip that will include both above-ground and underground sites.

FIRST CANQUA/AMQUA JOINT MEETING

The first joint meeting between the Canadian Quaternary Association and the American Quaternary Association will be held June 4-6, 1990, at the University of Waterloo, Waterloo, Ontario, Canada. The conference theme is **Rapid Change in the Quaternary Record**. Abstracts are invited in a wide spectrum of activities; the Programme Committee will select a number of themes, with keynote speakers and oral presentations, from some of the submitted abstracts.

Field trips and short courses will both precede and follow the conference. Proposed field trips include the eastern Lake Erie basin, Waterloo region glacial geomorphology, Lake Ontario north shore, and Lake Ontario cruise. Short courses are techniques in shallow geophysical methods, techniques of biological interpretation of paleoenvironments, and examples and critiques of Quaternary dating methods.

Further information will be provided in a second circular to be released in October 1989. For details or to be included in the mailing for the second circular contact: A.V. Morgan, Quaternary Sciences Institute, Department of Earth Sciences, University of Waterloo, Waterloo, Ontario, Canada N2L 3G1. Phone (519) 885-1211 (ext. 3231); FAX (519) 746-2543 or (519) 888-4521. E-Mail FOSSIL@WATDCS on BITNET, NETWORK, OR EARN.

**LUBBOCK LAKE STATE AND NATIONAL LANDMARK
50 Years of Discovery**

A week-long series of events, October 1-8, 1989, will recognize the half-century of discovery, exploration, and community involvement at the Lubbock Lake Landmark, Lubbock, Texas. Thirty-nine scholars, representing eleven countries, will contribute to an international symposium and a series of public lectures and panel

discussions on topics germane to the Landmark record within an international perspective. The symposium (October 2-4) will focus on the integration of the geological and biological sciences in archaeology as a driving force behind the current era of Quaternary research, both at the Landmark and around the world. Other events include a regional tour, with a field guidebook, of late Quaternary geological and archaeological localities, dedication of new public and research facilities, guided tours of the Landmark, and a public banquet.

Sponsored by Museum of Texas Tech University, West Texas Museum Association, South Plains Friends of the Humanities, and Texas Committee for the Humanities.

For further information contact: Dr. Eileen Johnson, Director, Lubbock Lake Landmark, Museum of Texas Tech University, Lubbock, Texas 79409. Phone (806) 742-2481.

**CIRCUMPOLAR ECOSYSTEMS IN WINTER
CHURCHILL, MANITOBA, CANADA**

An international symposium, Circumpolar Ecosystems in Winter, sponsored by the Churchill Northern Studies Centre and the Atmospheric Environment Service will be held in Churchill, Manitoba, Canada, February 16-23, 1990. The purpose of the meeting is to provide an opportunity to share information that relates to winter environments. This task will be carried out with poster and oral presentations and also workshops in the field. As well as the seasoned veterans, the Centre would like to encourage the uninitiated enthusiast as an observer, and to participate in the workshops.

Presentations involving winter topics in the Atmospheric/Earth Sciences, Biological Sciences, and Social Sciences relating to aquatic/marine, alpine, boreal, forest-tundra, and tundra environments will be welcome.

Meals and accommodations are offered by the center; igloos will also be available. If your colleagues have been chiding you about attending too many meetings in chic resorts, this one will gain you new respect. For further information contact Churchill Northern Studies Centre, P.O. Box 610, Churchill, Manitoba, Canada R0B 0E0

**FIFTH FEDERAL INTERAGENCY
SEDIMENTATION CONFERENCE**

The Fifth FISC, whose theme is "Practical Sediment Management: Issues and Answers" will provide scientists, engineers, and managers from various disciplines the opportunity to make presentations on developments in many areas of sedimentation. The role sediments play in transporting toxic substances and other pollutants, the increasing demand for energy, and growing water-supply problems are but a few of the issues facing the Nation at all levels. For this reason, the Fifth FISC will include papers from **state and local agencies, universities, and the private sector**, as well as from federal agencies.

The conference will be held in Las Vegas, NV, March 18-21, 1991, and is sponsored by the Subcommittee on Sedimentation of the Interagency Advisory Committee on Water Data of the Office of Water Data Coordination. Abstracts are due by December 15, 1989; manuscripts for papers selected are due by June 15, 1990. For information on Abstracts contact Dr. Shou-Shan Fan, Technical Program Chairman, 20427 Aspenwood Lane, Gaithersburg, MD 20879, (202) 376-9214; and for information on the Conference contact Robert T. Joyce, Conference Chairman, Tennessee Valley Authority, EB 3W 320A-K, Knoxville, TN 37902, (615) 632-6360.

**20TH ANNUAL GEOMORPHOLOGY SYMPOSIUM--
GEOMORPHIC EVOLUTION OF THE APPALACHIANS**

The 20th Annual Geomorphology Symposium will be held October 20-22, 1989, at Dickinson College, Carlisle, PA. An optional field trip on October 20 will be led by W.D. Sevon to see "Pennsylvania's Polygenetic Landscape". The symposium will explore our current understanding of the geomorphic evolution of the Appalachians. It is intended to bring together scientists from diverse backgrounds including tectonics, paleoclimatology, pedology, stratigraphy, and geomorphology to review current concepts, inspire creative new insights into the origin of the Appalachian landscape, and provide new directions for future research. The symposium celebrates the centennial of the publication in 1889 of William Morris Davis' classic paper on "The rivers and valleys of Pennsylvania." The abstract deadline has past, but if you haven't yet contacted the organizers and wish to receive the final notice and registration materials, please contact William D. Sevon, Pennsylvania Geological Survey, P.O. Box 2357, Harrisburg, PA 17120, (717) 787-6029.

QUATERNARY INTERNATIONAL

Nat Rutter (Chief) and Norm Catto (Associate) are editors of *Quaternary International*, the new journal of the International Union for Quaternary Research (INQUA). Their objectives are to publish a high quality scientific journal under the auspices of the premier Quaternary association that reflects the interdisciplinary nature of INQUA and records recent advances in Quaternary science that appeal to a wide audience. This series will encompass the full spectrum of the physical and natural sciences that are commonly employed in solving Quaternary problems. The policy is to publish peer-refereed collected research papers from symposia, workshops, and meetings sponsored by INQUA's Commission, Sub-Commission, and working groups. In addition, other organizations may request publication of their collected works pertaining to the Quaternary. Pergamon Press will publish the journal; subscription rates are US\$80 for one year, US\$152 for two years. In the U.S.A. and South and Central America, contact Pergamon at Maxwell House, Fairview Park, Elmsford, NY 10523. In Canada, Suite 271, 253 College St., Toronto, Ontario, Canada M5T 1R5.

XIII INQUA, 1991, CHINA

The first circular has been mailed out for the Thirteenth INQUA Congress, which will be held in Beijing, People's Republic of China, August 2-9, 1991. The circular includes a planning questionnaire, which is due December 1, 1989, abstract form, an extensive list of pre- and post-meeting field trips, and topics for symposia and special sessions. Symposia will be organized around themes related to global environmental changes and their relation with human activities, controversial problems of classic Quaternary research, Quaternary research in Asia and China, and applied Quaternary studies. The exact topics will be selected after processing the questionnaires and will be outlined in the second circular. **ONLY** those returning the first circular will receive the second circular. All correspondence and requests for information should be sent to:

Secretariat, XIII INQUA Congress
Chinese Academy of Sciences
52 Sanlihe, Beijing 100864, China
Tel: 868361-720
Cable: Beijing SINCADEMY
Telex: 22474 ASCHI CN
Telefax: 8011095

QUATERNARY BOOKS BY MAIL

A catalog of books about archaeology, geology and geoarchaeology, ecology and environmental archaeology, explorations of the West, and Indians and early Hispanics, is available from Janet Moore, Quaternary Books by Mail, P.O. Box 4, Beulah, Colorado 81023. Phone: (719) 485-3109. She will also try to locate out-of-print books.