



Quaternary Geologist and Geomorphologist

NEWSLETTER OF THE QUATERNARY GEOLOGY AND GEOMORPHOLOGY DIVISION

Volume 24, no. 2

June 1984

SLATE OF CANDIDATES FOR THE DIVISION BALLOT FOR 1984

A Nominating Committee composed of R. M. Bud Burke, Chairman, Thomas D. Hamilton, and Dale F. Ritter has compiled a slate of candidates for 1984. Nominees are:

Chairman.....Donald F. Eschman
First Vice-Chairman.....Gail M. Ashley
Second Vice-Chairman.....Victor R. Baker
 Kenneth L. Pierce
Secretary.....Richard F. Madole
Panel Members (1984-86).....John J. Clague
 Steven M. Colman
 John E. Costa
 Margaret J. Guccione
 George R. Hallberg
 W. Hilton Johnson

Nominees for the Division Panel are decided by the membership. The six persons receiving the most nominations from the membership are asked to have their names placed on the ballot. The three candidates receiving the most votes are selected for 2-year terms. The list of persons nominated for the Panel in 1984 includes:

Rachel M. Barker	John W. Hawley
W. S. Benninghoff	Stephen R. Hicock
Peter W. Birkeland	W. Hilton Johnson
John J. Clague	James C. Knox
Lee Clayton	Stephen P. Leatherman
Steven M. Colman	Michael N. Machette
John E. Costa	M. N. Melhorn
Robert R. Curry	Ernest H. Muller
John C. Dixon	Floyd R. Nave
Mark M. Fenton	Robert N. Oldale
Leon R. Follmer	Richard R. Parizek
Robert J. Fulton	Charles C. Rich
William L. Graf	William E. Scott
Margaret J. Guccione	George I. Smith
George R. Hallberg	Stanley M. Totten
	William J. Wayne

1984 KIRK BRYAN AWARD

Eight papers were nominated for the Kirk Bryan Award for 1984. The winning paper is that by Steven M. Colman entitled "Chemical weathering of basalts and andesites: Evidence from weathering rinds," published in 1982 as U.S. Geological Survey Professional Paper 1246, 51 pages.

The award will be presented at the Quaternary Geology and Geomorphology Division luncheon on November 7, 1984, during the Annual Meeting of the Geological Society of America in Reno, Nevada.

1984 MACKIN GRANT WINNERS

Fifteen applications were received for Mackin Grants for 1984. Of these, five were from M.S.-degree candidates and ten were from Ph.D.-degree candidates.

The Mackin Grant for a M.S.-degree candidate was awarded to Jim E. O'Connor, University of Arizona, for the study of paleohydrology and hydraulics as interpreted from geologic evidence, Boulder Creek, Utah, under the supervision of Victor R. Baker.

The Mackin Grant for a Ph. D. candidate went to Leonard Harvey Thorleifson, University of Colorado, for a study of the Quaternary stratigraphy of the Hudson Bay Lowlands under the supervision of John T. Andrews.

1983 CONTRIBUTIONS TO THE J. HOOVER MACKIN FUND

Contributions to the J. Hoover Mackin Fund in 1983:

Dwight L. Schmidt \$100

Contributions to the J. Hoover Mackin Fund may be made in any amount and sent to the Executive Director, The Geological Society of America, P.O. Box 9140, Boulder, CO 80301.

GLADYS W. COLE MEMORIAL RESEARCH AWARD

William L. Graf, Arizona State University, is the recipient of the Gladys W. Cole Memorial Research Award for 1984. The amount of the award this year is \$1200. It will be used for a study of the transport of heavy metal in sediments of arid-region rivers.

NOMINATIONS NEEDED FOR THE KIRK BRYAN AWARD FOR 1985

The Kirk Bryan Award will be made to the author or authors of a published paper of distinction advancing the science of geomorphology or some related field, such as Pleistocene geology. The paper constituting the basis of the award must fulfill the following requirements:

a. The paper will deal with geomorphology or with a bordering field, but related to geomorphology.

b. The paper will have been published not more than 5 years prior to its selection for the award. (Abridged from Council Rules, Policies, and Procedures, Geological Society of America, Inc., 1974.)

A member may nominate a paper for the Kirk Bryan Award at any time by identifying the paper and supplying a statement about its significance. Send the nomination to the Division Secretary, Richard F. Madole, U.S. Geological Survey, Box 25046, MS 966, Denver, CO 80225. Ideally, nominations for the Kirk Bryan Award for 1984 should be received by December 1, 1984.

**FRIENDS OF THE PLEISTOCENE ROCKY MOUNTAIN CELL
FIELD TRIP, AUGUST 10-11, 1984**

The Rocky Mountain Cell of the Friends of the Pleistocene will hold its annual field trip August 10-11, 1984. The trip will be a combined FOP-AMQUA trip to the northern Bighorn Basin. It will feature the fluvial and tectonic history of the last 2 million years. The classic terrace sequences of Mackin will be visited. Dating, from volcanic ashes and incision rates, and chronologic and climatic controls on soil development will be emphasized. Marith C. Reheis, Dale F. Ritter, and Robert C. Palmquist are the trip leaders. Participants are responsible for their own travel, accommodations, and meals. Unless you are confident that you are on the FOP mailing list, contact Marith C. Reheis, U.S.G.S. MS-913, Federal Center, Box 25046, Denver, Colorado, for more information.

**FRIENDS OF THE PLEISTOCENE PACIFIC CELL FIELD TRIP,
OCTOBER 12-14, 1984**

The Pacific Cell of the Friends of the Pleistocene will hold its annual field trip October 12-14, 1984. The trip is composed of three parts, as described below. For registration information, write Scott Ine--FOP, Department of Geography, 501 Earth Science Bldg., University of California, Berkeley, California 94720.

**Friday, October 12--Holocene stratigraphy and
chronology of East Meadow, Yosemite.** Spencer Wood,
trip leader.

Holocene meadow-fill deposits on the western slope of the Sierra Nevada contain a stratigraphic record strongly influenced by secular variations in climate and watershed hydrology. Perhaps the most representative and best exposed stratigraphic sequence beneath a Sierran meadow is found in East Meadow, near Aspen Valley in Yosemite National Park. Spencer Wood will lead the group to East Meadow, where we will examine a complete Holocene sequence of meadow-fill deposits, discuss meadow formation/hydrology/dynamics, consider the paleoclimatic implications of the meadow chronology, and view a tephra layer from the A.D. 700 eruption of the Mono Craters. This volcanic unit will be seen and discussed on a hike to the Gaylor Lakes later in the afternoon. Along the trail, Clyde Wahrhaftig will discuss his recent work on the Yosemite Ice Cap.

**Saturday, October 13--The past 4,000 years at Mono
Lake.** Scott Stine, trip leader.

During the past 4,000 years, the surface of Mono Lake has fluctuated over a vertical range of more than 130 feet in response to variations in climate. Sedimentary sequences exposed in recently dissected deltas, together with biotic, geomorphic, tephra-stratigraphic, radiometric, and historic evidence, permit a detailed reconstruction of these fluctuations. The lake level curve, in combination with tephra-stratigraphic evidence, can in turn be used to illuminate the history of volcanism associated with the islands of Mono Lake. This history includes no fewer than seven separate eruptive events, two of which (the eruption of a rhyodacite flow on Negit Island and the emergence of Paoha Island) occurred during the past 220 radiocarbon years. Scott Stine will lead the group to several sites around the shores of Mono Lake to examine evidence of lake level fluctuations and island volcanism.

**Sunday, October 14--Chronology and stratigraphy of
recent eruptions, Mono-Inyo Craters.** Kerry Sieh
and C. Dan Miller, trip leaders.

The final day of the FOP trip will be spent examining domes and near-vent tephra deposits associated with the most recent eruptions of the Mono-Inyo Craters. In the morning, Kerry Sieh will lead the group to road and stream cuts and quarry sites at the north end of the Mono Craters to view sections of air-fall, block-avalanche, and pyroclastic-flow deposits from the A.D. 700 and A.D. 1400 eruptions. Similar features, resulting from the three latest eruptive episodes of the Inyo Craters, will be seen in the afternoon when Dan Miller leads the group to the north end of Long Valley. We will end the trip at an observation point along Highway 395 where Dan will discuss volcanic hazards in the Long Valley-Mono basin area, and the geotectonic framework of the Mono-Inyo Craters and the volcanic islands of Mono Lake. We will adjourn by 5 p.m.

ALASKA QUATERNARY CENTER

The Alaska Quaternary Center (AQC) was established by the University of Alaska, Fairbanks, in 1983 to help coordinate the wide range of Quaternary research and instruction already present and to develop new programs and research activities. The AQC is a campus-wide organization, based within the University of Alaska Museum and governed by a five-member, elected, interdisciplinary board. The present AQC Board consists of Carl S. Benson, R. Dale Guthrie, David F. Murray, Wm. Roger Powers, and Robert M. Thorson (Executive Director).

The AQC provides a focus for a consortium of scientists, students, private individuals, and agencies interested in Quaternary studies. Our overall objective is to enhance interdisciplinary research and instruction in the natural sciences by (1) providing a visiting professor and visiting scientist program, (2) promoting opportunities for Quaternary research within the existing academic departments and research institutes, and (3) serving as a clearing house for events and findings of interest to scientists throughout the world.

Alaska is an ideal natural laboratory for Quaternary research because of the great diversity of present climates, terrains, and surficial processes. Evidence of former environmental conditions is particularly well preserved and available for study because of permafrost and reduced rates of organic decomposition. The University of Alaska, Fairbanks, is an exciting place for Quaternary studies because of its central location and its strong programs in the natural sciences and northern studies. Most research focuses on physical and biotic processes occurring in the arctic and subarctic climates and on the changes in such processes over time.

For more information about academic degree programs, research activities, or visiting scientist programs, please contact the Alaska Quaternary Center, University of Alaska Museum, Fairbanks, AK 99701 (907) 474-7818.

REMINDER

If you plan to attend the annual meeting in Reno, Nevada, November 5-8, remember to vote absentee in the national and local elections before leaving home. Election day is Tuesday, November 6, but deadlines for request for absentee ballots may be as early as June. Check with your County Election Board.

RENO MEETING

DIVISION COCKTAIL PARTY AT RENO

The first annual QG and G Division cocktail party is scheduled for the evening of Tuesday, November 6, 1984, during the annual meeting in Reno. A cash bar will be provided. Consult the Program of Events section of the Abstracts with Programs book for the specific time and place. Our thanks to Gail M. Ashley and Thomas D. Hamilton who suggested this event.

DIVISION SYMPOSIUM AT THE RENO MEETING

The Engineering Geology Division and the Quaternary Geology and Geomorphology Division will co-sponsor a full-day symposium at the 1984 Reno meeting. The title of the symposium is "Debris flows/debris avalanches: process, sedimentology, and hazard mitigation."

In the past decade, debris flows have been the most persistent and significant mass movement in the United States. It is truly a problem of national scale as demonstrated by the wide geographic coverage of study areas. A great deal of new and original work has been accomplished on the processes, sedimentology, and mitigation of debris flows, and it seems appropriate that the Engineering Geology Division and the Quaternary Geology and Geomorphology Division should sponsor a day-long symposium summarizing this work.

The co-conveners are:

Engineering Geology Division

Gerald F. Wieczorek
U.S. Geological Survey, MS 98
Menlo Park, CA 94025
415/856-7113

Quaternary Geology and Geomorphology Division

John E. Costa
U.S. Geological Survey, MS 413
Denver, CO 80225
303/234-2320

Speakers and topics for GSA Debris-Flow Symposium include:

- Daniel E. Lawson (U.S. Army Cold Regions Research and Engineering Laboratory, Hanover, New Hampshire) Sediment flows at active glaciers, Alaska
- John E. Costa and Thomas C. Pierson (U.S. Geological Survey, Denver, Colorado) Classification of sediment flows
- Thomas C. Pierson (U.S. Geological Survey, Denver, Colorado) Why debris flows stop
- Jay Melosh (Department of Planetary Science, University of Arizona, Tucson) Acoustical generation of debris flow
- R. Craig Kochel (Department of Environmental Science, University of Virginia, Charlottesville) Debris avalanche frequency and stratigraphy in northern Virginia
- Hugh H. Mills (Department of Earth Science, Tennessee Tech University, Cookeville) Debris avalanche deposits and stratigraphy in southern Appalachians
- Waite R. Osterkamp and Cliff R. Hupp (U.S. Geological Survey, Reston, Virginia) Dating debris flows at Mount Shasta with vegetation
- G. Michael Clark (Department of Geological Sciences, University of Tennessee, Knoxville) Debris flows/slides in southern Appalachians
- Cheng-lung Chen (U.S. Geological Survey, Gulf Coast Hydrologic Center Mississippi) Debris-flow modeling
- Kevin M. Scott (Irving, California) Sedimentology of debris flows
- Arvid M. Johnson (Department of Geology, University of Cincinnati) A model for debris flow

- Wade G. Wells (U.S. Forest Service, Pacific Southwest Forest and Range Experiment Station, Glendora, California) Effects of brush fires on generation of debris flows in southern California
- Lionel E. Jackson (Geological Survey of Canada, Vancouver, British Columbia) Debris flow hazard identification in the Canadian Rockies
- Ted C. Smith (California Division of Mines and Geology, San Francisco, California) Delineating areas susceptible to debris flows near Pacifica, California
- William Dietrich (Department of Geology, University of California Berkeley) Importance of colluvium-filled bedrock depressions to debris-flow studies
- Dan Neary (Soil Science Department, University of Florida Gainesville) Debris avalanching in the southern Appalachians
- Gerald F. Wieczorek (U.S. Geological Survey, Menlo Park, California) Rainfall thresholds for triggering debris flows in the San Francisco Bay region
- Stephen Ellen (U.S. Geological Survey, Menlo Park, California) Mobilization of soil slip-debris flows
- Roy J. Shlomon and Robert H. Wright (Newport Beach, California) Using soil stratigraphy to date debris flows
- Robert A. Hollingsworth (Kovacs-Byer and Associates, Studio City, California) Design of debris-flow mitigation measures

GROUND-WATER GEOMORPHOLOGY; THE ROLE OF UNDERGROUND WATER IN EARTH-SURFACE PROCESSES AND LANDFORMS

Charles G. Higgins and Donald R. Coates have organized a symposium on the role of subsurface water in geomorphic processes and landform development for the annual meeting in Reno, November 5-8. In the words of the organizers, the purpose of the symposium is to outline a previously neglected subdiscipline of geomorphology, and is to alter geomorphologists' perception of the relative roles of surface and subsurface water. "The 'fluvial doctrine' has dominated geomorphic thought ever since geomorphology emerged as a field of study in the late 19th century. Only recently has it become clear that the importance of subsurface water in earth surface processes may rival that of surface water in the development of certain landforms, at least in some regions." The list of speakers and topics includes:

INTRODUCTION: C. G. Higgins and D. R. Coates

- Milan J. Pavich and Helaine W. Markewich, "The role of soil water in weathering, soil development, and landscape lowering; an example from the southeastern Piedmont."
- Thomas Dunne, "Hydrology of subsurface erosion processes."
- J. David Rogers and William E. Dietrich, "The role of water in mass wasting and slope failure."
- Gerald G. Parker, Sr., "Piping and pseudokarst."
- William B. White, "Infiltration, internal runoff, and differential sculpturing of surface and near-surface karst landforms."
- Arthur N. Palmer, "Effects of ground-water dynamics and chemistry on karst geomorphology."
- Charles E. Sloan, "Influence of ground ice on the geomorphology of permafrost regions."
- Troy L. Pêwé, "Land subsidence and earth fissure formation, with examples from Arizona."

(continued on p. 4)

Victor R. Baker and R. Craig Kochel, "Valley network development by spring sapping."
 James M. Robb, "Ground-water discharge and spring sapping on the eastern United States continental slope."
 Robert M. Norris, "Sea cliff erosion by ground-water outflow."
 Charles G. Higgins, "Seepage erosion and regional scarp retreat."
 Edward A. Keller, D. W. Best, and C. G. Moses, "Geomorphic effects of ground water on channel form and process: Selected observations."
 Donald R. Coates, "Geomorphic controls of ground-water hydrology."

SUMMARY AND DISCUSSION: D. R. Coates and C. G. Higgins

FIELD TRIPS OF INTEREST, ANNUAL MEETING, RENO, NOVEMBER 1984

- Trip 12--Engineering Geology of Slide Mountain Rock Slide and Ophir Creek Debris Flow. Robert J. Watters, Mackay School of Mines. One day, November 4.
 Trip 13--Archaeological Geology of Hidden and Lovelock Caves, with an Overview of Quaternary Geology in the Lahontan Basin. Jonathan O. Davis, Desert Research Institute, Reno; Roger B. Morrison, Golden. Two days, November 3, 4.
 Trip 14--Quaternary Stratigraphy of the Eastern Mojave Desert. John C. Dohrenwend, USGS, Menlo Park; Stephen G. Wells and Leslie D. McFadden, University of New Mexico, Albuquerque; Roger S. U. Smith, Austin. Three days. November 9, 10 11.
 Trip 18--Neotectonics of Western Nevada. David B. Stemmons, Mackay School of Mines, Reno; John W. Bell, Nevada Bureau of Mines and Geology, Reno; Robert Wallace, USGS, Menlo Park. Two days, November 9, 10.

THE 15TH ANNUAL GEOMORPHOLOGY SYMPOSIUM

"Tectonic Geomorphology" is the theme of the 15th Annual Geomorphology Symposium to be held Friday and Saturday, September 28-29, 1984, at the State University of New York at Binghamton. The symposium is being organized by Marie E. Morisawa and John T. Hack. The preliminary list of speakers and topics includes:

- John Adams (Geological Survey of Canada, Ottawa) Large-scale tectonic geomorphology of the Southern Alps, New Zealand
 William Bull (University of Arizona, Tucson) Uplifted marine terraces, South Island, New Zealand
 Ran Gerson (Hebrew University, Jerusalem) Stages in the creation of a large rift valley--geomorphic evolution of the southern Dead Sea rift
 Thomas Gardner (Pennsylvania State University, University Park) Geomorphic indications of vertical tectonism along converging plate margins, Necoan Peninsula, Costa Rica
 Larry Mayer (Miami University, Oxford, Ohio) Tectonic geomorphology of the Basin and Range--Colorado Plateau boundary in Arizona
 Wayne Newell (U.S. Geological Survey, Reston) Architecture of the Rappahannock Estuary--neotectonics in Virginia
 Theodore Oberlander (University of California, Berkeley) Tectonics and stream deformation, Zagros Mountains

- Cliff Ollier (University of New England, Armidale, Australia) Morphotectonics of Continental Margins
 Yoko Ota (Yokohama National University, Japan) Marine terraces and their tectonic implications
 M. Pavich and H. Markewich (U.S. Geological Survey, Reston) Appalachian Piedmont morphogenesis, weathering, erosion, and Cenozoic piedmont uplift
 James Peterson (Southwest Texas State University, San Marcos) An equilibrium tendency model of piedmont scarp denudation, Wasatch Front, Utah
 Thomas Rockwell, E. A. Keller, D. L. Johnson, and G. R. Dembroff, Role of active tectonism in the formation, evolution, and deformation of alluvial fans in the central Ventura Basin, California
 David Russ (U.S. Geological Survey, Reston) Tectonic geomorphology of the northern Mississippi embayment: Application to the understanding of earthquakes
 M. Strecker (Cornell University, Ithaca) Tectonic geomorphology of the Sierras Pampeanas, northwest Argentina
 M. Summerfield (University of Edinburgh, Scotland) Plate tectonics and the evolution of the African landscape
 I. Karcz (Israel Geological Survey, Jerusalem) Integrative approach to the study of recent crustal movements
 Mukang Han (University of Peking, China) Tectonic geomorphology in China

For information about the 15th Annual Geomorphology Symposium write Professor Marie E. Morisawa, Department of Geological Sciences and Environmental Studies, State University of New York at Binghamton, Binghamton, New York 13901

FIRST CONFERENCE ON SINKHOLES

The First Multidisciplinary Conference on Sinkholes will be held October 15-17, 1984, in Orlando, Florida. The conference is sponsored by the Florida Sinkhole Research Institute. Topics include case histories, causes, advance detection, site evaluation, engineering precautions, repair and stabilization, and effects on man. For information write: University of Central Florida, College of Extended Studies, Orlando, Florida 32816-0177.

QUATERNARY GEOLOGY OF THE SOUTH-CENTRAL UNITED STATES

Margaret J. Guccione is organizing a symposium on the Quaternary geology of the south-central United States to be held at the meeting of the South-Central Section of the Geological Society of America in Fayetteville, Arkansas, April 15-16, 1985. If you are interested in presenting a paper or attending such a symposium contact Margaret (Peggy) at the Department of Geology, the University of Arkansas, Fayetteville, Arkansas 72701. The deadline for abstracts is November 21, 1984. Abstracts should be prepared on GSA forms and sent to M. J. Guccione at the address listed above.

DEADLINE FOR RECEIPT OF NEWSLETTER NEWS

Newsletters will be mailed in early January and again in June. Members wishing to use the newsletter as a means of announcing field trips, meetings, or other information are urged to provide the Division Secretary with the information by November 20 for inclusion in the January Newsletter and by May 1 for inclusion in the June Newsletter.

MACKIN GRANT COMMITTEE EXPANDED

A decision to expand the Mackin Grant evaluation committee was made at the Division Management Board annual meeting held in Indianapolis, November 1983. Previously, Mackin Grant applications were evaluated by the four division officers. The changes made and their objectives are explained in the following excerpts from the Secretary's Report to Council, May 1984.

The change from a point system to a ranking system for evaluating the Mackin Grants adopted at the New Orleans meeting in 1982, failed to satisfactorily solve the problems that prompted the change. The correspondence between Management Board members over this failure produced several useful suggestions and raised questions about whether or not policies employed in the past should be continued. The principal policy questions concerned: (a) should institutions and advisers who have more than one student applying for a Mackin Grant be required to rank their students, and (b) should Management Board members who are also the adviser of a Mackin Grant applicant be involved in the grant evaluation process?

In the past, institutions and advisers who had more than one student applying for a Mackin Grant have been required to rank their students. Opinion was divided about the desirability of continuing this policy. As noted by John Andrews, the quality of the students and the diversity and significance of their research is commonly such that a fair comparison and ranking is difficult, if not impossible. Madole commented on the tendency for the ranking system to eliminate from further consideration all applicants other than those ranked first by their institution or adviser.

In the past, Management Board members whose own students were among the applicants for Mackin Grants did not rate the applications of their own students. However, in a system where applicants are ranked rather than rated by points, which was the system put into practice in 1983, an adviser's ranking or lack of ranking has an obvious impact on the final standing of their student. Not ranking their student makes that student last by default, and disregarding the entire ballot of that Management Board member may be detrimental to other students who were ranked high on that ballot.

Easterbrook discussed the history and rationale for the policies followed in the past. Andrews suggested that when a Management Board member has a student applying for a Mackin Grant that they or the Division Chairman find a substitute to take their place on the evaluation panel. Eschman suggested that the evaluation panel be expanded to a committee. Andrews stressed that if that committee was expanded, the process for selecting committee members should be kept flexible, noting that this might be accomplished best by simply having the Chairman and Secretary add committee members as needed. In conclusion, it was agreed that an expanded committee, not to exceed seven, to which appointments and substitutions could be made as needed, would eliminate the need for institutions and advisers to rank students and the need for advisers to be involved with ranking their own students."

As a consequence of this action, a few members will be needed annually to serve as at-large members on the Mackin Grant Committee. Hopefully, you will answer yes when the Chairman asks for your services. The work amounts to evaluating and scoring about fifteen applications, each of which is four pages long, not counting transcripts.

John E. Costa was the first to serve as an at-large committee member. Our thanks to him for his willingness to help, especially in view of the short notice given.

PAST RECIPIENTS OF THE MACKIN GRANT

During the first decade of the Mackin Grant Program, 14 individuals were awarded grants. The grant recipients, their institutional affiliation, and research topics are listed below.

- 1974 -- **Louis D. Carter**, University of Southern California, "Quaternary geology in Baja California".
- 1975 -- **Phillip 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 -- **Lucy L. Foley**, Western Washington University, "Loess and paleosol stratigraphy in eastern Washington".
- 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".

MEETINGS

August 4-14, 1984

27th International Geological Congress, Moscow, USSR, Information: Secretary General, 27th International Geological Congress, Institute of the Lithosphere, USSR Academy of Sciences, 22, Staromonetny, Moscow, 109180, USSR; 231-48-36; Telex: LITOS 411484

August 13-15, 1984

American Quaternary Association Eighth Biennial Meeting, Boulder, Colorado. Information: AMQUA, Office of Conference Services, Campus Box 153, University of Colorado, Boulder, CO 80310; (303) 492-5151

November 5-8, 1984

Geological Society of America and Associated Societies Annual Meeting, Reno, Nevada. Information: The Geological Society of America, P.O. Box 9140, Boulder, CO 80301; (303) 447-2020

PAST PANELS

1957-59

S. Judson
J. C. Frye
W. D. Thornbury
J. T. Hack
A. N. Strahler
A. D. Howard

1964-65

S. A. Schumm
A. N. Strahler
S. E. White
*W. C. Bradley
J. H. Mackin
D. R. Crandell
D. F. Eschman

1969-70 (Jan.)

W. C. Bradley
A. L. Bloom
R. L. Shreve
D. R. Crandell
S. C. Porter
A. L. Washburn

1973-74

J. T. Andrews
W. B. Bull
J. H. Hartshorn
P. B. Birkeland
L. Clayton
M. Morisawa

1978-79

J. B. Benedict
W. R. Farrand
S. E. White
J. E. Armstrong
P. W. Birkeland
K. L. Pierce

PAST CHAIRMEN OF THE DIVISION

1983 J. T. Andrews
1982 T. L. Pewe
1981 M. Morisawa
1980 S. A. Schumm
1979 W. B. Bull
1978 A. L. Bloom
1977 W. C. Bradley
1976 L. H. Lattman
1975 R. L. Nichols
1974 D. R. Crandell
1973 H. E. Malde
1972 R. F. Flint
1971 R. P. Goldthwait
1970 D. M. Hopkins
1969 A. D. Howard
1968 W. D. Thornbury
1967 H. E. Wright, Jr.
1966 R. F. Black
1965 G. M. Richmond
1964 A. L. Washburn
1963 L. B. Leopold
1962 J. G. Fyles
1961 J. T. Hack
1960 C. S. Denny
1959 G. W. White
1958 G. W. White
1957 J. H. Mackin
1956 J. H. Mackin
1955 E. Blackwelder

1959-61

L. B. Leopold
J. P. Miller
G. M. Richmond
R. P. Sharp
M. G. Wolman
J. M. Zumberge

1965-66

A. L. Bloom
J. T. Hack
C. A. Wahrhaftig
S. A. Schumm
A. N. Strahler
S. E. White

1969-70 (Nov.)

P. W. Birkeland
H. W. Borns, Jr.
D. J. Easterbrook
W. C. Bradley
A. L. Bloom
R. L. Shreve

1974-75

J. T. Andrews
W. B. Bull
J. H. Hartshorn
W. H. Johnson
K. L. Pierce
J. W. Hawley

1979-80

J. E. Armstrong
P. W. Birkeland
K. L. Pierce
G. M. Ashley
R. P. Goldthwait
R. J. Janda

1961-62

R. F. Black
R. P. Goldthwait
H. E. Wright, Jr.
C. S. Denny
R. L. Nichols
A. N. Strahler

1966-67

W. C. Bradley
D. F. Eschman
E. H. Muller
A. L. Bloom
J. T. Hack
C. A. Wahrhaftig

1970-71

P. W. Birkeland
H. W. Borns, Jr.
*D. J. Easterbrook
M. Morisawa
J. H. Hartshorn
R. V. Ruhe
S. E. White

1975-76

W. H. Johnson
K. L. Pierce
J. W. Hawley
P. W. Birkeland
E. H. Muller
S. C. Porter

1980-81

G. M. Ashley
R. P. Goldthwait
R. J. Janda
E. B. Evenson
A. F. Schneider
G. I. Smith

1962-63

E. H. Muller
R. R. Shaffer
C. A. Wahrhaftig
R. F. Black
R. P. Goldthwait
H. E. Wright, Jr.

1967-68

J. H. Hartshorn
T. L. Pewe
M. G. Wolman
W. C. Bradley
D. F. Eschman
E. H. Muller

1971-72

J. H. Hartshorn
R. V. Ruhe
S. E. White
R. R. Curry
R. J. Janda
S. C. Porter

1976-77

P. W. Birkeland
E. H. Muller
S. C. Porter
J. T. Andrews
V. R. Baker
M. Morisawa

1981-82

E. B. Evenson
A. F. Schneider
G. I. Smith
R. F. Black
J. H. Hartshorn
N. W. Rutter

1963-64

W. C. Bradley
D. R. Crandell
D. F. Eschman
E. H. Muller
P. R. Shaffer
C. A. Wahrhaftig

1968-69

D. R. Crandell
S. C. Porter
A. L. Washburn
J. H. Hartshorn
T. L. Pewe
M. G. Wolman

1972-73

P. W. Birkeland
L. Clayton
M. Morisawa
R. R. Curry
R. J. Janda
S. C. Porter

1977-78

J. T. Andrews
V. R. Baker
M. Morisawa
J. B. Benedict
W. R. Farrand
S. E. White

1982-83

R. F. Black
T. H. Hamilton
J. H. Hartshorn
R. C. Palmquist
D. F. Ritter
N. W. Rutter

*resigned to accept office



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