



Quaternary Geologist and Geomorphologist

NEWSLETTER OF THE QUATERNARY GEOLOGY AND GEOMORPHOLOGY DIVISION

Volume 40, Number 2

September 1999

DIVISION AWARDS

KIRK BRYAN AWARD

William L. Graf, Department of Geography-Arizona State University, is the recipient of the 1999 Kirk Bryan Award for his book entitled *Plutonium and the Rio Grande: Environmental Change and Contamination in the Nuclear Age* (1994, Oxford University Press, 329 p.). The award will be presented at the Division meeting on the Tuesday evening during the GSA Annual Meeting in Denver this October. The citationist is Andrew Marcus.

Recent recipients of the Kirk Bryan Award . . .

1998 **Vance Holliday**. *Stratigraphy and Paleoenvironments of Late Quaternary Valley Fills on the Southern High Plains*: GSA Memoir 186, 1995.

1997 **Grant Meyer, Stephen Wells, and Timothy Jull**. *Fire and alluvial chronology in Yellowstone National Park: climate and intrinsic controls on Holocene geomorphic processes*: Geological Society of America Bulletin 107: 1211-1230.

1996 **Roger P. Saucier**. *Geomorphology and Quaternary stratigraphy of the Lower Mississippi River Valley*: US Army Corps of Engineers, v. 1 (364 p.), v. 2 (map folio), 1994.

1995 **James E. O'Connor**. *Hydrology, hydraulics and geomorphology of the Bonneville Flood*: Geological Society of America Special Paper 274, 90 p., 1993.

1994 **Arthur N. Palmer**. *Origin and morphology of limestone caves*: Geological Society of America Bulletin 103: 1-21, 1991.

1993 **William B. Bull**. *Geomorphic responses to climate change*: Oxford University Press, 326 p., 1991.

1992 **Dale Guthrie**. *Frozen Fauna of the Mammoth Steppe: The Story of Blue Babe*: University of Chicago Press, 323 p., 1990.

1991 **Milan J. Pavich**. *Processes and rates of saprolite production and erosion on a foliated granitic rock of the Virginia Piedmont*, in Colman and Dethier, eds., *Rates of Chemical Weathering of Rocks and Minerals*: Academic Press, p. 552-590, 1986.

1990 **Victor K. Prest**. *Late Wisconsinan and Holocene history of the Laurentide ice sheet*: *Geographie Physique et Quaternaire* 41: 237-262, 1987.

The first Kirk Bryan Award went to **Luna B. Leopold** and **Thomas J. Maddock, Jr.**, in 1958 (*The hydraulic geometry of stream channels and some physiographic implications*: U.S.G.S. Professional Paper 252, 57 p.)

Nominations for the 2000 Kirk Bryan Award will be accepted until December 1, 1999. The Kirk Bryan Award is given for a single or multi-authored paper or book published within the past five years. Nominations should be submitted in writing and provide a statement about the significance of the publication. Please send your nomination letters to the Division secretary, Alan R. Nelson, Geologic Hazards Team, Central Region, U.S. Geological Survey, MS 966, P.O. Box 25046, Denver, CO 80225 (anelson@usgs.gov)

DISTINGUISHED CAREER AWARD

Troy Péwé will be honored for the 1999 Distinguished Career Award. The citationists are John Westgate and Randy Updike. The award will be presented at the Division meeting on the Tuesday evening during the GSA Annual Meeting in Denver.

Past recipients of the Distinguished Service Award and their respective citationists . . .

1998 **Dale F. Ritter**

Jerry Miller

1997 **Stanley A. Schumm**

Ellen Wohl

1996 **Robert P. Sharp**

A. Gillespie,

D. Easterbrook

1995 **David M. Hopkins**

J. Brigham-Grette

1994 **William C. Bradley**

J. Andrews,

P. Birkland, N. Caine, J.

Pitlick

1993 **Victor K. Prest**

D.A. St. Onge

1992 **Herbert E. Wright, Jr.**

A.R. Schneider

1991 **Luna Leopold**

M.G. Wolman

1990 John T. Hack	M.G. Wolman
1989 Clyde Wahrhaftig	R. Janda
1988 A. Lincoln Washburn	S.C. Porter
1987 Aleksis Dreimanis	S.R. Hickok, P.F. Karrow
1986 Richard P. Goldthwait	D.M. Mickelson

J. HOOVER MACKIN AWARD WINNERS

Sarah Konrad, Univ. of Wyoming (Neil Humphrey)
Flow dynamics of Galena Creek Rock Glacier, Absaroka Mountains (skon@uwyo.edu).

Stephen Thompson, Univ. of Washington (Alan Gillespie, Ray Weldon) *Luminescence dating to evaluate hydrologic change, fold growth, and fault slip, Tien Shan, Kirgiz Republic* (stevet@u.washington.edu).

The winners each receive \$2,000 and will be presented with a plaque during the Division business meeting in Denver.

Honorable Mentions for 1999 Mackin Award:

Matthew Lachniet, Syracuse Univ. (Geoffrey Seltzer)
Late Quaternary paleoclimate derived from Costa Rican lake deposits (mlachnie@syr.edu).

Jeffrey Munroe, Univ. of Wisconsin-Madison (Dave Mickelson) *Late-Quaternary history of the Uinta Mountains, northeastern Utah* (jmunroe@geology.wisc.edu)

Catherine Yansa, Univ. of Wisconsin-Madison (Vance Holliday) *Vegetation and climate change in the northeastern Great Plains during the late Pleistocene and Holocene: pollen and plant macrofossils* (cyansa@geography.wisc.edu)

Honorable Mentions will each receive a plaque at the division business meeting.

ARTHUR D. HOWARD AWARD WINNER

Robert Burrows, Western Washington Univ. (Doug Clark, Don Easterbrook) *Glacial chronology and paleoclimatic significance of Swift Creek and Shuksan Creek cirque moraines, North Cascade Range* (moraineboy@hotmail.com)

The winner will receive \$1,800 and a plaque at the business meeting.

Honorable Mentions for 1999 Howard Award:

Michele Koppes, Univ. of Washington (Bernard Hallet) *Calving retreat and the paleoclimatic signature: sediment accumulation from tidewater glaciers* (koppes@u.washington.edu)

John Van Hoesen, Univ. of Nevada-Las Vegas (Brenda Buck) *Assessing the potential of stable isotopic analysis of pedogenic gypsum as a paleoclimate indicator* (igv@nevada.edu)

The Honorable Mentions will receive a plaque at the business meeting.

DIVISION OFFICERS AND PANEL MEMBERS

Newly Elected! **Officers for 1999-2000**

Chair	Peter U. Clark
First Vice-Chair	R. Craig Kochel
Second Vice-Chair	Deborah R. Harden
Secretary	Alan R. Nelson
Treasurer	Scott Burns

Division Panel Members (new for 1999-2001)

Marith C. Reheis
E. Arthur Bettis III
Peter U. Knuepfer

The Division greatly appreciates the support of the members who were also on this year's ballot: Paul Bierman, Frank Pazzaglia, and Rich Whittecar.

Currently serving the Division . . . **Officers for 1998-1999**

Chair	Ardith K. Hansel
First Vice-Chair	Peter U. Clark
Second Vice-Chair	R. Craig Kochel
Secretary	Alan R. Nelson
Treasurer	J. Steven Kite

Division Panel Members

Retiring for 1997-1999:

Jennifer Harden
Raymond "Bud" Burke
Ernest H. Muller

Continuing for 1998-2000:

Julie Brigham-Grette
Donald T. Rodbell
Jim E. O'Connor

Nominations for the Panel Ballot . . .

If you are attending the Denver Meeting, be certain to attend the division's business meeting and awards reception Tuesday evening (7-11) in the Convention Center. Nominations for the panel ballot will be solicited at the meeting, so think about nominees.

DIVISION FINANCIAL REPORT

1999 ANNUAL MEETING, DENVER

Division Fund

Revenue Sources	
Division Dues Income	\$5,042.00
Total	\$5,042.00

Expenses	
Annual meeting	
Newsletter & labels	\$1,169.05
Total expenses	\$1,169.05

Net Income/(Loss)	\$3,872.95
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Net Assets	
Net Assets beginning of year	(\$206.87)
Net Income/(Loss), current year	<u>\$3,872.95</u>

Unrestricted Net Assets, year to date (For the six months ending June 30, 1999)	\$3,666.08
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Kirk Bryan Award Fund

Temporary Restricted Net Assets 1/1/99	\$31,845.48
Investment Management Fees	-65.22
Investment Interest	335.36
Investment Dividends	57.62
Net Realized/Unrealized Capital Gain	5,577.28
Total Temporary Restricted Net Assets as of 6/30/99	\$37,750.52
Permanently Restricted Net Assets 1/1/99	<u>\$14,641.70</u>
Total Net Assets as of 6/30/99	\$52,392.22

J. Hoover Mackin Award Fund

Fund Balance as of 12/31/98	\$52,978.20
Income	
Contributions	125.00
Interest and Investment Gain	2,341.76
Unrealized Gain	2,313.51
Total Income	4,780.27

Expenses	
Fund Disbursement	\$4,000.00
Service Charges	72.82
Total Expenses	\$4,072.82

Fund Balance as of 6/30/99	\$53,685.65
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Arthur D. Howard Award Fund

Fund Balance as of 12/31/98	\$47,978.84
Income	
Contributions	300.00
Interest and Investment Gain	2,071.51
Unrealized Gain	2,034.46
Total Income	\$4,405.97

Expenses	
Fund Disbursement	\$1,800.00
Service Charges	66.24
Total Expenses	\$1,866.24

Fund Balance as of 6/30/99	\$50,518.57
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Respectfully submitted, J. Steven Kite, Treasurer

Technical Program Highlights for QG&G members:

Saturday, Sunday, Oct 23-24

F-7 200,000 Years of Climate Change Recorded in eolian Sediments of the High Plains of Eastern Colorado and Western Nebraska (Field Trip)

T-102 Perspectives on Our Ancestors: Old World and New World Human Populations (AM)

Monday, Oct 25

T-50 North Atlantic Crossroads: Terrestrial and Marine Environmental Records of Iceland: Posters (AM)

T-53 Shallow Subsurface Mapping: Using Geophysics for Geological, Groundwater Resource and Contamination Studies (Posters, AM; Oral, PM)

T-55 Surficial Three-Dimensional Geologic Mapping: Basic Map Products and Applications: Posters (AM)

D Quaternary Geology and Geomorphology Posters (AM)

T-49 Glaciation and Reorganization of Asia's Network of Drainage: The Effects on Late Quaternary Global Change (PM)

Tuesday, Oct 26

T-47 Geomorphic and Ecological Responses to Natural and Anthropogenic Disturbances (AM, PM)

T-51 Landscape Erosion and Sedimentation Modeling (PM)

T-54 Subglacial Processes and the Behavior of Ice Sheets (AM, PM)

D Quaternary Geology and Geomorphology I (PM)

T-92 Sediments in Karst Systems: Processes, Mechanisms, Interpretation (Oral, AM; Posters, PM)
QG&G Division Business Meeting (7-11pm)

Wednesday, Oct 27

K-7 The Case of Steady-State Mountain Belts: Obligations, Models, and Implications for Global Tectonics (AM)

T-46 Fire and Ecology: Surface Processes and Stratigraphic Records (AM)

T-50 North Atlantic Crossroads: Terrestrial and Marine Environmental Records of Iceland (AM)

D Quaternary Geology and Geomorphology II (PM)

Thursday, Oct 28

K-2 Human Transformation of the Physical Landscape (PM)

T-46 Fire and Ecology: Surface Processes and Stratigraphic Records: Posters (AM)

T-48 Integrated Landscapes: The Colorado Front Range (AM)

T-52 Geological and Biological Evidence for Late Cenozoic Drainage Rearrangements in North America: Implications for Aquatic Biogeography (AM, PM)

- T-56 The Case for Steady-State Mountain Belts: Obligations, Models, and Implications for Global Tectonics: Posters (AM)
D Quaternary Geology and Geomorphology III, IV (AM, PM)

IN CASE YOU MISSED IT

GSA DIVISIONS—Do you Belong?

Quaternary Geology and Geomorphology Division

Ardith K. Hansel, Division Chair,
hansel@isgs.uiuc.edu.

The second largest GSA division, the Quaternary Geology and Geomorphology Division (QG&G) will be 45 years old in 2000. The division brings together a diverse and interdisciplinary group of more than 1,350 earth scientists who study the Quaternary record and surficial processes. At the GSA Annual Meeting, our scientists present ideas and discuss problems, honor colleagues for their research and publications and advise the officers and committees of GSA about Quaternary geology and geomorphology.

The division's award program promotes research and recognizes excellence in Quaternary geology and geomorphology. Two awards assist students: the J. Hoover Mackin Research Grant for Ph.D. research and the Arthur D. Howard Grant for M.S. research. The Distinguished Career Award recognizes demonstrated excellence and contributions to Quaternary geology and geomorphology. QG&G is also active in selecting recipients for two GSA awards, the Kirk Bryan Award, for a published paper of distinction advancing the science of geomorphology, and the Gladys W. Cole Memorial Research Award, for support of research on semi-arid and arid terrains. Two new awards have been established. This year, the first Farouk El-Baz Award will recognize an outstanding contribution in desert research. In 2000, the first Don J. Easterbrook Distinguished Scientist Award will honor unusual excellence in published research in Quaternary geology and geomorphology.

Quaternary geology and geomorphology is an integral and growing part of GSA. Check out the QG&G technical program and field trips at the 1999 GSA Annual Meeting in Denver in October. Awards are presented at the annual reception held on Tuesday evening. You are invited to join OG&G. We are always looking for new members, especially students.

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1998 Geoscience Highlights from GEOTIMES

QUATERNARY GEOLOGY

Quaternary geologists continue to seek sediment records indicative of paleoclimatic and other environmental fluctuations for the last 2.4 Ma. Critical to this effort are reliable methods for dating and sediments. In the last decade, the tandem accelerator mass spectrometer (AMS) has allowed for accurate dating of extremely small samples, stimulating the re-examination of a number of Quaternary records with sediment containing detrital organic matter.

Ice-core and marine records

In recent years, ice-core records from Greenland and sediment cores from the North Atlantic have provided geochemical climate proxies that signal rapid oscillations in climate (so-called Dansgaard-Oeschger and Heinrich events), particularly during glacial episodes and their transitions. During the past year, progress made in dating ice cores from Antarctica has reopened the question of whether the Northern and Southern hemispheres experienced climate change simultaneously (*Science*, v. 282, p. 92; *Nature*, v. 395, p. 739). Similarly, Rignot's report of the rapid retreat of Pine Island Glacier, West Antarctica (*Science*, v. 281, p. 549), has questioned, like that of increased iceberg calving a few years ago, whether this event is a unique, short-lived phenomenon or a signal of wider, long-term ice-sheet disintegration. Additionally, a new explanation has been offered, for what may have triggered massive iceberg calving episodes (Heinrich events) that left behind ice-rafted material in the North Atlantic during the disintegration of the Laurentide ice sheet. Malin and Hunt (*Nature*, v. 393, p. 155) have suggested that "earthquake-related unloading of the ice sheet" may have triggered Heinrich events, but this hypothesis requires more research. Marine records from Reykjanes Ridge, southeast of Greenland, indicate some synchronicity of iceberg discharges from the Scandanavian, Laurentide, and Greenland ice sheets into the North Atlantic (*Quaternary Research*, v. 49, p. 17). Recent analysis of ice-core and marine records has stimulated Quaternary geologists to search for comparable terrestrial records to complement the marine and ice-core records.

Correlation studies

One type of record that shows promise for establishing accurate chronologies in continental sequences is the high-resolution record of $^{13}\text{C}/^{12}\text{C}$ ratios of organic matter in loess sequences. In northwest Europe, Hatty and others found the organic ^{13}C to be a reliable and complimentary proxy to study climatic stresses on vegetation during the last glacial episode (*Geology*, v.

26, n. 7, p. 583). Wang and others reported a similar high-resolution record of organic matter variations in loess in the Mississippi Valley ("Dust Aerosols, Loess Soils and Global Change," *Conference Proceedings*, Oct. 11-14, 1998, p. 179). These loess sequences can be easily correlated with climatic proxy data like that from ice-core records.

A number of high-resolution lacustrine records were also reported during the past year, mainly from the western United States but also from Mexico, Ecuador, and Siberia. These studies document multiple fluctuations throughout the late Quaternary that can be related to varying climatic events. Even though all these events cannot be correlated, L. Benson and others (*Quaternary Research*, v. 49, p.1) have suggested that fluctuations at Mono Lake, Calif., occur at three temporal scales (Dansgaard-Oeschger, Heinrich, and Milankovitch) and in fact, three of four low stands can be equated with Heinrich events. In another study, Rodbell (*Science*, v. 283, p. 516) used AMS radiocarbon dating to detail a 15,000-year record of debris flow alluviation in an alpine lake in southwestern Ecuador. He attributed the debris flows to storm events that match the historic record of El Niño events. Correlation of ocean records with the paleoclimatic lacustrine records from Lake Baikal, southeastern Siberia, revealed evidence for an abrupt and intense glacial event during the early part of the last interglacial episode (*Quaternary Research*, v. 50, p. 46). Finally, a series of radiocarbon dates from 55 black mat deposits in the southwestern United States reflects regional recharge of springs during the Younger Dryas (*Quaternary Research*, v. 49, p. 129).

Dating studies and rates of change

A review of *Quaternary Geochronology* (*Quaternary Science Reviews*, v. 17, no. 11) summarize many new techniques. R. Hereford and others (*Quaternary Research*, v. 50, p. 139) have used pitting by blue green algae of carbonate boulders to calculate numerical ages for debris flows in the Grand Canyon. Advances in dating techniques continue to constrain the timing of Quaternary events and rates of change. For example, Porter and Swanson (*Quaternary Research*, v. 50, p. 205) used AMS ages on detrital wood to supplement conventional radiocarbon ages and provide closer age control on the advance and retreat of the Puget Lobe of the Cordilleran ice sheet. These ages allowed them to calculate an average rate of retreat (ca. 270m/yr), enhanced by calving in proglacial lakes, that was about twice the rate of advance (135m/yr). Briner and Swanson (*Geology*, v. 26, p. 3) used cosmogenic dating to determine that the Cordilleran ice sheet may have eroded only 1-2 meters during the last glacial episode and perhaps only tens of meters during the whole Quaternary. They concluded that cosmogenic dating has potential in resolving questions of glacial erosion

processes that may challenge existing theories of abrasion and quarrying.

Russ Graham, *Department of Earth and Space Sciences, Denver Museum of Natural History, 2001 Colorado Blvd., Denver, Colo. 80205*

Graham is Chair of DESS and President of the American Quaternary Association. His research focuses on the response of mammal communities to late Quaternary environmental fluctuations, taphonomy, biochronology, and cave depositional systems.

Ardith K. Hansel, *Illinois State Geological Survey, 615 E. Peabody Drive, Champaign, Ill. 61820*

Hansel is senior scientist and chair of the Quaternary Geology and Geomorphology Division of the Geological Society of America. Her research interests include glacial geology and sedimentology, Quaternary stratigraphy, and glacial mapping.

(Reprinted with permission by the American Geological Institute. Graham, R., and Hansel, A.K., 1999, *Quaternary Geology: Geotimes*, v. 44, no. 7, p. 40)

GEOMORPHOLOGY

Geomorphology is the science that studies landforms and landforming processes. Topics of research in geomorphology represent the diversity of the discipline, as practiced by both academics and nonacademic geographers and geologists in government and private positions. Discussions of the role and importance of scientific theory and social relevance in geomorphology have become increasingly common. Issues of scale, both spatial and temporal, appear at the forefront of many current papers in the discipline.

American geomorphology is characterized by the use of diverse research tools, such as fieldwork, computer and laboratory modeling, surface exposure dating, historical archival work, remote sensing, global positioning systems, and geographic information systems.

Several special issues of major journals during the past year reflect some of the current "hot topics" in geomorphology. For example, special issues of *Geomorphology* examined the application of remote sensing and geographic information systems in geomorphology (v. 21), geomorphic response of Mediterranean and arid areas to climate change (v. 23), Mediterranean erosion (v. 24), and mass movement in the Himalayas (v. 26).

Particularly notable during the past year was the publication of influential research monographs dealing with rock coatings (Dorn, Elsevier, 1998) and earth surface systems (Phillips, Blackwell, 1999). The study of earth surface systems is closely tied to one of the most

promising new paradigms in geomorphology - chaos theory and the concept of nonlinear dynamical systems. Issues of spatial and temporal scale also enter into this new approach, because what may seem ordered and regular at one spatial or temporal scale (whether in terms of the size and shape of a landform, or the understanding of a geomorphic process) may be disordered and irregular, if not downright unpredictable, at another scale. Walsh and others (*Geomorphology*, v. 21, 1998) provided examples of several geomorphic processes that appear to operate uniformly regardless of the spatial scales. The theory of nonlinear dynamical systems may provide room for those who advocate the continued utility of some form of equilibrium theory, and at the same time make space for those whose work illustrates that equilibrium cannot be applied at all spatiotemporal scales to call geomorphic processes.

Biogeomorphology, a relatively recent arrival on the scene, has led to a great deal of research by American geomorphologists. Contributions include those that examine the interaction of geomorphic processes with plants and those that examine the interaction of animals with geomorphic processes. Examples include the interaction between flood processes and riparian vegetation, the role of cattle as geomorphic agents, and the role of naturally occurring wild animal populations such as beavers.

Fluvial geomorphology continues to be one of the major topics in American geomorphology. In the past year, several notable field-based and theoretical studies by Chin examined the development of step-pools in mountain streams. Abrahams and colleagues continued their work on the effects of surface roughness on overland flow and rill erosion, and Magilligan and others examined why the massive 1993 Mississippi River flood was so geomorphically limited in its effects.

One of the most pronounced trends in geomorphology is the return to a strong relationship with environmental science and management. A number of research topics characterize this trend, including the feneral effects of humans as geomorphic agents, the effects of human land-use changes on surface runoff and erosion, and the examination of anthropogenically introduced trace metals in streams.

A welcome piece of news is the reissuing of the out-of-print, color-rich *Geomorphology from Space - A Global Overview of Regional Landforms* (Short and Blair, NASA, 1986) as a CD-ROM by NASA's Goddard Space Flight Center. The Goddard Center has also placed the entire volume on a convenient Web site, <http://daac.gsfc.nasa.gov/DAAC_DOCS/geomorphology/GEO_HOME_PAGE.html>, where every image can be downloaded for research and teaching purposes. This volume serves as an excellent resource for the study of planetary geomorphology.

Another emerging trend is the involvement of university-level geomorphologists with curriculum development and support for public schools. Geomorphologists are working directly with K-12 teachers and students through a network of state geographic alliances. Several geomorphologists are team members of "Mission Geography," an ambitious partnership between NASA and major national geography organizations to produce curriculum supplements for grades K-4, 5-8, and 9-12. These curriculum supplements will use NASA imagery and conceptual issues in geography and earth science, and numerous causes will directly illustrate modern issues in geomorphology.

David R. Butler, *Department of Geography, Southwest Texas State University, San Marcos, Texas 78666-4616. E-mail: db25@swt.edu.*

Butler is professor of geography at Southwest Texas State University and director of The James and Marilyn Lovell Center for Environmental Geography and Hazards Research. He is a past chair of the Geomorphology Specialty Group of the Association of American Geographers. His research focuses on geomorphic hazards, biogeomorphology, and geomorphic responses to landscape and climate change.

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RESEARCH REPORTS FROM MEMBERS

Among the increasingly useful alternatives to geochronology are luminescence methods, well established in many countries. At the Desert Research Institute in Reno, **Glenn Berger** has been developing new dating applications for TL (thermoluminescence) and IRSL (infrared-stimulated-luminescence). Among Berger's recent activities are applications to Antarctic lake-core sediments (with Peter Doran, University of Illinois) and to Arctic lake-core sediments (with Pat Anderson, University of Washington). Also, some fundamental studies of TL and IRSL applied to volcanic ash have been completed. Applications of IRSL and TL to earthquake-fault-related sediments are ongoing with various collaborators. Alternative Geochronology: examples of the available standard and alternative dating methods for Quaternary deposits can be found in the list at the AMQUA web site (<http://pc53.chm.nau.edu/amqua/geochron_services.html>).

Bonnie Blackwell has reestablished her ESR dating lab at Williams College where the ESR spectrometer is located, and where long-time colleague Anne Skinner hangs her hat. With the lab just moved into the brand

new science center, life is a bit chaotic. Despite the boxes, however, the lab has been working steadily on dating ungulate teeth from fossil hominid sites in South Africa and Hungary, from archaeological sites in Mongolia, China, Slovenia, and France, and from paleontological and Quaternary sites in Hungary. We have also been running a research program for high school students at a NYC high school, in collaboration with Joel Blickstein.

John Clague recently left the Geological Survey of Canada (GSC) and is now teaching at Simon Fraser University in Burnaby, British Columbia. John is pursuing an active research program in natural hazards, focusing on Cascadia subduction zone earthquakes, landslides, and catastrophic floods from landslide- and glacier-dammed lakes. John's other professional interest is geological education; he and colleagues at the GSC have produced a series of user-friendly maps, posters, and other products dealing with Vancouver geology. John was elected Vice President of INQUA at the recent INQUA Congress in Durban, South Africa.

Larry Gatto's current research addresses the impacts of soil freeze-thaw (FT) cycling on soil erodibility and runoff erosivity. He determines soil FT effects on the hydraulic geometry and roughness of vehicle ruts and natural rills, soil strength and compaction, and infiltration and relates changes to FT thermal and physical processes. Gatto uses lab and field experiments to test the importance of soil type, slope angle, soil moisture, and FT regimes in causing the changes. Results of this research will be useful to landform modelers who must include seasonally dynamic soil processes to simulate terrain evolution, and to soil-erosion-prediction modelers who must include soil FT effects on soil erodibility and surface runoff. Gatto has papers coming out in *Geomorphology* and the GSA Engineering Geology Division's Special Volume, *The Environmental Legacy of Military Operations*.

Susan Gawarecki is currently pursuing her third career. After obtaining a M.S. degree with a specialization in glacial and Quaternary geology and while finishing a Ph.D. with a neotectonics/desert geomorphology focus, Susan worked six years for a geologic research institute. Declining funding from petroleum companies forced a career move to hazardous waste consulting, with a hydrogeology specialization. The pay was much better but the geologic aspects were boring. After ten years, the shift from Remedial Investigations to Remedial Actions and a local down-turn in Department of Energy (DOE) Environmental Management budgets caused Susan to reconsider her options after the second layoff. For over two years now she has been working as Executive Director of the Oak Ridge Reservation Local Oversight

Committee on DOE Environmental Management policy issues from the local governments' perspective. Her technical background is a great asset, although she is only able to do real geology while on vacation, most recently in the White Cloud Mountains of Idaho. ("her cautionary tale for our times")

John Gosse notes that in the next half decade, the Department of Geology at the University of Kansas will be involved in the following funded collaborative Quaternary projects: (1) combined cosmogenic nuclides and soil stratigraphy for alluvial fan chronology and regional correlation: eastern Mojave Desert (NSF); (2) modeling geomorphological and cosmogenic- nuclide constraints on the volume of the Quebec-Labradorean sector of the last Laurentide Ice Sheet (NSF); (3) chronological constraints for rates and timing of development of transtensional structures under the U.S. Ecology low level nuclear waste site, Amargosa Valley (USGS). The Quaternary group is also continuing collaborative research in southern South America to improve the regional glacial chronology, test the synchronicity of glaciologically-similar outlet lobe responses to regional ocean- atmosphere changes.

O. T. Hayward (OT_Hayward@BAYLOR>EDU) and David Amsbury (davidams@ktc.com) are compiling occurrences of interfluvial and summit gravels in Texas and New Mexico. So far, all the examples are north of the Callahan Divide. They would greatly appreciate information on "exotic" gravel deposits east of the Ogallala escarpment, on summits above the Ogallala level (e.g., King Mountain), and on the Edwards Plateau.

Richard Hereford is studying late Holocene alluvial activity of streams in the arid and semiarid Southwest as part of the U.S. Geological Survey's Global Change Climate History Program. This research is directed at understanding the relative roles of climate and landuse on alluviation, erosion, and the frequency and magnitude of surface runoff.

Charles Higgins retired in 1990 but is tinkering with publications of some still unfinished and new projects, including a study of subsurface environments of beaches (done as a poster at the 1994 GSA meeting in Seattle) and a novel(?) perspective on tower karst as giant corestones.

Vance Holliday (University of Wisconsin-Madison) completed the first year of research in a study of the late Quaternary paleoenvironmental record of small playa basins on the High Plains of northwestern Texas, eastern New Mexico, and the Oklahoma Panhandle. Preliminary investigations of playa fills indicate that they have dateable, continuous records of sedimentation spanning the late Quaternary, and that they contain

paleoenvironmental indicators in the form of the sediments themselves, and also stable-carbon isotopes and phytoliths. The research will help in understanding 1) the evolution of the environment of a region known to be sensitive to environmental changes, 2) the regional significance of environmental fluctuations, and 3) the response of the High Plains landscape to these shifts. The work is supported by the NSF/ESH program and by a mid-career research award from the University of Wisconsin-Madison.

Among other things, **Don Johnson** is doing research on slopes-process geomorphology, and has examined sites in North, Central, and South America, Africa, Australia, and Europe. In this enterprise, a great amount of data has been amassed that indicate that biogeomorphologic processes, which produce biomantles, invariably play key roles in the evolution of slopes and their stone-lines. Biomantles are the "skin" of most slopes (i.e., most landforms), as would be expected on a life-mediated planet. The stone-line bearing lowan Surface is being revisited from this perspective. In addition, he and **REBECCA WEST** are studying the nature, context, and origin of Mima-like mounds in Iowa, Minnesota, Missouri, Arkansas, and other states west of the Mississippi.

Harry Jol has been involved in various GPR projects over the past year. After acquiring a ground penetrating radar (GPR) system through university funding he has involved colleagues (**Running**) and students in various projects. Projects include investigation of coastal erosion sites along the Washington and Oregon coastline, archaeological sites in Wisconsin and Israel as well as eolian sites in Nevada and Utah. Details as they become available can be found on his website: <http://www.uwec.edu/Academic/Curric/jolhm/jol.htm>

Continued efforts by **Paul Karrow** to study non-glacial Quaternary stratigraphy is centered on several projects. In Ontario, a long paper on the Woodbridge site (Toronto) is about ready for submission, recording Illinoian, Sangamonian, and early, middle, and late Wisconsinan sediments and fossils. Work is also underway on the Fernbank (NY) interglacial fossil site. With student help this summer a backlog of sample processing is advancing work on two projects at Victoria, B.C. A >50ka organic channel fill, and city excavations through terrestrial-freshwater-marine sequences, all fossiliferous. Also, surveys of raised Lake Algonquin shorelines continue in the North Bay, Ontario, vicinity.

Since June 1997, **Jeff Knott** has been working as Senior Geologist for the UNOCAL Corp., Environmental Technology Group in Brea, California. Latest research activities related to oil field and mine remediation are (1)

latest Pleistocene to Holocene sedimentation in the Santa Maria basin and (2) Transport and weathering processes and their effect on rare earth element distribution in an arid basin/alluvial fan/playa complex. Jeff finished his Ph.D. at UC Riverside in March 1998 on the Late Cenozoic Tephrochronology, Stratigraphy, Geomorphology, and Neotectonics of the Western Black Mountains Piedmont, Death Valley, California: Implications for the Spatial and Temporal Evolution of the Death Valley fault zone (Steve Wells, advisor).

Mike Liquori is involved with several ongoing projects related to the effects of forest management on watershed processes. Of particular interest to Mike are A) impacts to fluvial systems (especially as related to aquatic habitat) resulting from riparian manipulation, B) the control and mitigation of landslide potential through forest stand management, and C) management influences on sediment supply through landslides. Mike is also currently pursuing his Ph.D. in Forest Hydrology from the University of Washington.

Rolfe Mandel (University of Kansas) is continuing to develop a regional overview of late Quaternary landscape evolution in Kansas. The intent of this six-year project is to identify areas with high geologic potential for buried archaeological materials. Other ongoing projects include: soils and stratigraphy of Archaic mounds in northern Louisiana; Quaternary landscape evolution in Big Bend National Park, TX; and geoarchaeology of Ain Ghazal and Ghwair (with Gary Rollefson and Alan Simmons), two PPNB Neolithic sites in Jordan.

Jim McCalpin has been studying and trenching sackungen, and has compiled a series of Bibliographies on gravitational spreading (www.geohaz.com/geohaz). If you have run across any sackungen in your recent field work, or have published on them, e-mail mccalpin@geohaz.com and he'll add the location/citation to his database.

Robert Merkel's MS thesis, *Sediment and elemental accumulation in Everglades excavations*, was completed recently. The excavations, of known age, allowed estimating average accumulation rates over up to the last 75 years. Depth profiles of P, Cu, Zn, and Hg vary with C content downcore while most other elements measured vary with concentration of fine clastic material. Further analyses may help to elucidate controls of Everglades sedimentation.

Joann Mossa, University of Florida, is currently Chair of the Geomorphology Specialty Group of the Association of American Geographers. She taught in London during Spring 1999 and gave invited talks at Oxford, Cambridge, the University of London-Birkbeck College, the University of Szezecin in Poland, and

elsewhere in Europe. She studies fluvial geomorphology, particularly disturbed and large rivers in the southeastern U.S. Her most current project is analyzing hydro-geomorphic data for the Kissimmee River restoration. She plans to attend the International Association of Geomorphologists Symposium on Large Rivers in Brazil this fall.

Yorgos Moussouris works as an independent consultant in environmental projects. One of them is a two-year project that concentrates on development in several areas of Southern Europe, North Africa and Middle East, as a motive for local communities to adopt the designation of protected areas in close proximity to their communities. In parallel, he participates in environmental impact assessments and other studies doing the geology part.

Steve Roof is continuing his work unraveling Quaternary lake level histories in Panamint Valley (California) using tufa and gastropod geochemistry. My students and I are ultimately hoping to tie the Panamint Valley lake level history to the better known Death Valley paleoclimate records which would help resolve the question of if and when did the Owens River contribute to Death Valley Pleistocene pluvial lakes.

Maury Schwartz, Western Washington Univ., is in the early stages of editing *The Encyclopedia of Coastal Science*. The volume is another in the Kluwer Academic Publishers' *Encyclopedia of Earth Sciences Series*, with Rhodes Fairbridge and Michael Rampino serving as series editors. With about 270 entries contributed by about 200 authors, the completed volume should total 1,000 pages. There are still a number of unassigned topics. Coastal specialists interested in further details on contributing an entry are requested to outline their area of research in a message addressed to <coastal@cc.wvu.edu> .

Larry Smith is continuing regional stratigraphy, mapping, and subsurface correlation in support of a regional ground-water characterization of Montana's aquifers. This includes surficial and subsurface mapping of Quaternary and Tertiary valley-fill sequences in many basins.

Having spent the 1999 summer field season in various West Virginia caves, **Greg Springer** is actively investigating energy expenditure in cave streams by modeling in-channel flow. He will compare flow characteristics in modeled cave reaches to modeled surface reaches along the same stream using both 2D and 1D models of open and closed flow. GREG is also pursuing a productive study of historic and paleo- flood slackwater sediments deposited in caves along the Greenbrier River of southern WV. In the office, he is pursuing the aforementioned projects and finalizing a

manuscript of spatial characteristics of erosion and deposition during a catastrophic storm in Virginia.

Ann M. Tattersall recently completed her M.S. thesis entitled "Changes in the distribution of selected conifer taxa in the Pacific Northwest during the last 20,000 years," 1999, University of Oregon. Regional patterns of vegetation change since the Last Glacial Maximum are portrayed by pollen maps for four conifer taxa plus *Artemisia* and *Poaceae* at 72 sites in western North America west of 110 deg. W and between 42 deg. N and 51 deg. N latitude. This study also addresses the question of glacial refugia of *Pseudotsuga*, particularly west of the Cascade Range.

Douglas Thompson has been working on an NSF CAREER grant entitled 'Characterization of channel morphology and hydraulics for stream-restoration design'. The work focuses on incorporating a better understanding of the pool-riffle morphology in channel restoration. Research has been ongoing in Connecticut, Massachusetts, New Hampshire and Vermont, with later trips planned in Colorado.

Richard A. Young, Department of Geological Sciences, SUNY, Geneseo is excavating a 35,000 BP glacial site in the Genesee Valley of western NY that contains wood, mammoth bones, peat, and freshwater pelecypods. The site may be one of the first well-documented locations in the eastern U.S. containing the terrestrial signature of middle Wisconsin Heinrich event H-4. An ice advance (till) dragged remnants of a spruce forest and bog containing wood with ages between 39,000 and >48,000 BP into a lacustrine sequence, which is currently dated between 33,950 and 35,000 ± years BP.

ANNOUNCEMENTS

The Geological Association of Canada and the Mineralogical Association of Canada will hold their joint annual meeting in Saskatoon, Saskatchewan, Canada, May, 2002. As a member of the local organizing committee I would like to hear from colleagues interested in developing general and/or special sessions relating to Quaternary geology, hydrology, soils, geomorphology, environmental change and geoarchaeology. Research themes focused on the Great Plains are especially encouraged. Please contact Dr. Alec Aitken for more information. Dr. Alec E. Aitken, Associate Professor, Department of Geography, 9 Campus Drive, University of Saskatchewan, Saskatoon, Saskatchewan, Canada S7N 5A5, (306) 966-5672, Fax (306) 966-5680 (aaitken@arts.usask.ca).

The US Geological Survey Cascades Volcano Observatory anticipates an opening for a 2-year term

appointment at the GS-9 level beginning on or about October 1, pending final budgetary approval. The person filling this position will assist research studies on geomorphology, hydrology, and sedimentology of watersheds recovering from the 1980 eruption of Mount St. Helens. A vacancy announcement should be released by mid- to late-September and will be posted on the OPM (Office of Personnel Management) website. When the announcement is released, an alert will be posted on the Geomorph listserver. All information concerning this position, and instructions for applying for the position, will be posted in the OPM announcement. (From Jon Major, jjmajor@usgs.gov)

Please contact Joann Mossa, Chair-Geomorphology Specialty Group (mossa@geog.ufl.edu), 352-392-4652) if you have any thoughts regarding QG&G/GSA-GSG/AAG interactions or items that you would like us to include in our discussion at the April 2000 business meeting in Pittsburgh, PA. Contact Basil Gomez, Secretary-Treasurer GSG (bgomez@ind.net, 812-237-2249) if you have news and announcements for Geomorphorum, the newsletter of the Geomorphology Specialty Group, Association of American Geographers.

In the next month or so, Space Shuttle Endeavour is scheduled to take off with a payload that will gather data for a digital elevation model (DEM) of the entire landmass of the earth between about 60 N and S latitude. The DEM will have a pixel spacing of 30 m and vertical errors of about 15 m. The flight is called the Shuttle Radar Topography Mission and is a joint project between NASA and the National Imagery and Mapping Agency. The German and Italian space agencies are also contributing an experimental radar system. More information can be obtained at the SRTM web site: <http://www.jpl.nasa.gov/srtm/> (From Tom Farr, JPL)

The International Association of Geomorphologists Regional meeting in July, 1999 in Rio de Janeiro was a great success. Many good papers were delivered, field trips were interesting and enlightening, and the Brazilians were gracious and accommodating hosts. It was a good meeting that was well organized and attended. (From Don Johnson)

Since 1993, representatives from the private sector as well as several federal, state, local governmental units from Idaho, Montana, Oregon, and Washington have been collaborating on **the means and methods to best present, to the public at large, a linked interpretation of Bretz's theories for the origins of the Channeled Scablands of east central Washington state.** This effort got a large boost this year when the lead federal agency, the United States National Park Service, received an allocation of \$200,000 to prepare a report

that will detail options as to how this story can best be told. If the NPS's efforts are successful, it could be the agency's first geologic trail." Jones & Jones, a landscape architect firm in Seattle, Washington, was awarded the contract--The Ice Age Floods Alternative Study--to prepare this report for the NPS. The Secretary of Interior intends to submit this report to Congress for consideration in the fall of 2000. In addition to the opportunities for increased and better interpretation of the physical features in the four state area that were affected by the presence of Glacial Lake Missoula and the large floods that resulted from the catastrophic failure of the ice dam that formed the lake during the latter phases of the Ice Age, the report will also detail opportunities for economic gain as related to the promotion of the tourist travel that would be associated with those wishing to see firsthand the geologic features that are related to the geologic controversy surrounding a portion of the lifework of both J Harlan Bretz and Joseph T. Pardee. Anyone wishing a little more information regarding the Alternatives Study and related topics might wish to visit the NPS's website located at: www.nps.gov/iceagefloods. This is also the location for those wishing to contribute their thoughts and/or support to this one of a kind undertaking. In conjunction with this effort to increase the interpretation of the late Ice Age events and features that encompass much of the Pacific Northwest, the Northern Region of the United States Forest Service has created a large sized, multi-colored, relief map of the area encompassed by the study. The time setting for this map is 12,000 years ago. The geographic boundaries are: the US-Canadian border on the north; mid-Oregon and Idaho, and southern Montana on the south; the edge of the Rocky Mountain Front around Great Falls, Montana, on the east; and the west edge is in the Pacific Ocean about 200 miles west of the current shorelines of the states of Oregon and Washington. The map measures about 40 x 50 inches and sells for \$6.00 plus \$3.50 postage. However, multiple copies can be sent in the same mailing tube at the same postage rate. Contact the USDA Forest Service Northern Region, Katherine Daugherty, P.O. Box 7669, Missoula, MT 59825 (406) 329-3511 (kdaugherty/r1@fs.fed.us). (From Norman Smyers, Geologist, Lolo National Forest, Missoula, Montana).

The Quaternary Systems program at the University of Kansas is conducting research in a diverse range of exciting fields, including loess magnetostratigraphy, cosmogenic nuclide exposure dating, alpine and continental glacial geology and ice sheet dynamics, paleoclimatology, and tectonic geomorphology, soils geomorphology, and surficial processes and rates. The program is well supported with state-of-the-art geochemical, isotope, soils, biological, remote sensing, GIS, and computer facilities and it benefits from

multidisciplinary interactions between departments of Geography, Geology, Anthropology, and Ecology and Evolutionary Biology and internationally-renown research centers on campus. For more information about graduate Quaternary studies at the University of Kansas please visit: <http://www.geo.ukans.edu/faculty/gosse/update/Quat_Prg.htm>

Need dates for your samples? Consider using ESR to date your Quaternary or late Pliocene samples. We can provide dates for samples in the range of 30 ka to 5 Ma, using tooth enamel, burnt flint, coral, mollusc shells, speleothem, and some travertines. Call or email for more information: Dr. Bonnie A.B. Blackwell; MA Office: Dept of Chemistry, Williams College, Williamstown, MA, 01267, USA; 1-413-458-2648 (office), 1-413-597-3700 (lab), 1-413-597-4116 (fax). NY office: Box 866, Glenwood Landing, NY, 11547, USA, 1-516-759-6092 (office), 1-516-759-6092 (fax); 8am-6pm or by appt (bonnie.a.b.blackwell@williams.edu).

PUBLICATIONS

Introduction to Optical Dating by M.J. Aiken, Oxford Press, 1998. The book provides an up-to-date and succinct review of the rapid developments in optical or PSL (photon-stimulated-luminescence) dating that have occurred in the last 5-9 years. This highly sensitive dating method (really a family of methods) was introduced by Canadians (at Simon Fraser University) in 1985, but development accelerated rapidly since 1990. One of the great strengths of PSL dating is the high resolution afforded for direct dating of Holocene-age sediments (the time of last exposure to sunlight is determined). The future will see increased use of PSL techniques for dating fluvial and other waterlain deposits. (From Glenn Berger, Desert Research Institute)

Urban geology of Canadian Cities by P. F. Karrow and O. L. White (eds.), Geological Association of Canada Special Paper 42, 1998, 500p. GSA Engineering Geology Division E. B. Burwell Jr., Award 1999. Deals extensively with Quaternary geology.

GEOARCHAEOLOGY:

AN INTERNATIONAL JOURNAL

Geoarchaeology is published bimonthly and has a broad, interdisciplinary scope dealing with the understanding of archaeological sites, their natural context, and the material artifacts recovered from them. Manuscripts may include subjects from disciplines within the earth-sciences (e.g., geography, pedology, climatology, geology, oceanography, geochemistry, geochronology, and geophysics) or those from biological sciences. The editors (Rolfe Mandel and Paul Goldberg)

are particularly interested in manuscripts that bear upon site-formation processes. Members of the QG&G Division are encouraged to submit manuscripts. Send to: Rolfe Mandel, Department of Geography, University of Kansas, Lawrence, KS, 66045-2121 (785-228-0571, fax: 785-228-0587).

Members of the QG&G Division of GSA qualify for the group rate of \$105/year. The rate for Division members outside North America is \$153. The offer is for personal subscriptions only (subscription orders must include GSA membership number). Payment can be sent directly to: Subscription Dept., John Wiley & Sons, Inc., P.O. Box 7247-8491, Philadelphia, PA 19170-8491. U.S. members should include appropriate state sales tax and Canadian members should add 7% GST, which Wiley is obliged to collect.

MEETINGS

1999 Annual Meeting of Working Groups 2 (Glaciation in the Tibetan Plateau and bordering mountains) and 7 (Drainage off the Tibetan Plateau) of IGCP415 (Glaciation and reorganization of Asia's network and drainage)

October 29-31, 1999 Clear Creek Dude Ranch, CO

The 1999 Annual meeting of Working Group 2 and 7 will be held at Clear Creek Dude Ranch in the Arapaho National Forest, approximately 30 miles west of Denver. Two days of seminars and management meetings will be held to discuss the progress and future activities of the working groups. Please register before 1 October to be assured of accommodation at the Clear Creek Dude Ranch. Details can be found at web site <<http://lakeview.ucr.edu/1999%20IGCP%20Meeting>> or contact: Lewis Owen, Department of Earth Sciences, University of California, Riverside, CA92521, telephone and fax 909-787-3106 (Lewis.Owen@ucr.edu). Full details of the activities of IGCP415 can be found at <<http://mercury.eas.ualberta.ca/igcp/people/wgl.html>>.

Non-Steady State of the Inner Shelf and Shoreline

November 9-12, 1999 Honolulu, Hawaii

The University of Hawaii, School of Ocean and Earth Science and Technology, IGCP #437 "Coastal Environmental Change During Sea-Level Highstands," and conference sponsors, are pleased to announce a research conference on Coastal Change on the scale of decades to millennia. Contact: Charles Fletcher, University of Hawaii, School of Ocean and Earth Science and Technology (SOEST), Department of Geology and Geophysics, POST 721, 1680 East-West Rd, Honolulu HI 96822; 808-956-2582; fax: -5512;

fletcher@soest.hawaii.edu; <<http://www.iugs.org/iugs/news/igcp437-0.htm>>. For a first circular, reply to: coastal@soest.hawaii.edu.

The International Symposium of Sedimentological & Dynamic Processes in Estuaries & Coasts

November 10-15, 1999

State Key Laboratory of Estuarine and Coastal Research (SKLEC), Shanghai

As of August 15, 45 foreign participants have registered including a few members of the GSA. Several field trips, including one to the Three Gorges Reservoir, are planned. The Symposium is being chaired by CHEN, JIYU and H. JESSE WALKER. Contact JIANJIAN LU, General Secretary (jjlu@sklec.ecnu.edu.cn).

Binghamton Geomorphology Symposium

November 13-14, 1999 SUNY, Binghamton, NY

The topic is Geomorphology in the public eye. Contact Peter Knuepfer (607-777-2389; knuepfr@binghamton.edu or William Locke (wlocke@montana.edu). Donald Coates notes that this will be the 30th meeting (he organized the first one back in 1970).

International Tree Ring Conference

March 5-10, 2000 Mendoza, Argentina

Hosted by the Dept. of Dendrochronology and Environmental History. Contact: Ricardo Villalba, Departamento de Dendrocronologia e Historia Ambiental, IANIGLA - CRICYT, C.C. 330, (5500) Mendoza, Argentina (tel.: 54-61-287029, ext. 33; fax: -287370; ricardo@lab.cricyt.edu.ar). General info: <<http://www.cricyt.edu.ar/congresos/dendro/index.html>>.

30th International Arctic Workshop

March 16-18, 2000

Institute of Arctic and Alpine Research, University of Colorado, Boulder, Colorado.

The meeting will consist of oral and poster presentations covering all aspects of high-latitude environments, past and present. For more information for information on registration, program, abstract submission and student support: <<http://instaar.colorado.edu/AW2000/>>

Commission of the Holocene. Environmental changes in Holocene sequences: methods, processes, and correlation.

March 27-30, 2000 Seville, Spain

Contact: Dominik Faust, (tel.: 49-0-8421-93-1391, -1302; dominik.f Faust@ku-eichstaett.de).

AMQUA (16th Biennial Meeting)

May 20-27, 2000 Fayetteville, Arkansas

Landscape and biotic responses to climatic variability: future impacts and past lessons. Fayetteville, Arkansas. For information contact Margaret J. Guccione, Geosciences Department, OZAR-113, University of Arkansas, Fayetteville, AR 72701. 501-575-3354. Guccione@comp.uark.edu. ALSO, see the AMQUA site at <<http://vishnu.glg.nau.edu/amqua>>.

Midwest Friends of the Pleistocene

June 2-4, 2000 Beatrice, Nebraska

The fieldtrip will focus on late Quaternary landscape evolution in the South Fork Big Nemaha River valley, southeastern Nebraska. Recent studies in this area have established a detailed alluvial stratigraphic and paleobotanical record that spans the past 40,000 years. Although this record will be the showcase of the fieldtrip, we will also examine outcrops of late Quaternary loess and Pre-Illinoian till. In addition, several archaeological sites will be visited. The new Holiday Inn Holidome in Beatrice, Nebraska will serve as the conference headquarters. For additional information, contact: Dr. Rolfe Mandel, Dept. of Geography, University of Kansas, Lawrence, KS 66045-2121; 785-228-0571, 785-228-0587 (fax), mandel@falcon.cc.ukans.edu, or Dr. Art Bettis, Dept. of Geology, University of Iowa, Iowa City, Iowa 52242, 319-335-1831 (art-bettis@uiowa.edu).

Note: For the latest information on the various FOP meetings, see the AMQUA site <<http://vishnu.glg.nau.edu/amqua/>>

Radiocarbon Conference

June 18-23, 2000 Jerusalem, Israel

The first ¹⁴C Conference at the dawn of a new millennium will undoubtedly include exciting new scientific developments. Keeping the tradition of past Radiocarbon conferences, the scientific program will include a wide variety of topics. Sessions will be devoted to: Archaeology (including a special session on ¹⁴C data of historical periods in the Near East), calibration of the ¹⁴C time scale, geophysics and geochemistry of ¹⁴C, cosmogenic radionuclides, environment past and present, global change, glaciology, hydrology, oceanography, geology, soils. Contact: 17th International Radiocarbon Conference, P.O. Box 29041, Tel Aviv 61290, Israel (tel.: +972-3-517-5150; fax: -5155; trgt@netvision.net.il; <<http://www.radiocarbon.co.il/>>).

Paleolimnology Symposium

August 20-24, 2000

Queen's University, Kingston, Ontario

Contact: John P. Smol and Brian Cumming (Co-Organizers), Paleoecological Environmental Assessment

and Research Lab (PEARL), Dept. of Biology, Queen's Univ. Kingston, ON K7L 3N6, Canada (e-mail: SmolJ@Biology.QueensU.Ca; CummingB@Biology.QueensU.Ca).

The Fourth International Meeting on Global Continental Palaeohydrology (GLOCOPH 2000)

August 20-28, 2000

Moscow and Central Part of the Russian Plains

Theme: Hydrological Consequences of Global Climate changes: Geologic and Historic analogs of Future Conditions. The INQUA Commission on Global Continental Palaeohydrology (GLOCOPH), International Union for Quaternary Research (INQUA) and GLOCOPH Corresponding Commission together with Russian Academy of Sciences, Russian Geographical Society, Russian Fund on Basic Research, Institute of Geography RAS take the pleasure in announcing the Fourth International Meeting which will be held at Hotel of Russian Academy of Sciences "Uzkoe", Moscow and in the central part of forest-steppe zone of Russian Plain (Seim River basin, 500 km to the south from Moscow) in August 20-28, 2000. The Meeting is open to scientists with interest in environmental changes and palaeohydrology in the last 20,000 years. The official language of the meeting is English Objective: The main objective of this Meeting is to provide a forum for presentations and discussions on recent developments in palaeohydrology research on global, regional and local scales of different natural zones of the world, with emphasis on hydrological consequences of global climate changes in geological and historical periods as analogs of future conditions. Themes: The general themes of the Meeting are: -global climate and environmental changes during last 20,000 years; -global, continental and regional hydrological responses to climate; -palaeohydro-logical changes in the temperate zone; -palaeohydro-logical changes in glacial and periglacial regions; -palaeohydrology of the late Pleistocene drainage system of northern Asia; -palaeohydrological changes in arid and semi-arid regions; -flood reconstruction based on natural proxy and historic data; -hydrogeomorphological response to climate change in relation to human activity. A special symposium of IGCP 415 ("Glaciation and Reorganization of Asia's Network of Drainage" [GRAND]), and the Annual Meeting of GRAND will be part of the GLOCOPH meeting; contact V. Baker (baker@pirl.lpl.arizona.edu) or J. Teller (jt_teller@umanitoba.ca) for details of this symposium or other GRAND activities. Abstract deadline is 30 November 1999. For additional details and information on registration & abstracts: contact A. Georgiadi (georg@chaos.metri.re.kr) until Sept. 21; after that date, geography@glasnet.ru.

IGCP 413 Meeting: Relations Amongst Aeolian, Fluvial, and Lacustrine Geomorphic and Sedimentary Systems

October 23-29, 2000

Desert Studies Center, Zzyzx, CA

The primary theme of the meeting will be the linkages between fluvial, lacustrine, and aeolian systems. We will examine (1) the ways in which climate change has impacted sediment supply, availability and mobility in aeolian systems; and (2) the effects of changes in climate on desert soils and ecosystems. The meeting will be conducted in an informal atmosphere in a remote desert setting, with two full day field trips to local sites that illustrate the above themes. Total cost of the meeting will be about \$500, to include registration, accommodation (dormitory styled), all meals, field trips, and transportation to and from Las Vegas. Accommodation at Zzyzx is limited to a total of 60 participants. Early registration is advised. Abstracts due 9/1/00. Contact Nicholas Lancaster, Desert Research Institute, Reno, NV; Nick@dri.edu.

MEMORIAL

Kenneth O. (K. O.) Emery died on April 19, 1998 at the age of 83. At the time of his death, he was Professor Emeritus at Woods Hole Oceanographic Institution where he had held the Henry Bryant Bigelow Chair. Through the influence of Francis Shepard, K. O. became a marine geologist who did research all over the world from two main home bases: University of Southern California first, then Woods Hole. His career, spanning a half-century, reflected his innate curiosity about everything around him. His contributions included over 360 publications plus 16 monographs and books. Many of the latter were produced after his retirement in 1979. Emery's investigations of oceans and their basins spanned such diverse fields as oceanography, geology, geophysics, geomorphology, sedimentology, stratigraphy, biology and paleontology, archaeology, geochronology, sea-level changes, research techniques and tools, economic resources, and environmental and legal matters. K. O. Emery was also known as a superb teacher, an inspiration to younger scientists because he never set limits on his research interest and always stimulated his students to continually expand the scope of their scientific endeavors. He readily shared his talents, encouraging others in their research efforts and/or inviting those with common interests to join in his own. Emery's work

synthesizing the geomorphology of ocean basins and their margins has been recognized by numerous honors including membership in the National Academy of Sciences, the American Academy of Arts and Sciences, the Royal Swedish Academy, and the Chinese Academy. He was awarded the SEPM's Shepard Medal in Marine Geology and Twenhofel Medal; the Prince Albert Ier de Monaco Medal, France; the AGU's Maurice Ewing Award; the AAAS's Rosenstiel Award; the University of Illinois Alumni Achievement Award; and the University of Southern California D. Sc. Degree. At the time of his death, K. O. Emery was a nominee for the QG&G Distinguished Career Award. He was nominated by William C. Bradley, Donn S. Gorsline, and Elazar Uchupi; Howard R. Gould also sent a supporting letter. Although that award is not given posthumously, the Division would like to take this opportunity to recognize the remarkable career of Kenneth O. Emery. (From Ardith Hansel)

STUDENT OPPORTUNITIES

ARCUS Award For Arctic Research Excellence

The Arctic Research Consortium of the United States (ARCUS) announces the 4th Annual ARCUS Award for Arctic Research Excellence competition. The student competition of research topics related to the Arctic will be judged in four broad categories: Physical Sciences, Life Sciences, Social Sciences, and Interdisciplinary; with up to four awards given. The review panel will include top arctic researchers from various fields. The award winners will receive \$500 cash and an all expenses paid trip to the March 2000 Arctic Forum in Washington, D.C. where they will present their work to a broad-based audience of top researchers, funding agency personnel and government officials. For additional information and an entry form, please visit the ARCUS Web site at <http://www.arcus.org/award/four/fr_index.html> or contact the ARCUS office at <arcus@arcus.org> or (907) 474-1600.

Postdoctoral Fellow/Cosmogenic Nuclides/University of Kansas

The Department of Geology at the University of Kansas seeks applicants for a two-year postdoctoral

research position, with the potential for extension to a third year, in the application of cosmogenic ^{10}Be and ^{26}Al in Earth surface processes. We are seeking a scientist who will use Quaternary geology field work and cosmic ray exposure history modeling to improve our understanding of Pleistocene ice sheet and alpine glacier volume

fluctuations in North and South America. The successful candidate is also expected to improve isotope extraction methods of ^{10}Be and ^{26}Al from quartz and other minerals and develop strategies for constraining landscape age or rates of geomorphic processes in arid environments. Visit the departmental site at the following for information and associated links:

<<http://www.geo.ukans.edu/faculty/gosse/update/In dex1.htm>>. Ph.D. in geology, geochemistry, or a related field is required. A strong background in analytical and physical chemistry is highly desirable and expertise or experience in cosmogenic nuclide extraction and modeling would be an asset. Send curriculum vitae, research interest statement, and names of at least three references (with contact information) to Dr. John Gosse, Department of Geology, 120 Lindley Hall, University of Kansas, Lawrence, KS 66045; gosse@ukans.edu by November 15, 1999. The University of Kansas is an equal opportunity/affirmative action employer.

M.Sc. and Ph.D. Graduate studies in Quaternary Geology at the University of Manitoba

A multi-disciplinary project will begin in 2000 on the Quaternary history of West Hawk Lake meteorite impact crater. The 100-m-long sedimentary sequence in this small deep lake will be cored and many components will be studied in what is expected to be a long and continuous Quaternary record that includes glacial and interglacial sediments and biota, as well as a history of multiple ancestors of glacial Lake Agassiz. Students interested in graduate research on this topic or in other aspects of Quaternary geology should contact: Jim Teller, Department of Geological Sciences, University of Manitoba, Winnipeg, Manitoba, R3T 2N2 (jt_teller@umanitoba.ca) 204-474-9270.

GSA GRANTS FOR STUDENTS

General Research Grants

The purpose of the general research grants is to provide partial support of master's and doctoral thesis research in geological sciences for graduate students at universities in the United States, Canada, Mexico, and Central America. GSA strongly encourages women, minorities, and persons with disabilities to participate fully in this grants program. Applicants need not be members of GSA. Funding for this program is provided by a number of sources, including GSA's Penrose and Pardee endowments, the National Science Foundation, industry, individual GSA members through the GEOSTAR and Research Grants funds, and numerous dedicated research funds that have been endowed at the GSA Foundation by members and families.

Applications must be on current GSA forms available in geology departments in the United States and Canada, or from the Research Grants Administrator, Geological Society of America, P.O. Box 9140, Boulder, CO 80301-9140, lcarter@geosociety.org. Evaluations from two faculty members are required on GSA appraisal forms. The deadline for application is February 1. Applications must be submitted on forms for the current year. Applications will not be accepted by e-mail or facsimile. Grants are awarded in April.

Section Grants

Also, four of the six GSA sections offer grants to student members of GSA who are enrolled in institutions within their respective section geographical boundaries. Contact the section secretaries for application information from the North-Central, South-Central, Northeastern and Southeastern Sections.

(See <http://www.geosociety.org/profdev/grants.htm>)

Robert K. Fahnestock Memorial Research Award

The Robert K. Fahnestock Memorial Award is made annually to the applicant with the best application in the field of sediment transport or related aspects of fluvial geomorphology. Recipients of special named awards are selected by the Committee on Research Grants from applicants to the general research grants program; the same application forms are used, and they must also be

postmarked by February 1. It is not necessary for applicants to indicate that they wish to be considered for a specialized grant. The committee considers all qualified applicants when selecting recipients for special awards.

There is no specified amount each year for this award. The award amount is the amount the student requests. The recipient for 1999 was Simon Brocklehurst, MIT, \$1,670.

ARE YOU A SUBSCRIBER YET?

If you do not yet subscribe to **GEOMORPHLIST** and wish to do so, go to Bill Locke's International Association of Geomorphologists Web page at <http://www.homepage.montana.edu/~ueswl/geomorphlist/index.htm>. It includes the list archives (for the past year) and the Directory of members. It also includes the link to Geomorphlist <http://www.homepage.montana.edu/~ueswl/geomorphlist/about.htm>.

Explicit instructions on how to join are included:

Joining IAG-GEOMORPHLIST...Contact the moderator and provide the following information for the directory: your name, mailing address, phone, fax, e-mail address and personal Web page URL, as well as a few keywords to identify your interests in geomorphology (topical and/or geographical). If the information about you in the directory changes, please send the moderator a notice. That page also discusses list commands and protocols. From William Locke; Professor, Geology, Department of Earth Sciences, Montana State University - Bozeman, Bozeman, MT 59717 (wlocke@montana.edu).

FROM THE EDITOR

Results of the e-mail survey

I would like to thank those who took the time to respond to my e-mail query regarding the Division's newsletter. Since I was uncertain as to the number of respondees, I asked that the "blast" e-mail go only to those members in the "professional" category. In the future, I plan to address those members in the student and teacher categories as well.

Regarding the Newsletter content, the idea of having special features, such as "perspectives"

contributed by senior colleagues, was extremely popular. Several suggested a section on "research news" but each person had a different impression as to what it should be. Some other comments included making the newsletter more user-friendly (e.g., a table of contents, at least for the longer issues, and a redesigned format), improving announcement and coverage of field trips, having an opinion column, and featuring research facilities.

Regarding an electronic version of the Newsletter, there was no middle ground; most members either really liked the idea or hated it. Preference is one problem, but accessibility to the Internet is another. One possibility is to make an electronic version available to those who would like to receive such. I could have GSA blast e-mail all Division members; those wishing the electronic version could indicate that. All others would receive the paper copy. The electronic version could then be placed on an exclusive GSA URL that would be announced to

Division members only. As editor, I appreciated the fact that few were in favor of changing to a quarterly schedule.

The spring ballot will be made available electronically as well as the usual inclusion in the Spring Newsletter. A blast e-mail will go to all Division members; those wishing to vote electronically can go to an exclusive URL which will permit voting. GSA will serve as watchdog over the ballot box, i.e., no voting twice.

Division webpage

The web page is undergoing revision and should be posted prior to the Denver meeting. The former editor and webmaster, Rich Whittecar, did a fine job constructing the site; I am in the process of updating it and adding a few other items. Thank you for your patience.



The Geological Society of America

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