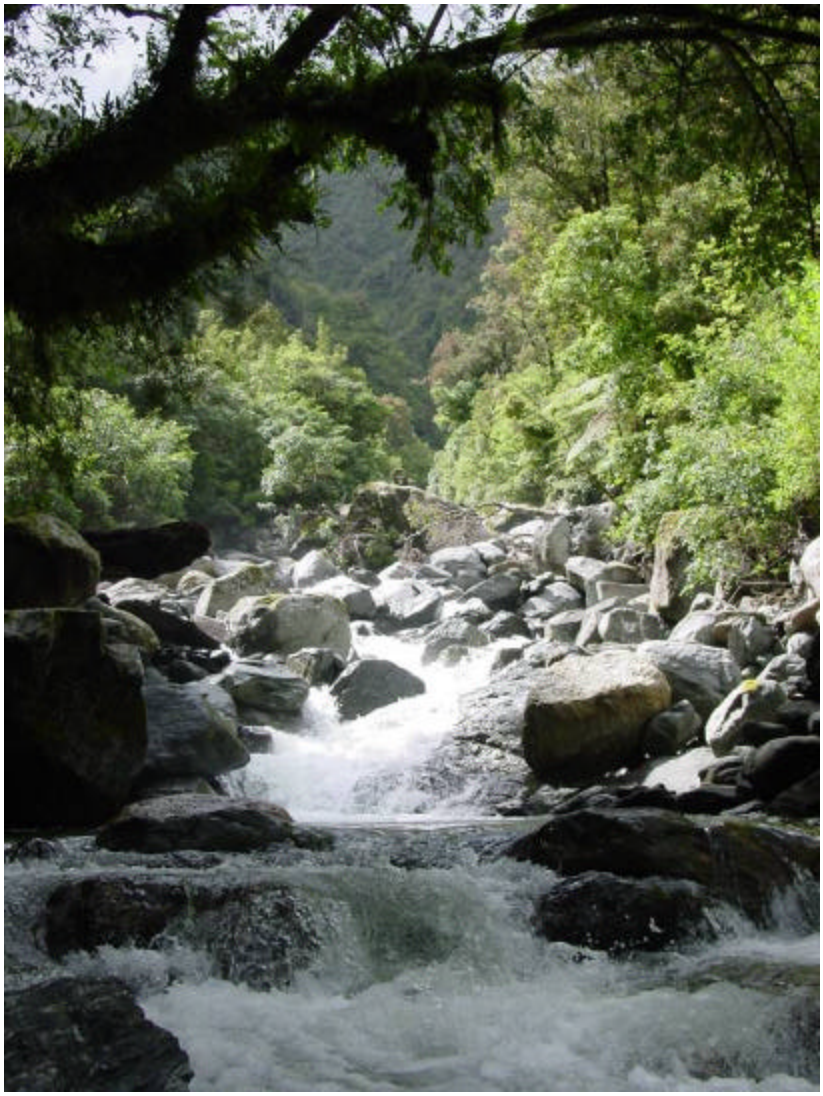
THE GEOLOGICAL SOCIETY OF AMERICA

Quaternary Geologist & Geomorphologist

Newsletter of the Quaternary Geology and Geomorphology Division
http://rock.geosociety.org/qgg

Fall 02 – Spring 03 Vol. 43, No. 2 & Vol. 44, No. 1



Camp Creek in New Zealand
The Alpine Fault (Australia-Pacific plate boundary) passes through the catchment. - Photograph courtesy of Ellen Wohl

2002 – 2003
Quaternary Geology & Geomorphology Division Officers and Panel Members

Officers - 6 Members: Chair, 1 year term; First Vice-Chair, 1 year; Second Vice-Chair, 1 year; Secretary, 2 years; Treasurer, 2 years; and, effective November, 2000, Newsletter Editor/Webmaster, 2 years.

Management Board - 8 Members: Division officers and the Chair of the preceding year; also includes the Historian as an *ex officio* member.

***Chair:**
J. Steven Kite
Dept of Geology
and Geography
West Virginia Univ.
425 White Hall
Morgantown, WV
26506-6300
jkite@wvu.edu

***First Vice-Chair:**
Ellen E. Wohl
Department of Earth
Resources
Colorado State Univ.
Ft. Collins, CO
80523-1482
ellenw@cnr.colostate.edu

***Second Vice-Chair:**
Alan R. Gillespie
University of Washington
Dept Earth & Space Sciences
PO Box 351310
Seattle, WA 98195-1310
alan@rad.geology.washington.edu

****Secretary: Janet L. Slate**
Earth Surface Processes
U.S. Geological Survey
Box 25046, MS 980
Denver, CO 80225
jslate@usgs.gov

*****Treasurer: Scott F. Burns**
Department of Geology
Portland State University
PO Box 751
Portland, OR 97207-0751
burnss@pdx.edu

*****Newsletter Editor and Webmaster:**
William C. Johnson
Dept of Geography
University of Kansas
1475 Jayhawk Boulevard,
Room 213
Lawrence, KS 66045-7613
wcj@ku.edu

Past Chair:
Deborah R. Harden
Department of Geology
San Jose State University
San Jose, CA 95192-0102
harden@geosun1.sjsu.edu

** A one-year term of office which shall begin immediately following the annual business meeting at which their election is announced and extend through the next annual business meeting.*
*** First year of a first 2-year term.*
**** Second year of a third 2-year term.*

Panel Members
Doug Clark, Jon Major, Dorothy Sack, Kathy Haller, Rich Whittecar, Darrell Kaufman

Historian:
(Appointed by the Chair in consultation with the Management Board)
Richard F. Madole
Scientist Emeritus, USGS
3075 Fremont Street
Boulder, CO 80304-2848
madole@usgs.gov

2003 JTPC Representatives:

J. Steven Kite
Department of Geology and Geography
West Virginia University
425 White Hall
Morgantown, WV 26506-6300
jkite@wvu.edu

and

Ellen E. Wohl
Department of Earth Resources
Colorado State University
Fort Collins, CO 80523-1482
ellenw@cnr.colostate.edu

GSA Councilor/Division Liaison Representative: (Appointed by the GSA President)

Arthur R. Green
ExxonMobil Exploration Company
233 Benmar Dr
Houston, TX 77060-2501
arthur.r.green@exxonmobil.com

==========

Message From The Chair

J. Steven Kite

It is very difficult to write a concise Quaternary Geology and Geomorphology (QG&G) Chair's message, largely because the Division is so dynamic and successful. There is just too much good news to cover, but I will make a brief attempt, followed by a stand on a soapbox concerning an issue that warrants our immediate attention.

The Division continues to be the second largest in GSA, with approximately 1400 members, and we have contributed the greatest number of papers to the Society's annual meeting for at least three years in a row. Through the generosity of members, we have the good fortune to grant several prestigious awards, including the Don J. Easterbrook Distinguished Scientist Award, the Farouk El-Baz Research Award for Desert Research, the Kirk Bryan Award (for a recent publication of distinction), the Gladys W. Cole Memorial Research Award (for geomorphology of semiarid and arid terrains in the U.S. and Mexico), and the Distinguished Career Award. We also have three student research awards: the J. Hoover Mackin Award for PhD research, the Arthur D. Howard for Masters degree research, and the Farouk El-Baz Desert Research Student Award. The El-Baz Student Award is new, and every adviser and student interested in warm deserts should check out the information on this award, which includes substantial funding. Please see the Awards section on the QG&G Division website at <http://rock.geosociety.org/qgg/>.

I can echo the sentiments of the many gracious Division members who sit on award committees in relating that the caliber of the award applicants and nominees is impressive, a near-unanimous opinion that speaks loudly to the health and vigor of the disciplines that find a home under the broad QG&G tent. Moreover, our members are selfless colleagues. In my eight years in five different Division offices, I have never had difficulty in soliciting members to participate in the many tasks required for Division operations. In fact, I would say that the number one "problem" faced by the Division is providing enough leadership opportunities for our vastly talented members. I can assure you that other GSA Divisions are not so lucky, and several are moving to expanding officer tenures, in part because they lack enough leadership volunteers to go around.

So with a healthy dose of cheerleading in the previous paragraphs to show that I am a big fan of the Division and its members, bear with me while I share some thoughts on an issue that needs our collective attention immediately lest

we lose influence and control over part of our discipline ... if we have not done so already. I am referring to applied aspects of fluvial geomorphology, a field that has been called "FGM" in some circles.

A simplistic phasing of the problem is that, if the overwhelming majority of research - academic fluvial geomorphologists continues to disregard the rapidly growing field of natural stream design, we will lose control of the direction of applied fluvial geomorphology and miss an opportunity provided by a plethora of hydraulic geometry data. One might argue that geomorphology applications rightfully belong in the field of civil engineering, but the evolving reality is that an expanding market is largely being filled by folks with very limited experience in hydrology or geomorphology, other than a series of workshops on fluvial geomorphology techniques, such as those taught by Dave Rosgen of Wildland Hydrology. These workshops fill an important void in conveying many basics of the discipline, standardizing methodology, and presenting solutions to common stream problems. Hundreds participate in these workshops annually … I'll bet the number exceeds the total enrollment of all academic fluvial geomorphology classes in the USA … raising the awareness of how streams function to a large audience of non-geomorphologists from a variety of backgrounds, and the workshop materials. Several government agencies and NGOs have set completion of these workshops as a *de facto* requirement of natural stream design practitioners.

However, I am sure that everyone will agree there is no way that workshops, no matter how well done, can take the place of in-depth experience such as that acquired through research in a degree program. It seems obvious that the best natural stream design practitioners should come from a pool of traditionally educated geoscientists with a true understanding of fluvial processes, hydraulic geometry, and the geologic controls of sediment supply.

What are we academics doing to prepare our students to walk the natural stream design walk and talk the FGM talk? My conversations with colleagues suggest that the most common positions are to either dismissively criticize or to simply ignore it. My last review of basic geomorphology and fluvial geomorphology textbooks showed even the best tend not to address Rosgen's stream classification and many of the other basic terms that regulators and environmental consulting firms assume are the *lingua franca* of stream work. Hence, today our intellectually well-prepared graduates are likely to sound illiterate to those who most need their guidance… and who might be in a position to offer them a job.

Leaving streams untouched to recreate equilibrium conditions is not a viable solution to deteriorating stream channels in the modern socio-political climate. While this hands-off strategy may make all the sense in the world to those of us viewing through the lens of geologic time, "real" people demand action in a timely manner. Bulldozers and backhoes are already in the channels (especially in the aftermath of floods), and they have been there for a long time. The most viable professional solution for bad streams is for those of us who are knowledgeable to guide the path of mitigation and restoration. Misguided efforts by those who lack a depth of understanding are likely to fail sooner or later, and while these may make for some interesting field trip stops, the ecological costs can be unaffordably high.

Unless we want to allow natural stream design principles to evolve detached from academic geomorphology, we need to insure that our students are fluent in the field and understand its research needs. We should embrace Dave Rosgen for putting the discipline on the front burner of regulators and into the public eye. If we believe that some applied aspects of the field as currently implemented need to be done differently, then we should formulate alternatives and present them to practitioners with good forceful arguments.

We in the Division, in cooperation with AAG-Geomorphology and AGU-Hydrology, should *consider* two concrete steps in the coming year: 1) certification or accreditation of geomorphologists and 2) establishing a

recommended curriculum for applied fluvial geomorphology. I despise gatekeeping and paperwork as much as anyone else, but if we do not act first, I can assure you that some other professional organization will … and I do not cherish the possibility that one would have to be a certified professional engineer in order to practice fluvial geomorphology. Natural stream design and "FGM" will not go away if we ignore them; they will just move out of our sphere of influence.

- ***J. Steven Kite***

==========

QG&G Division Awards - 2002

- - Kirk Bryan Award - -

The Kirk Bryan Award, established in 1951, is given to the author or authors of a published paper of distinction advancing the science of Quarternary geology, geomorphology, or a related field. The 2002 award was presented to **Mark T. Brandon** and **Frank J. Pazzaglia**.


Mark T. Brandon


Frank J. Pazzaglia

- Citation by Peter L.K. Kneupfer

It is a great pleasure to introduce the paper and authors voted the Kirk Bryan Award winners, Frank J. Pazzaglia of Lehigh University and Mark T. Brandon of Yale University, for their paper, "A fluvial record of longterm steady-state uplift and erosion across the Cascadia forearc high, western Washington State," published in 2001 in the *American Journal of Science*, v 301, p 385-431. This paper provides a veritable "how-to" for careful study and use of river terraces as a tool in understanding orogenic evolution, topics very close to my own interests.

Before I discuss the paper and its authors, however, I'd like to place the work in a broader context. Tectonic geomorphology can be viewed as a marriage between the disciplines of tectonics and geomorphology. Tectonic geomorphologists seek to understand the response of landscapes - rivers, hillslopes, mountains - to tectonic deformation while also examining the dynamic and tectonic response of the earth to surface processes, especially loading and unloading due to erosion and deposition.

The field covers a broad range of scales and scientific problems, some of which have been recognized by prior awards from both this division and the Structural Geology and Tectonics Division. For example, aspects of paleoseismology - the study of prehistoric earthquakes - have been recognized in the 2000 Kirk Bryan Award to Brian Atwater and Eileen Hemphill-Haley for their work on recurrence intervals for great Cascadia earthquakes from detailed stratigraphic analysis of buried marsh deposits in Washington and in the 1994 Best Paper Award of the SGT Division to Rolando Armijo, Paul Tapponnier, and Han Tonglin for their study of Late Cenozoic right-lateral strike-slip faulting in southern Tibet. The link between tectonism and landscape evolution has been highlighted in the 1967 Kirk Bryan Award to Clyde Wahrhaftig for his work on the stepped topography in the southern Sierra Nevada and the 1997 Best Paper Award from SGT to Peter Molnar, Philip England, and Joseph Martinod for their analysis of the relationship between uplift of the Tibetan Plateau and the Indian Monsoon. The connection between rivers and tectonism was part of the message in John Hack's paper on longitudinal stream profiles in Virginia and Maryland.

This year's Kirk Bryan Award honors a paper that is a direct collaboration between a geomorphologist and a tectonicist/structural geologist. Frank Pazzaglia is a geomorphologist who has ranged beyond the traditional bounds of modern geomorphology in his studies of rivers and landscape evolution, as shown in his earlier studies of the Cenozoic evolution of the Appalachians by combining study of rivers

and terraces - essentially the erosional record - with the offshore depositional record to reconstruct Appalachian denudation. Mark Brandon is a structural geologist who concentrates on the study of ancient and modern convergent orogens, but has broadened the scope of structural geology to include use of fission tracks and helium analysis to examine denudation, not only in the Olympics but also in the Alps and more recently New Zealand and Kamchatka. His comfort with geomorphologists extends beyond the collaboration honored in this award; he has also lent his statistical expertise to Bill Bull in analyzing lichen dating of earthquake generated rockfall events.

It is not surprising, therefore, that two such broadly based earth scientists would work together to evaluate the record of uplift and denudation in the Olympic Mountains of Washington. Their collaboration began when Frank joined Mark at Yale as a post-doc after finishing his Ph.D. at Penn State in 1993. This initial collaboration led to some papers presented at national meetings. Frank then joined the faculty at the University of New Mexico (a tie to Kirk Bryan!), where he and his students continued studies of river terraces in the western Olympics. Meanwhile, Mark continued work on geochronology in the Olympics with his students and other colleagues. Their collaboration has continued to the present, with the paper honored here and other papers in press or planned.

As I've already indicated, the paper by Pazzaglia and Brandon that we honor tonight marks a major contribution to combining geomorphic and tectonic studies into a coherent whole. The authors summarize the geomorphic and stratigraphic relationships that have allowed them to correlate river terraces along the Clearwater River in western Washington and to tie terrace development and preservation into eustatically controlled base level changes and compare the resulting geomorphically inferred incision rates to denudation rates inferred from fission-track studies. This is careful and thorough work, though in itself it is no more innovative than many other studies of terrace sequences on rivers, even studies that correctly recognize the interplay of tectonics and climate in river-terrace development, as these authors have done.

There are, however, three aspects of the paper that are particularly innovative, and thus make the paper deserving of the Kirk Bryan Award. Two of these deal with how Frank and Mark consider the response of the landscape to tectonic shortening (and thus how to interpret the spatial distribution of fluvial and marine terraces). They are the first authors (in my experience) to account for the lateral translation of a river terrace surface that occurs in an orogen when the rocks and land surface are being moved horizontally by compression. Previous workers have used terrace elevations above a river in a 1D sense to estimate vertical incision rates, and generally they assume that vertical incision rates equal uplift rates. Pazzaglia and Brandon correctly recognize that if the mountains/rocks of the Olympic Peninsula are actually moving westward relative to the Pacific Ocean coastline, vertical incision of the Clearwater River will result in abandoning a terrace long profile that is moving horizontally toward the west. Thus terrace incision is a 2D problem, as elevation of the terrace above the river is not exclusively a matter of vertical uplift and incision but of that combined horizontal and vertical translation of the land surface due to tectonic shortening. They provide a simple yet elegant means of calculating the expected results of shortening on apparent river incision (if shortening rates are known).

The second point is related. They recognize that if a marine terrace and its original shoreline are being translated horizontally, then subsequent coastal erosion during sea-level highstands will produce a landward translation of the edge of the marine terrace (even as the original shoreline morphology has been translated toward the ocean by tectonically driven horizontal movement of the landscape). This can result in an apparent uplift of the marine terrace, as the shoreline that was present at the time of terrace formation has migrated oceanward and been eroded away, leaving the cover-bed stratigraphy that was

originally inland (and deposited above sea level) now at the coast. Again, they provide a far more elegant explanation than I have here.

The third aspect of the paper deserving of special mention is the effort the authors make to compare the uplift rates they infer from (corrected) incision rates with the uplift/ denudation profile obtained previously from fission-track dating. They use the similarity of rates between these two techniques to conclude that the orogen has reached a steady state between influx from tectonic accretion and outflux from erosion. While this conclusion is consistent with the data, it is not required, as the uncertainties in denudation rates are large. Nonetheless, this melding of geomorphology and geochronology has been attempted elsewhere, but never combined as successfully as here.

Comments from others about the paper include that it integrates a remarkable range of geomorphic and tectonic research, with the use of geomorphic features to investigate the 2D nature of the orogen as an original and creative approach consistent with the stature of the Kirk Bryan award. Another reader emphasizes how well the authors have integrated the centerpiece of a river-terrace study with neotectonics, glacial geology, geochronology, and sea-level change, coupling all of this with innovative modeling and an exceptionally well written and profusely illustrated text.

In summary, Pazzaglia and Brandon have written a clear, well reasoned paper that comprehensively documents the tectonic signal that can be obtained from a careful study of river and marine terraces. They have corrected most of the errors that are commonly made in this kind of study – particularly the assumption that vertical incision equals uplift rate – and have provided a template for future studies of river response to rapid tectonic uplift and shortening. This paper will be a key reference not only in the field of tectonic geomorphology, but also among those geoscientists interested in mountain-building and the evolution of mountain landscapes in tectonically active regions.

- Response by Mark T. Brandon

I am honored to receive the Kirk Bryan Award. It gives me even greater pleasure to share this award with Frank Pazzaglia, who taught me what rivers can tell us about the evolution of tectonically active landscapes. In the fall of 1991, I attended a GSA field trip in the Transverse Range, led by Ed Keller and Bob Yeats, to learn how geomorphology might be used to measure uplift in the Olympic Mountains. On that trip, I immediately hit it off with a young geomorphologist who was finishing his Ph.D. on fluvial incision and uplift in the northern Appalachians. Frank joined us that summer for a backpacking trip in the Olympics to collected samples for fission-track dating. We spent the whole time in long conversations about all things tectonic and geomorphic. Frank was also quick to realize that the Clearwater drainage would be ideal for a study of strath incision, given that it was the only major drainage that had not been affected by late Pleistocene glaciation.

In the fall, Frank submitted a proposal to NSF, and was awarded a two-year Earth Sciences Postdoctoral Research Fellowship. He was also offered a faculty position at University of New Mexico, but arranged a delay so that he could spend at least one year at Yale. In the summers of 1993 and 1994, Frank produced the first detailed maps of the straths and terrace fill sequences in the Clearwater. His year at Yale was intense. We spent most of the time trying to reconcile our very different experiences with deformation, uplift, fluvial incision, and terrace formation. We also spent considerable time discussing the interplay between tectonics, climate, and erosion at the regional scale. That laid the ground work for a paper on uplift and erosion of the Appalachians, published in 1996.

Frank's student Tony Garcia mapped fluvial stratigraphy in the Dosewallips drainage in the eastern Olympics, but the record there was much shorter and more complicated because of recent glaciation. Frank's student Karl Wegmann refined the fluvial stratigraphy in the Clearwater during the summers of 1997 and

1998. Karl's very nice work on the Holocene fluvial history of the Clearwater just came out in the *GSA Bulletin*.

Frank and I would agree that writing our Clearwater paper was both an exciting and a miserable experience. We knew that at its core, the strath incision record in the Clearwater would provide a fundamental control on longterm uplift across the Olympics. We also knew that the pattern of uplift was very different from that indicated by modern geodetic studies. The reason was simple. Geodetic measurements record both the preseismic elastic deformation, plus the long-term permanent deformation. The strath incision rates were averaging uplift over a much longer time scale, so the elastic deformation associated with the earthquake cycle was averaged out. We struggled for a very long time to figure out how to estimate the ages of strath formation. The ultimate breakthrough came when we figured out how the outwash stratigraphy at the mouth of the river was tied to eustatic sea level. This result provided good age control for the upstream fluvial stratigraphy, which was used to constrain the ages of the underlying straths.
With rates we learned that the incision rates along the river were relatively steady over the last 150 k.y., and also matched the long-term erosion rates indicated by fission-track and He apatite dating. Mary Roden-Tice, John Garver and I had already proposed that the Olympics sector of the Cascadia wedge has been in a flux steady state since about 14 Ma, but to see steadiness on the 100 k.y. time scale was very surprising. Discussions with Sean Willett started us to think about the implications of horizontal displacements on our geomorphic results. We gradually came to realize that the entire landscape was "surfing" into the west coast. Horizontal motion is fastest at the coast, but decelerates farther inland. The deceleration is due to horizontal shortening, in the direction of convergence, and accounts for the landward increase in uplift rates across the western Olympics. Work on thermal-kinematic modeling with Geoff Batt, Mary Roden-Tice, and Ken Farley also provided important support for this conclusion. Differences in our backgrounds caused Frank and me to spend a lot of time debating the reliability of using strath incision as a measure of rock uplift in the Clearwater. Thus the broad scope of the paper reflects our need to come to terms with some of the core ideas in tectonic geomorphology. We are thankful to *American Journal of Science* for providing the space needed to dip deeply into these issues.

I have been lucky to work with a great group of people in the Olympics over the years. To all, including the many individuals not mentioned above, I thank you very much for your collaboration and friendship. I am grateful to my colleagues at Yale. I have profited greatly from the fine intellectual environment there. The long history of accomplishments in the department, both in research and in undergraduate and graduate education, have driven me to make more of my talents, as they are. Even with this award, I was surprised to learn that Kirk Bryan got his Ph.D. from our department in 1920.

I am very lucky to have a wonderful family, with my wife Susan Monsen and my son Alec. Their love and support have long helped to moderate the ups and downs that come with an academic life.

I would like to finish with a comment. Several years ago, the NSF Earth Science Postdoctoral Research Fellowship program was quietly discontinued. I was surprised because it provided a unique opportunity for newly minted Ph.D. students to chart their own direction for postdoctoral research. Those who succeeded got personal recognition for their talents, initiative, and research ideas. I know that Frank profited greatly from his fellowship experience. I hope that the Division of Earth Sciences at NSF will consider reinstating this program.

- Response by Frank J. Pazzaglia

There are not words to describe my surprise when I learned that the Clearwater terrace paper was nominated, let alone awarded the Kirk Bryan Award. It means a great deal to me to have this paper recognized by this division. I have come to call most of you colleagues and a

large number of you friends; it is a fine gesture of mutual respect we have for one another in nominating and making this award every year. It helps us maintain a link with the long list of outstanding geomorphologists upon which the foundation of our science is built. The award carries special meaning for me because I have always felt a certain connection to Kirk Bryan and his work. Kirk Bryan was the second graduate from the Department of Geology at the University of New Mexico. I have had the honor and privilege of studying geomorphology in that department as both a student and as an assistant professor. There is no finer place and no finer group of faculty colleagues for a young geomorphologist to learn how to become a scientist. I consider myself lucky to call Charles Stearns a friend. Charlie was one of Kirk Bryan's last students working in New Mexico, and inspired by him, I continue to work with my New Mexican colleagues on the Tuerto Gravels and geology in the Hagan Basin, both long-time research projects of Kirk Bryan. It is a great thrill to see that the broader community of Quaternary Geologist and Geomorphologists recognize the now maturing field of tectonic geomorphology. And in selecting a paper co-authored by someone traditionally trained as a geomorphologist and another traditionally trained as a structural geologist, I think it speaks well to the good things that can happen when the walls between disciplines are kept low.

The paper that you have chosen to honor tonight reflects the work and consideration of many of you who are not listed as authors but nevertheless deserve recognition. So it is fitting and proper to use this opportunity to recognize the efforts of that broader community. First and foremost, I'd like to thank my co-author Mark Brandon. This paper was such a complete team effort that it is only through his grace and character that my name appears first. Mark has been my closest professional colleague and a good friend for over ten years. I do not assume full responsibility for when Mark starts speaking like a geomorphologist, but our collaboration has certainly forced me to rethink my traditional training!

The geomorphic foundation of what Mark and I tried to accomplish in the Olympics is an outgrowth of that training that I received from Steve Wells, Les McFadden, and Tom Gardner, three of the finest process geomorphologists and citizens in our discipline.

I have been blessed to have mentored 11 outstanding graduate students, two in the Olympics who were among the finest young men any professor could have ever hoped to advise. Tony Garcia worked on the eastern side of the peninsula, and Karl Wegmann worked in the Clearwater basin itself. Karl's remapping of my initial work was instrumental in getting the fluvial stratigraphy correct for the Clearwater drainage. Along with these students, I have had a long-standing relationship with Glenn Thackray who at that time was completing his Ph.D. at the University of Washington and is now an associate professor at Idaho State. Glenn and I spent several summers together and it is his glacial stratigraphy and descriptions of the coastal exposures that anchors much of what we know about the Clearwater terrace ages. Likewise, I am thankful for the cooperation and numerous field discussions with members of the State of Washington DNR, namely Wendy Gerstel and Bill Lingley. And I would like to acknowledge the support and cooperation of the National Park Service, the Quinault Nation, and Rayonier Inc.

The paper benefited greatly from extensive reviews spanning several years as Mark and I wrote, rewrote, revised, rewrote, and rewrote again. I am so thankful that length of time between the first draft and final publication was not a criteria in the award selection process. I'd like to recognize Harvey Kelsey, Brian Atwater, Kelin Whipple, Bill Bull, and most important, Peter Knuepfer, who graciously provided the final advice and push that made the manuscript publishable. Financial support over the years was provided by the National Science Foundation and I'd like to thank the Tectonics Program and the unknown reviewers of my proposal to work in the Olympics for their support. My research continues in the Olympics with the support of my current department at Lehigh University and new collaborators

including Eric McDonald and John Gosse as we attack the very complicated world of soils and cosmogenic exposure ages in the temperate rain forest setting.

Last, in selecting this paper for the Kirk Bryan Award, you have, in a very direct way, recognized the efforts of individuals whose names never make it to the list of authors. I'm speaking specifically of my wife Kristen, who for many consecutive summers was home in Albuquerque with three very young children, alone and with no support while I was enjoying myself grandly in the Olympics being a field geologist. Rarely is there recognition and almost never are there awards for those at home that give us field geologists the freedom and opportunity to do what we do. This award recognizes the support and sacrifice of my wife and I sincerely thank you on her behalf for that.

This concludes my comments; thank you again very much for your recognition of this paper.

- - Distinguished Career Award - -

The Distinguished Career Award, established in 1985, is presented to Quaternary geologists and geomorphologists who have demonstrated excellence in their contributions to science.

William B. Bull

The 2002 award went to **William B. Bull**.

- Citationists Les McFadden and Peter Knuepfer

William B. Bull is a distinguished geomorphologist, one who has broken new ground and challenged conventional assumptions throughout his career. When we

Bill Bull (center), with his two citationists Les McFadden (left) and Peter Knuepfer (right)

told Bill that he had been awarded the QG&G Distinguished Career Award, he suggested that he was too young and that his career is far from over. Both are, of course, true; Bill is one of those people for whom retirement from his academic position simply meant an opportunity to move away from teaching and on to concentrate on the continuation of his research. Nonetheless, it is fitting that we honor his distinguished career for, as one of the supporting letter-writers indicated, he is "one of the most creative if not the most creative geomorphologist in the past forty years."

We will summarize first his research contributions. His early research, with the U.S. Geological Survey and at the University of Arizona, concentrated on the genesis of alluvial fans in arid regions, including their tectonic and climatic significance. This culminated in a series of USGS Professional Papers, mostly published in the 1960s, and recognized as some of the classic research on alluvial fans. This led to further work in the 1970s and 1980s on arid-region fluvial geomorphology and soil development, some in the Southwest U.S. and some with colleagues in Israel.

By the time Les entered the graduate program at the University of Arizona (1974), Bill had long since become aware of the potential uses of pedology as a powerful tool in geomorphologic research. In addition to recognizing how soils, in appropriate settings, could provide important age information, given his experiences with his

Israeli colleagues and friends and his familiarity with the results of the Soil Desert Project, he also understood that careful analysis of certain features in desert soils might provide insights into climatic changes that had occurred during the life of the soil. In subsequent years, Bill came to realize that rates and processes of weathering were the key aspects of sediment production and supply in hillslopes, and considering some of the implications of relations, developed an elegant hypothesis concerning the proposed effects of changes in rates and processes of weathering on slopes might have played a key, if not the key, role in controlling fluvial system responses through many of Earth's dryland areas. Most soil scientists recognize the roles of geomorphic influences on soil development as simply being one factor in the famous “clorpt” equation (the "r" in the equation); but Bill understood the central role landscapes and landscape changes driven by climate, tectonics and other factors might have in influencing pathways of soil development.

The recognition of the tectonic significance of segmented alluvial fans also led him to consider the broader effects of active tectonism on mountains and basins, and in the 1970s he developed a suite of techniques to quantitatively examine the relative activity of mountain fronts, which has been used by him and others in regional seismic-hazards assessments throughout the western U.S. Furthermore, the insights that have developed from such analysis now form the basis for landscape evolution modeling and studies of the link between landscape and uplift. In the 1980s, when Pete arrived for graduate studies, he turned his attention to more humid areas, beginning an association with New Zealand that continues to the present. He sought evidence that flat spur ridges in the South Island were remnants of uplifted marine terraces, climbing numerous ridges in the Southern Alps, above the fiords of southwestern New Zealand, and in the barren mountains of the northeastern South Island, using both morphology and the presence of cover-bed stratigraphy (or more controversially, rounded pebbles) to identify remnant surfaces that he inferred were planed by marine erosion.

By the 1990s he had shifted his attention to trying to date prehistoric earthquakes from lichenometric analysis of regional rockfall events in New Zealand and California. The careful, creative work that Bill has pursued in this arena has established lichen chronology as a viable, high-precision dating tool for young deposits. And he continues development of two books on tectonic geomorphology.

His work in the 1980s and 1990s has not been without critics, but he has challenged other scientists to focus renewed research on problems of uplift and earthquake recurrence, leading to results that commonly substantiate Bull’s interpretations. He has sought to establish conceptual models for the processes occurring in the landscape, from allometry to the threshold of critical power to behavior of discontinuous ephemeral streams, which has resulted in a wide range of publications (including the cornerstone of his book, *Geomorphic Responses to Climatic Change*, which won the Kirk Bryan Award). Through all of this research, he has demonstrated meticulous care in observation, creativity in interpretation, and insight on processes operating in the landscape.

Bill’s contributions as teacher and mentor are no less significant. He was awarded the Neil Miner Award of the National Association of Geology Teachers in 1991 in recognition of his teaching at the University of Arizona. He had an impressive array of graduate students, many of who are leaders in their disciplines today. And his courses attracted a wide range of other students, from engineers to soils scientists to hydrologists, archaeologists, ecologists, and dendrochronologists. Probably most notable among his graduate students (both for the challenge and the experience) was his field course, with trips around Tucson and throughout the Southwest, where we learned how to conduct field research the “Bill Bull way” (though we didn’t all succeed in getting Bill-like results!)

He has been a mentor to numerous graduate students and others throughout his academic career, and this is highlighted both in his publication of several education-related papers

and in his co-authorship with students. He challenged his students to think for themselves, to seek their own research projects even if Bill had a grant he would rather have them work on, and – in short – to become independent researchers. Bill did not hold student's hands – he expected them to "learn on the job" and grow as young research scientists. Nevertheless, his door was nearly always open. Both of us took from him an approach to research and student advising that we hope has been even slightly as successful as his has been.

Bill always treats his colleagues with respect, and his students as his colleagues. And he has always been a gentleman, in the best sense of the word.

Pete: On a personal note, going to Arizona to pursue my Ph.D. studies with Bill had profound influences on me. I met my wife there; when I told Bill that we were planning to marry, he quickly congratulated me, then asked if that was going to affect my intention of doing field research in New Zealand! I learned how to cook fish, hold New Zealand crayfish, cook Pleistocene steaks, and even chase coyotes from our campsite. And I know that I, like most of his students, was able to offer something in return; in fact, we know that the sourdough starter my wife shared with him has made it to Sweden and New Zealand among other places.

Les: Bill had many graduate students during his long and productive academic career, and he formed numerous strong and lasting friendships with a large fraction of those graduate students. One of my favorite times with Bill was running together while talking about some area of geomorphology. Now, with a bum knee, my running days are a distant memory, but I understand Bill still keeps at it–a quality that serves him well in his beloved, rugged New Zealand landscapes. Unlike Pete, I got married a bit later in life when I was already an assistant professor at UNM. So, when I told Bill I was getting married, he did not ask me how it would affect my academic career, as I already had tenure. Bill did come to the wedding out in New Mexico, and although he did not join us in the post-wedding ceremony volleyball match, I know he had a good time talking with John Hawley!

Bill Bull, a scholar, educator, and perhaps most importantly a gentleman; we are honored and delighted to present you with this award.

- Response by Bill Bull

I truly appreciate this opportunity to thank you for a career of encouragement and cooperation. Special thanks go to Mary. Her patience with the busy lifestyle of a geologist and willingness to live in far-away places was vital for success in marriage and career. I could not have attempted foolhardy exploration into the fringes of geology without the diverse contributions of you, my colleagues and students. Your publications and discussions gave me an admirable foundation to start from. Getting off the beaten path has led to new tools and models for addressing questions that I find interesting, and perhaps important. How do alluvial fans form? How did late Quaternary climatic changes affect soils genesis and geomorphic processes? How fast are the mountains rising? How can I make detailed maps of prehistoric seismic-shaking intensity? How does one separate climatic from earthquake signals in tree-ring chronologies?

As a student at Stanford, I realized how crowded the plate-tectonics bandwagon was. So I moved to fringe areas of hydrogeology with Stan Davis as my advisor. For the next 12 years I was fascinated with land-subsidence studies. My work with the Subsidence Research Section of the U. S. Geological Survey delved into the mysteries of collapsing surficial deposits on alluvial fans and the mechanics of deep aquifer systems in the San Joaquin Valley of California. I learned so much under Joe Poland; he was the perfect boss.

Joe Poland let me convert a dissertation chapter into USGS Professional Paper 352E about segmented alluvial fans. I was both brash and fearful when I mailed my introduction to geomorphology to Luna Leopold, then Chief of the Water Resources Division. His reaction was to include Kevin Scott and me on a float trip down the Salmon River of Idaho. Luna's fascination with all things geomorphic resulted

in my moving to the University of Arizona 2 years later. Changing to a new career at the age of 38 was a great way to avoid burnout. I am just now achieving full stride as a geomorphologist, eager to learn and with much room for improvement.

I had never taught, and had omitted geomorphology courses while at Stanford. So I started with minimal biases and learned geomorphology in the field and classroom with my students. Students are indeed our colleagues. Every stellar doctoral candidate was at one time a lowly undergraduate. Our heritage as academic scientists is our students more than our publications.

We live in the golden era of exploration in Quaternary geology and geomorphology. Both photocopiers and desktop computers had yet to be invented in the 1950's when radiocarbon dating began. Now we have an impressive array of computational tools, geochemical and geophysical procedures, incredible satellite images and monitors, and the ever-changing resources of the World Wide Web. As earth scientists we continue to be obsessed about the importance of dating. We now have an array of surface-exposure dating techniques to address different problems and provide useful comparisons with stratigraphic dating procedures. I'm not inclined to terminate geomorphic research when more can be done in a month than could be done in a year only half a century ago.

I look forward to your progress on an important matter that is best addressed by the joint efforts of Quaternary geologists and geomorphologists. Quaternary stratigraphy and studies of surficial process studies are cornerstones for investigating the impacts of global climate change. Let's continue to broaden our work by integrating studies of soils genesis, watershed sediment flux, and ecology with the goal of environmentally friendly and sustainable harvesting of trees and crops. We can satisfy our curiosity to better understand recent earth processes and history and at the same time contribute importantly to a better life on planet Earth. Results should include carefully crafted forecasts of anticipated changes in the frequency and magnitude of geomorphic processes and the resulting changes in landscape characteristics. Let's recognize factors that are mainly a continuation of Quaternary climatic and tectonic heritage as modulated by geologic factors. Then let's reach out to the public with specific guidelines about what needs to be done about factors that are largely the result of the actions of humans.

Donald J. Easterbrook
- - Distinguished Scientist Award - -

The Easterbrook Distinguished Scientist Award, established in 1999, is presented to an individual who has shown unusual excellence in published research, as demonstrated by a single paper of exceptional merit or a series of papers that have substantially increased knowledge in Quaternary geology or geomorphology.

The 2002 award went to **Richard Alley.**

Richard Alley (right), with citationist Peter Clark.

- Citation by Peter Clark

Richard Alley, the Evan Pugh Professor of Geosciences at Pennsylvania State University, is one of the leading "big thinkers" of the Quaternary sciences, and embodies all that the Easterbrook Distinguished Scientist Award means to reward. Starting with his graduate school days, at Ohio State University and then

the University of Wisconsin, Richard continues to publish widely and often on a diverse and rich range of subjects. In short, he is truly a jack of all trades, and master of all of them. Ranging from the microscopic (ice fabrics) to the global scale (climate change), Richard has made important and fundamental contributions to the Quaternary sciences. Among the most important, Richard has been a central and driving force in understanding large-scale dynamics of ice sheets, particularly the West Antarctic ice sheet. Perhaps more impressive has been his role in the U.S. ice core research program, both in terms of providing leadership and in guaranteeing scientific rigor to the interpretations of the exceptional paleoclimate records that have been recovered from Greenland and Antarctica. The ice-core program has without a doubt had the most important impact on our discipline, as well as that of innumerable others, over the last decade, in large part because of the creative and rigorous studies by Richard and his co-workers such as Paul Mayewski, Ed Brook, and Jeff Severinghaus, among others. As everyone in this audience knows, this work has revolutionized our understanding of the way the global climate system works, with the most important implication being what this new-found understanding means for the future. As such, Richard spearheaded the recent National Academy of Sciences publication on "Abrupt Climate Change: Inevitable Surprises."

Richard has a number of great gifts, but certainly the greatest (in my opinion) is his ability to quickly spot the broader significance of even the smallest of observations, to integrate these observations into a coherent hypothesis, and then to communicate clearly and with excitement the various aspects of our science that may appear otherwise mundane and esoteric. Those of you who attended Richard's Easterbrook lecture today on glacial erosion witnessed just the latest example. Because of these qualities, Richard has become a very effective spokesperson for Quaternary sciences, and he is regularly sought for his insights and opinions into the latest research. This applies not only to providing perspective to a scientific readership, but also to the public. In particular, Richard is one of those rare scientists who can present seemingly complex and oblique ideas in a way that the nonscientist can understand and appreciate. It is not uncommon to hear Richard's voice on NPR, read his quotes in the New York Times (or the Corvallis, Oregon Gazette-Times, for that matter), or see him on the Discovery channel speaking eloquently and enthusiastically about any number of subjects in such a way that clearly stirs and attracts the public's interest. This ability to convey the excitement of our science to the public is important in so many ways, with successes ultimately measured in broader support for what we do. Most recently, Richard has capitalized on this gift with the publication of his book "The Two-Mile Time Machine," winner of the 2001 Phi Beta Kappa Award in Science.

These same qualities have made Richard one of the most popular teachers at Penn State, where he regularly teaches more than his share of undergraduate courses while somehow also maintaining an extraordinary pace of publishing, speaking, and reviewing. He has won teaching awards there, and in 2000, Penn State recognized the treasure it has in Richard by awarding him with an Evan Pugh Professorship, the highest academic rank that Penn State bestows, because he "has displayed the courage to pioneer in his or her field, the discipline to remain at the forefront of research, and the generosity of spirit to share these accomplishments with students."

In short, Richard has distinguished himself as one of his generation's leading Quaternary scientists, with significant contributions to research, education, and public outreach. Richard still has a long career ahead of him, and we all look forward to watching it continue to unfold and learning from this gifted individual. It is with great pleasure to present the recipient of the 2002 Easterbrook Distinguished Scientist Award: Richard B. Alley.

- Response by Richard Alley

Wow! Such a statement, coming from Peter Clark and in the name of Don Easterbrook, makes this a truly special occasion, and I thank

you. Peter and I have authored five papers together, and they have been some of my most enjoyable science; I hope he sees himself mirrored in his generous comments.

The colder side of QG&G has been very good to me. I remain impressed by how intricately the different aspects of ice are interwoven, and by how seamlessly they are integrated into the broader field. Making sense of the climatic history in an ice core requires knowledge of how glacier flow archives the record. Ice flow is almost guaranteed to change, altering global sea level. The water and till that lubricate rapid ice motion affect mountain belts and global biogeochemical cycles. Perhaps we need an aphorism: a snowflake is a glacier is an ice core is a moraine is a guide to our future. Certainly, I have been fortunate to have so many good friends help me participate in the breadth and depth of our field.

From great professors including Ian Whillans and David Elliot at Ohio State, and Charlie Bentley and John Perepezko at Wisconsin, I gained a broad and deep appreciation of environmental sciences. From geophysicists and dynamic glaciologists, including Sridhar Anandakrishnan, Don Blankenship, Sean Rooney, Bob Bindschadler and Ed Waddington, I have been privy to the latest and greatest data and insights on the behavior of the big ice sheets. With ice-core scientists, including Kendrick Taylor, Michael Bender, Jim White and Tony Gow, I have been involved in learning amazing things about the history of our planet. With Larry Wilen and Joan Fitzpatrick, I am able to help use the modern versions of good old petrography that they have developed to learn still more. With glacial geologists, including Dan Lawson, Ed Evenson and Grahame Larson, I have studied how ice modifies landscapes. With a broader community, including the members of the NRC Abrupt Climate Change study and the NOAA Panel on Abrupt Climate Change, I have learned how all of these ice results fit into the broader picture. First-rate students and post-doctoral fellows, including Kurt Cuffey, Peter Fawcett, and Christopher Shuman, have steered my thinking and kept my productivity high, and the current group of students is following in the distinguished footsteps of their predecessors. The National Science Foundation, as well as the David and Lucile Packard Foundation and NASA, have provided me the resources to participate. Penn State has given me a congenial academic home, world-class colleagues and other important resources. And my wife Cindy, our daughters Janet and Karen, and my parents Ruth and John have endured and encouraged this seemingly endless pursuit.

QG&G in general, and the ice part in particular, are critically needed in our changing world. The Greenland ice cores, with their records of Greenland temperatures and snowfall, windblown Asian dust, and tropical and extratropical methane, demonstrated the widespread synchrony of repeated, large, abrupt climate changes, but figuring out just what happened where requires a global network of well-dated, high-resolution, multi-parameter climate records. The ongoing, rapid changes in West Antarctica and Greenland, and the surprising fragility of the Antarctic Peninsula ice shelves, lend urgency to the effort to understand big ice. The accumulating evidence of wildly variable and often spectacularly fast geomorphic action by glaciers, and the emerging power of cosmogenic-nuclide and other techniques, are reinvigorating glacial geology. Thawing permafrost and Arctic sea ice, retreating mountain glaciers, outburst floods and debris avalanches emphasize the local as well as global aspects of ice, and the need for local as well as global inquiry and expertise.

So, on behalf of my colleagues and friends, and in anticipation of better and more-relevant science, I thank you for this high honor.

Farouk El-Baz
- - Award for Desert Research - -

The Farouk El-Baz Research Award, established in 1999, is given annually for outstanding work in the field of warm desert research by earth scientists; it is intended to encourage and reward arid land studies.

The 2002 award went to **Jay Quade**. Thure Cerling accepted the award on Jay's behalf.

Jay Quade
2002 Farouk El-Baz Award

- Citation by Judith Totman Parrish

My colleagues, Julio Betancourt and Pete Decelles, and I are honored to present Dr. Jay Quade as the recipient of the 2002 Farouk El-Baz Award for Desert Research. Jay is an extraordinary scientist and an extraordinary person. His research has addressed a number of problems in the geology, hydrology and ecology of both modern and ancient arid and semi-arid environments, and he represents an unmatched blend of field geologist and geochemist. His principal tools include soil and alluvial stratigraphy, stable and radiogenic isotope tracers, and radiometric dating, which he has integrated to make major contributions. His specific contributions include:

The study of vegetation history and the age and rates of desert pavement formation is work that typifies the elegance of much of his research. Recently, Jay estimated the age and rates of formation for desert pavements and associated rock varnish in the Mojave Desert. First, he examined the relationship between pavement density and vegetation cover along elevational gradients to show that vegetation is the main agent of pavement disruption. Today, desert pavements don't occur above 1800 m, roughly the lower limit of pinyon-juniper woodland. Packrat midden studies show that these woodlands extended down to 400 m during the last glacial period until 13,000 calendar years ago. Hence, desert pavements have never formed above 1800 m, all desert pavements above 400 m are of Holocene age, and only those pavements below 400 m could possibly be of Wisconsinan age or older. This work not only constrains the use of desert pavement as a way to date Quaternary surfaces, but also has implications for the controversial technique of rock varnish dating. In the course of his study, Jay determined that rock varnish preservation varies as a function of clast size. Only pavements below 400 m should preserve multiple glacial interglacial varnish-forming events regardless of clast size.

In collaboration with his dissertation advisor, Thure Cerling, and others, Jay demonstrated the influence of photosynthetic pathway on the isotopic composition of pedogenic carbonate. They demonstrated, among other things, the importance of plant photosynthetic pathway, relative to other environmental factors, in determining the isotopic composition of pedogenic carbonates. This baseline study allowed them to show that the layered carbonates in the fault fractures of the notorious Trench 14 near Yucca Mountain, Nevada formed pedogenically, and do not represent vein cements and travertine from ground-water flow. Hence, the regional ground-water table must have remained below the level of Trench 14 during the past few hundred thousand years. This and other evidence compiled by Jay and his colleagues have been instrumental in evaluating Yucca Mountain as a high-level nuclear waste repository be located 200-400 m above the modern water table.

In a related series of studies, Jay and his colleagues determined ground-water histories from paleospring deposits by mapping and dating the deposits to reconstruct ground-water-level elevations in the southern Great Basin and in the Atacama Desert. In semi-arid regions, such as the southwestern U.S. and the Atacama Desert, such spring deposits outcrop at similar elevations along the borders of alluvial basins and thus are frequently mistaken for lacustrine deposits. For example, the same paleospring deposits studied by Jay in the southern Great Basin were once invoked as evidence for Pleistocene Lake Amargosa. Instead, these distinctive deposits mark the maximum ground-water levels attained in the valleys during the Quaternary. His work on these paleospring deposits defined a new class of sediments that had been previously neglected and misinterpreted, or needed clarification. The latter is the case for the

famous black mats that developed along spring-fed streams throughout semi-arid portions of North America during the Younger Dryas. Most recently, Jay and his colleagues used paleospring deposits, including diatomite and black mats, to reconstruct past ground-water level fluctuations in the Atacama Desert on the hyperarid Pacific slope of the Andes. Their results challenge current ideas about the history of monsoonal rainfall in the central Andes.

Jay and his colleagues have played a major role in documenting the Neogene development of the Asian and other monsoon climate systems. In these papers, they showed that the onset of the Asian monsoon is strikingly marked by a carbon-isotopic shift of > 10‰ in pedogenic carbonate and soil organic carbon starting about 7 Ma. This shift was the result of replacement of woody plants by drought-tolerant and summer-flowering C_4 grasses. Jay and his students have shown that there were synchronous isotopic shifts in North and South America, suggesting that onset of the Asian monsoon was attended by contemporaneous development of the North and South American monsoons. He and his colleagues were also able to constrain the geographic influence of monsoonal climate; for example, they used similar isotopic evidence to show that monsoonal climate did not extend into Greece or Turkey during the Neogene. They also related the isotopic shift at 7 Ma, and related paleoecologic information, to ideas about changes in pCO_2 of the atmosphere, and weathering. They concluded that evidence from the Bengal Fan previously cited as indicating greater weathering rates during the period must indicate some other process. In a later paper, they concluded that the Cenozoic seawater strontium signal previously attributed to greater silicate weathering rates in the Himalayas may be explained simply by variations in the rock type (especially carbonates) exposed during uplift and erosion.

Nearly all of Jay's work is multidisciplinary. He is a generous and perceptive collaborator and a most congenial colleague. The impact of his work has been both broad and deep, and he richly deserves this recognition.

- Response by Jay Quade
(Read by Thure Cerling)

Greetings from Sucre, Bolivia!

I am far away on my sabbatical and could not be here personally to accept the Farouk El-Baz Award, so my thanks to you, Judy, for delivering this short note.

My first reaction when I received news of the award was one of total disbelief, and my feelings of unworthiness are only intensified by the knowledge of those who have received this award before me. But I humbly and gratefully accept the recognition and send out my thanks to all of those who supported my recommendation.

Two colleagues I especially want to recognize are Dr. Marti Mifflin and Dr. Thure Cerling, who mentored me during my more formative years and taught me how to think about desert processes in new and creative ways.

At the time this note is being presented I will be somewhere in the Atacama Desert of Chile, sampling soils, crawling in and out of caves, and generally trying to stay warm. But my thoughts on this day will be focused on the award and on those of you here today. Again, my heartfelt thanks to all.

- - **Arthur D. Howard Research Award** - -

The Arthur D. Howard Award, established in 1992, provides support for graduate student research in Quaternary geography or geomorphology. The 2002 award went to:

Nicole Davis, M.S. candidate, Montana State Univ. (Bill Locke, Stephen Custer, Ken Pierce). *Investigations of glacial Lake Musselshell, central Montana.*

Honorable Mentions:

Heidi Natel, M.S. candidate, SUNY Oneonta (P. Jay Fleisher). *Timing, characterization and rates of sedimentation in proglacial Lake Tonawanda, western New York State.*

Isaac Larson, M.S. candidate, Utah State Univ. (Joel Pederson, John Schmidt). *Linking bedrock*

geology, precipitation, and hillslope processes to debris flow in Dinosaur National Monument.

- - **J. Hoover Mackin Award** - -

The J. Hoover Mackin Research Award, established in 1974, provides support for graduate research in Quaternary geology or geomorphology.

The 2002 J. Hoover Mackin Award went to **Greg Balco**, Ph.D. candidate, Univ. of Washington (John Stone). *Erosion beneath the Laurentide ice sheet, and its role in Pleistocene ice age dynamics.*

Honorable Mention:

Andrew Wilcox, Ph.D. candidate, Colorado State Univ. (Ellen Wohl). *Velocity structure, turbulence, and morphology of steep mountain stream channels.*

From right: Isaac Larson, Greg Balco, Nicole Davis, Heidi Natel

- - **Gladys W. Cole Memorial Award** - -

The Gladys W. Cole Award, established in 1980, provides support for investigations of geomorphology of semiarid and arid terrains in the United States and Mexico.

The 2002 award went to **Cassandra Rose Fenton**, (USGS Water Resources – Tucson), for her research on age-dating of Quaternary climate changes preserved in fluvial and alluvial deposits in the Colorado River basin, southwestern USA.

==========

Consider Contributing

As most of you know, our Division offers a number of awards, two of which are student awards. The following list is of those who contributed specifically to the Division's awards (abstracted from *GSA Today*, v 13, no 3):

DONALD J. EASTERBROOK FUND
Donald J. Easterbrook

FAROUK EL-BAZ FUND
Diane M. Cozzi
Karima El-Baz
Mohamed A. Gheith

J. HOOVER MACKIN AWARD
P. Thompson Davis
Robert H. Fakundiny
Joseph A. Mason
Donal R. Mullineaux
Dwight L. Schmidt
John D. Vitek

It is fully appreciated that many of us contribute to the unrestricted and other fund categories, which obviously is very much appreciated. However, if you would like to contribute to the QG&G Division awards, the two student award funds (Howard and Mackin) are particularly meritorious in that they support our up and coming scientists and teachers.

- Bill Johnson, QG&G Newsletter Editor

==========

2003 QG&G Awardees

The following are the 2003 awards made public as of the production of the newsletter:

Kirk Bryan Award
Michael Waters, Texas A&M University
Vance Haynes, University of Arizona

Distinguished Career Award
Nat Rutter, University of Alberta

Donald J. Easterbrook Distinguished Scientist Award
Tom Dunne, University of California — Santa Barbara

==========

TO ALL VOTING MEMBERS OF GSA'S QUATERNARY GEOLOGY & GEOMORPHOLOGY DIVISION:

This is the ballot for 2003-2004 officers for the Quaternary Geology & Geomorphology Division. Please vote by marking your ballot, completing the section at the bottom of this page, and returning it to GSA postmarked no later than **August 31, 2003**. Biographical data for this year's candidates is on newsletter pages 21-22.

If you prefer, you may vote online by August 31 at <**http://rock.geosociety.org/balloting/qgg.asp>**. At that site, access the online ballot using your GSA member number (or your e-mail address if it is in your GSA records). For assistance, please contact GSA at <gsaservice@geosociety.org>, at (303) 447-2020 (option 3) or call tollfree at (888) 443-4472.

Chair (vote for one candidate):

Ellen E. Wohl ( ) Write In _____ ( )

First Vice-Chair (vote for one candidate):

Alan R. Gillespie ( ) Write In _____ ( )

Second Vice-Chair (vote for one candidate):

John E. Costa ( ) Thomas W. Gardner ( ) Write In _____ ( )

Treasurer (vote for one candidate):

Scott F. Burns ( ) Write In _____ ( )

Newsletter Editor / Web Manager (vote for one candidate):

Dennis E. Dahms ( ) Write In _____ ( )

For Members of the Panel (vote for **three** candidates):

Kenneth D. Adams	( )	David J. Harbor	( )
Whitney J. Autin	( )	J. Bruce Harrison	( )
Mark A. Gonzalez	( )	Glenn D. Thackray	( )

Write In _____ ( )

Complete the following section to make your ballot valid. Mail your ballot postmarked by August 31, 2003, to:

Quaternary Geology & Geomorphology Division
Geological Society of America
PO Box 9140
Boulder, CO 80301-9140

Your Name (printed) _____

Your Signature (required) _____

Your GSA Member Number* (required) _____

* Given at the top of your GSA Today label. GSA contact information for assistance is printed near the top of this ballot.

Fold On Lines and Tape Closed (please do not staple) or Place in Envelope to Mail

Place
stamp
here

Quaternary Geology & Geomorphology Division
Geological Society of America
PO Box 9140
Boulder, CO 80301-9140

Ballot

Fold On Lines and Tape Closed (please do not staple) or Place in Envelope to Mail

Bios

For the Election of 2003-04 Officers of the Quaternary Geology and Geomorphology Division

Wohl, Ellen E. Fluvial geomorphology, Quaternary fluvial paleohydrology. Educ: BS Arizona State Univ; PhD Univ of Arizona. Prof Exp: Colorado State Univ, Asst Prof (89-95), Assoc Prof (95-00); Prof (00-pres). Prof Affil: GSA (mbr 87, Fellow 97); AGU. GSA Service: Geomorphology, assoc ed (96-pres); Bulletin assoc ed (98-pres); Comm on Committees (97); QG&G Panel (96-98); QG&G rep Joint Tech Prog Comm (03); QG&G Second Vice-Chair (01-02); QG&G First Vice-Chair (02-03). Addntl Service: Water Resources Rsrch, assoc ed (01-pres). Awards: GSA Gladys Cole Memorial Award (92); Assoc Am Geog G.K. Gilbert Award (99). Rsrch Int: Hydraulics, sediment transport, channel geometry, physical-biological interactions, human impacts of mountain rivers & bedrock channels.

Gillespie, Alan R. Quaternary geology, glacial geology, remote sensing, geochronology. Educ: BS Stanford; MS, PhD Caltech. Prof Exp: Jet Propulsion Lab, NASA/Caltech, Tech Staff (70-87); Univ Washington, Rsrch Prof (87-97), Prof (97-pres), Keck Remote Sensing Lab Director (95-pres); Desert Rsrch Inst, Div Earth & Ecosytem Sci, Int Director (99-00); JPL Distinguished Visiting Scientist (97-99). Prof Affil: GSA (mbr since 84); AGU, AMQUA. GSA Service: Geology, edtrl brd (88-90); QG&G Panel (92-94); QG&G Second Vice-Chair (02-03). Addtnl Serv: Quaternary Research, edtr/assoc edtr (96-pres); JGR, assoc edtr (93-95); Remote Sensing of Envt, edtrl brd (99-pres); Brd of Dir, Epigraphic Soc (96-pres), Damdin Da Intellectual Dvpt Fund, Mongolia (00-pres); US/Japanese NASA/ASTER satellite prog Science team mbr (93-pres); Humboldt State Univ Adj Prof (88-pres); helped organize and conduct field trips for FOP, GSA, short courses, workshops, etc. Rsrch Int: Glacial geology/history of Sierra Nevada and Central Asia, remote-sensing theory & application, archaeoastronomy.

Costa, John E. Geomorphology, surface-water hydrology, sedimentology. Educ: BS State Univ of NY; PhD Johns Hopkins Univ. Prof Exp: Univ of Denver, Asst to Assoc Prof (73-83); USGS, Natl Rsrch Prog (83-86); Colo School of Mines, Adj Prof (86); USGS, Cascades Volc Obs, Proj Office Chief (86-98); Univ of Wales, Visiting Prof (95-96); USGS, Natl Flood Sci Coord (98-pres). Prof Affil: GSA (mbr 71, Fellow 79); AGU. Awards: GSA Disting Serv Awd (95); Assoc Engg Geol Pub Awd (82), Brit Geomorph Res Grp Wiley Awd (97); Dept Interior Merit Serv Awd (96). GSA Service: Bulletin assoc ed (82-88), edtr (89-91, 92-94); QG&G Panel (84-86, chr 89-90), Secty (88-90); Comm on Pubs (89-91, 92-94, 97-pres); Comm on Comm (92); GSA Councilor, (96-98); Exec Comm (97-98); Comm on Extl Awds (chr 97); Penrose Comm (96-98, chr 97); Comm on Investments (98, 02-03); Exec Dir Search Comm (99); Annl Prog Comm (00-03); Audit Comm (02-03); Budget Comm (chr 02-03); Globalization Rvw Brd (02-03); Prog Overview Comm (02-03); Finance Comm (03); GSA Treas (01-pres). Addtnl Serv: AGU Books Brd Chr (97-02). Rsrch Int: Paleoflood hydrol; fluv geomorph; mag/freq of effective geomorphic events; debris flows; hydrol & hydraulics of extreme flood events.

Gardner, Thomas W. Quaternary landscape evolution, fluvial geomorphology, tectonic geomorphology. Educ: AB Franklin & Marshall Coll; MS Colo State Univ; PhD Univ. of Cincinnati. Prof Exp: Exxon Minerals Co (78-79); Penn State Univ, Dept of Geosci Asst Prof to Prof (80-95), Earth Systems Sci Ctr Faculty Assoc (87-95); Trinity Univ, Geosci Dept Distinguished Prof (96-pres). Prof Affil: GSA (mbr 78, Fellow 87); AGU, Sigma Xi, South Texas Geol Soc. GSA Service: Geology edtrl brd (89-91, 92-94, 00); QG&G Div Award Panel (92-93); Bulletin assoc edtr (94-96, 97-99); Comm on Penrose Conf (98-99, chr 99), Conf Attendee (98-00). Rsrch Int: Quaternary landscape evolution, passive (eastern US; Australia) & active (Costa Rica; California) continental margins; tectonic geomorphology, plate margin processes, Middle America Trench, Costa Rica; Quaternary glaciation, northeastern US.

Dahms, Dennis E. Quaternary stratigraphy, glacial history, paleoclimate; alpine geomorphology. Educ: BJ Journalism, AM Documentary Film, Univ of Missouri-Columbia; MA Anthropology, Univ of Colorado; PhD Physical Geog, Univ of Kansas. Prof Exp: Science Applications-Overland Archeology, Staff Geoarcheologist (80-83); Univ of Northern Iowa, Dept Geog, Asst Prof (90-95), Assoc Prof (96-pres). Concurrent Position: Univ of Missouri Dept Geology, camp E.B. Branson, Lander, WY, Visiting Assoc Prof (96-pres). Prof Affil: GSA (mbr since 81). Rsrch Int: Alpine glacial history and geomorphology of the US Rocky Mountains.

Adams, Kenneth D. Quaternary geology, geomorphology. Educ: BA Humboldt State Univ; MS Montana State Univ; PhD Univ of Nevada, Reno. Prof Exp: Desert Rsrch Inst, Div of Earth & Ecosystem Sci, Rsrch Assoc (98-00), Asst Rsrch Prof (00-present); Univ of Nevada, Reno, Grad Prog of Hydrologic Sciences Faculty (00-pres), Dept of Geol Sci Instructor (Fall 99, 01), Dept of Anthro Sundance Archeol Rsrch Fund Rsrch Assoc (01-pres). Prof Affil: GSA (mbr since 95); AGU, AMQUA. GSA Service: Field trip co-leader, Annl Mtg (00). Rsrch Int: Great Basin & Bolivian Altiplano paleolake geology, isostatic rebound effects on surface processes, paleoclimatic implications of lake-level fluctuations; sed/strat of lacustrine sedts; shore processes, reconstructing paleowind regimes; geoarch, effects of paleoenvtl fluctuations on early humans in Great Basin; Lake Tahoe glacial & lacustr dynamics, modern shore processes, delineating sediment & nutrient contributions from shore erosion.

Autin, Whitney J. Geomorphology, Quaternary geology, environmental resource management. Educ: BS Nicholls State Univ; MS Univ of Miss; PhD LSU. Prof Exp: Louisiana Geol Surv, Rsrch Geol (78-94); LSU, Inst for Envtl Studies, Rsrch Asst Prof (94-97); SUNY Coll at Brockport, Dept of the Earth Sci, Asst Prof (97-01), Assoc Prof (01-pres). Prof Affil: GSA (mbr since 84); SEPM, AMQUA. GSA Service: Sedty Geol Div rep Joint Tech Prog Comm (95-97); field trip leader, Annl Mtg (95). Rsrch Int: Quaternary geology, Lower Mississippi Valley; paleohydrology, Lake Ontario Lowlands; geomorphic & stratigraphic evolution of soils & paleosols; magnetic susceptibility of soils & sedts; flood plain & watershed mgmt; mgmt of non-fuel mineral resources.

Gonzalez, Mark A. Geomorphology, fluvial geomorphology, soils, envtl geology, dendrochronology, earth sci education. Educ: BA Carleton Coll; MS, 2nd MS Univ of Wisc-Madison; PhD Univ of New Mexico. Prof Exp: Los Alamos Natl Lab, Grad Asst (88-91); Carleton Coll, Instr (90); Univ of Denver, Asst Prof (91-00); USGS, Visiting Hydrol, (94-96); North Dakota Geol Surv, Geol (00-pres). Prof Affil: GSA (mbr since 85); AMQUA, Sigma Xi, ND Geol Soc. Awards: GSA QG&G Div J. Hoover Mackin Award (86), 5 teaching awards at Univ of Denver. GSA Service: Convened, organized theme sessions for GSA mtgs (96, 99) & field trip (91). Addtnl Serv: New Mexico Geol Soc field trip (95); North Dakota Geol Soc officer (01-pres); North Dakota State Science Standards Comm (00-pres). Rsrch Int: Fluvial geomorph, geomorph/neotectonics Rio Grande rift, dendrochronology.

Harbor, David J. Geomorphology. Educ: AB Earlham Coll; MS Penn State Univ; PhD Colo State Univ. Prof Exp: Univ North Carolina at Charlotte, Asst Prof (92); Washington and Lee Univ, Virginia, Dept of Geol, Asst Prof (92-98), Assoc Prof (98-pres). Prof Affil: GSA (mbr since 83), PBK, SigmaXi, NAGT. Rsrch Int: Fluvial geomorphology, tectonic geomorphology & landscape evolution; fluvial terraces, terrace soil development & chronology; cave stratigraphy applied to incision history; Appalachian geomorphology; fluvial bedforms.

Harrison, J. Bruce. Soils, soil geomorphology. Educ: B Agr Sci, M Agr Sci (Soil Sci), Lincoln Coll (New Zealand); PhD Geology, Univ New Mexico. Prof Exp: New Zealand Ministry of Works, Soil Conservator (73-76), Soil Scientist (79-82); NZ Forest Research Institute, Soil Scientist (83-85); Hebrew Univ of Jerusalem Post-Doc (92-93); New Mexico Tech, Asst Prof (94-98), Assoc Prof (99-pres). Prof Affil: GSA (mbr since 89); AGU, SSSA, NZSSA, NZ Hyd Soc. Rsrch Int: Spatial variability of soils, geomorphic processes and soils, soils and neotectonics, soil influences on hydrological processes in arid environments, geoarcheology.

Thackray, Glenn D. Quaternary geology, geomorphology, hydrogeology. Educ: BS Beloit Coll; MS Univ of Oregon; PhD Univ of Washington. Prof Exp: Idaho State Univ, Dept of Geosci, Asst Prof (95-00), Assoc Prof (00-pres); Arch Consultant (90, 92); Hydr Consultant (88-00). Prof Affil: GSA (mbr since 94); SigmaXi, AMQUA. GSA Service: Field trip leader, Annl Mtg (94); Rocky Mtn Section Vice-Chair (98-99); field trip chr, Rky Mtn Sctn Mtg (99). Rsrch Int: Quaternary geology, glacial & lacustrine paleoclimatic records, influences of precipitation on glacier fluctuations in western US & New Zealand; geomorphology, remote sensing applications, landslide processes, fluvial evolution; hydrogeology, Quaternary strat influences on groundwater flow.

Alan Nelson – QG&G Secretary Extrordinaire

Because of the Secretary's relative invisibility, Alan Nelson's service to the division has been largely unappreciated. For five years (by my count), he put in long hours creating and editing documents for the division, e.g., the division bylaws (a.k.a. Groundhog Day Document). Maybe more important was his attention to detail and scheduling: he was relentless when it came to seeing that the division was shipshape. If one of us (Management Board members) was lagging in our duties, we would get an abrupt to-the-point reminder (or worse) from Alan. Thank you for everything, Alan!

- Bill Johnson

==========

Kirk Bryan – An Historical Note

Kirk Bryan was born in Albuquerque, New Mexico, on July 22, 1888. Albuquerque was home during his early life when that city was a small frontier town. He was educated in public schools there and at the University of New Mexico, where he received the A.B. degree in 1909 and an honorary D.Sc. in 1947. As a young undergraduate geologist, he was present at The Geological Society of America meeting in Albuquerque in December 1908, which was attended by 28 members, five nonmember geologists, students, and casual visitors (at that time, the total membership of the Society was 298). At this meeting Kirk met H.E. Gregory and through him decided to go to Yale for graduate study, which he eventually did, but the First World War interrupted his studies.

At the outbreak of the First World War, Bryan applied for admission to an officers' training camp but was refused after his physical examination. He then tried to enlist and was again rejected. Finally, he was drafted and went to France as a private in the Corps of Engineers. When he was given a job as draftsman, he found that most army officers could not read a topographic map and so in his spare time he prepared block diagrams of the area at the front. The army officers could understand this, and the block diagrams were in tremendous demand. He received a citation for them. He was commissioned a Second Lieutenant and transferred to the Geologic Section, General Headquarters, U.S.A., under A. H. Brooks where he worked until the end of the war. Bryan was always interested in military geology and wrote several papers on the subject.

Bryan was an instructor at Yale while a graduate student, and he received his Ph.D. there in 1920. Previously, in 1912, he had joined the staff of the U.S. Geological Survey in the Ground Water Division. He was made geologist in the Ground Water Division in 1920 and senior geologist in 1926. Also in 1926, Bryan was appointed lecturer at Harvard. He was made assistant professor of physiography in 1926, associate professor in 1930, and professor in 1943. He received the A.M. Honorary degree from Harvard in 1942.

The fascination with arid country, especially that of New Mexico, and an interest in the problems of such a country remained with Bryan throughout his life. Much of his field work was done in the semiarid west and much was related to water resources. For the U.S. Geological Survey he worked on water resources and geology in the Sacramento Valley, the problems of ground water in the area of plateau basalts in the Columbia River basin, desert watering places in the Papago country in southern Arizona, and on springs, including the hot springs of Arkansas. In later years, he and

his students carried on an extensive study of the Rio Grande depression in New Mexico and adjacent States, and they contributed to our knowledge of the history of the Rio Grande throughout Tertiary times, and to the sediments deposited in the basin and the structure and history of this depression.

Bryan believed that a study of the physiography of an area requires detailed mapping of the younger rocks of the area and a study of the stratigraphy, structure, processes of sedimentation, and, in many parts of the West, the volcanology. He was always an active field geologist, and was convinced that most geologic problems must be solved largely by field work. He was nevertheless greatly interested in the developments of techniques for the quantitative measurements of geomorphic processes.

His chief contributions to geology were in the physiography, geomorphology, erosion, and sedimentation of arid regions. He studied the cycle of erosion in an arid region, much as Davis had for that in a humid region, and developed the concept of pediments as the end form of erosion in arid and semiarid regions. He made noteworthy applications of physiography and geology to other sciences. In engineering geology, he examined a number of dam and reservoir sites. He was consultant to the Mexican government on several water conservation projects in that country. He was an early contributor to the problem of frozen ground and was much interested in glacial geology, particularly glacial chronology.

For many years, Kirk cooperated with members of the Department of Archeology at Harvard and was keenly aware of the interrelation between geomorphology and archeology. He and his students accompanied many field expeditions carried on by archeologists in many parts of the world, and they have contributed a number of papers on early man. Kirk spent much of the summer of 1950 in Wyoming with a party of archeologists. On August 21, the group was in Cody, Wyoming, for a conference, and Mrs. Bryan was with them. While there he was suddenly stricken and died before medical aid could reach him.

[Abridged from a Memorial to Kirk Bryan by Esper S. Larsen, Jr., in the Proceedings Volume of the Geological Society of America Annual Report for 1950, May 1951, p. 91-96.]

At its April 1954 meeting, the Council of the Geological Society of America approved the recommendation that the Society bylaws be amended to permit Groups (now known as Divisions) to be formed by fellows and members from “particular branches of geology”. At its next meeting, a year later, the Council approved the petition to establish a Group on Geomorphology. Then in 1956, to quote from the report of H. E. Wright, then Secretary of the Geomorphology Group, “at the annual business meeting, Chairman Mackin appointed a committee on the Bryan Award consisting of C.S. Denny (Chairman), L.B. Leopold, and H.T.U. Smith. The first Kirk Bryan Award was presented in 1958 to Luna B. Leopold and Thomas J. Maddock, Jr. for their paper entitled “The hydraulic geometry of stream channels and some physiographic implications”: U.S. Geological Survey Professional Paper 257, 57 p.

- ***Rich Madole, QG&G Historian***

==========

QG&G Division Necrology

Arthur N. Strahler (1918 – 2002)

Arthur N. Strahler passed away on December 6, 2002. He was born in 1918. Mrs. Marge Strahler preceded him in death on December 12, 200l. They are survived by their daughter Elaine who lives in New York City, their son Alan (a Professor of Geography at Boston University), Alan's wife, Kristi, and granddaughter Amy.

Arthur Strahler was a pioneer in quantitative geomorphology. His knowledge of geomorphology was very broad. He was an inspiring teacher with a dry sense of humor. His students at Columbia University in the 1950's were very influential.

He (and later Alan) wrote textbooks for introductory physical geography courses and

earth science courses that are widely used. He has also written a book on “Plate Tectonics” (1998), and on “Science and Earth History: The Evolution Creation Controversy” (1987). He wrote “A Geologist's View of Cape Cod” (1966) for tourists and students.

His influence extends beyond geomorphology to the morphometric study of fractal trees, and biological tree-like networks.

Geomorphologists and many other scientists are in his debt.

- Michael Woldenberg

George Mahon Stanley (1905 – 1998)

In the spring of 1971, about the time that Thane Anderson was finishing his Ph.D. thesis on Lake Algonquin in Biology at Waterloo, we co-authored a paper presented at the North-Central Section of the Geological Society of America meeting at Lincoln, Nebraska. Shortly after the meeting I was stunned to receive a letter from George Stanley in California. He had seen the GSA abstract and wrote to say how happy he was to see we were carrying out work on Lake Algonquin. My great surprise was because, although I was familiar with his papers from when I became involved with Algonquin in the Alliston area in the 1960’s, they were published in the 1930’s and he had apparently “disappeared” long before 1971.

During subsequent months he informed me of plans to visit Ontario. So, in the summer of 1972 he and his wife arrived in car and trailer and stayed at a campground at Kincardine while we were nearby at a cottage. We spent a few days in the field together and he helped me survey a profile from Lake Huron up across the Algonquin beach bar and lagoon south of Kincardine; we were happy to acknowledge his field assistance in our 1975 Lake Algonquin paper. George amused our three young children (the Stanleys had two children) with hand and string tricks and being able to tie a knot in a string in his mouth with his tongue. In the field he always had a hand level in his belt and used it frequently comparing heights to local features. Thane took a picture of George and me in a former gravel pit in the Algonquin bar at Kincardine, by then in use as the town dump. After a few days, George and his wife went on north up the Bruce Peninsula as he said he had a lot of unpublished data in the area he wanted to review.

We corresponded and exchanged Christmas cards for many years after. While on sabbatical at La Jolla, California, in 1976-77, we talked on the phone and he invited me to see his work on pluvial Lake Cahuilla in the Imperial Valley, but we never got together because I was busy with something and couldn’t get away. Eventually, we lost touch and I have been watching for news of his death, becoming convinced I was not going to hear anymore, when a notice appeared in the July 1998 issue of *GSA Today*.

A little biographical searching produced a list of publications that is short by today’s standards. The peak of publication was his several papers dealing with Lake Algonquin shorelines, standard references still cited today. He illustrated his work with neat detailed sketches showing the field relationships of beaches and bluffs. He named the Lower Algonquin beaches. Hough, in his Great Lakes work, named the low water phase of Lake Huron Lake Stanley after George Stanley, who had described the submerged valley in Mackinac Straits between Lake Michigan and Lake Huron. Most of Stanley’s Algonquin work was in Ontario. He described buried organics in Algonquin deposits near Cape Rich in what became the Meaford Tank Range in the Second World War. Not until 1992 did Bern Feenstra, Phil Kor, and I gain access to the site from the army, only to find slump and vegetation had obscured it.

George was born in Detroit, Michigan on March 5, 1905. He was 93 at the time of his death. He received his B.S., M.A., and Ph.D. from the University of Michigan. His doctoral thesis (1932) was on “Abandoned strands of Isle Royale and northeastern Lake Superior”, work from which he named the Mining shoreline of the Superior basin. He joined the staff of Michigan as Instructor (1930-38), rising to Assistant (1938-43) and Associate Professor (1943-48). He then moved to California to

Fresno State College, becoming Professor in 1954 and Chairman 1955-64. He retired in 1967 to become a consulting geologist. His last entry in American Men and Women of Science was in 1973.

After moving to California, his interest in lake history was transferred to pluvial and playa lakes, represented by a few abstracts and one full paper. The latter, on Racetrack Playa (1955), dealt with one of the quirky geological mysteries where boulders had moved across the playa mud leaving trails. The usual explanation was transport by wind force, but George explained spatially linked trails to movement of pan ice dragging the boulders. Restudy of the problem by Reid et al. (1995) in Geology 23, 819-822 concluded that George Stanley's ice theory is correct.

Although his publications are relatively few, they are very significant. He was adept at interpreting and portraying field data, and his work, while centered in the descriptive geomorphology and history of large lakes, also involved geoarcheology. His work, in fact, spans the interests of three GSA divisions – QG&G, Archaeological Goelogy, and the new Limnogeology Division. He had some engineering background too, which influenced his three-dimensional perception of landforms (also relevant to the Engineering Geology Division).

I only knew George a little late in his life, but it was a great pleasure and privilege to have crossed paths with him, largely by chance. As I plan to extend my Lake Algonquin shoreline surveys into the Bruce Peninsula of Ontario this summer, I will be thinking of him, wondering where I'm crossing paths trod by George Stanley over half a century ago.

- Paul F. Karrow

Glenn Goodfriend (1951-2002)

As scientists we each enjoy the genuine sense of discovery that comes from our daily work on earth systems and earth history. For most of us, our love of fieldwork is complemented by selfless hours of laboratory work and the camaraderie and inspiration that come from collaborations with colleagues. The outgrowths of this process are the enduring publications that pass on our knowledge to others. On Ocotber 15, 2002, just before the national GSA meetings he rarely missed, Glenn A. Goodfriend passed away prematurely at the age of 51 – he was one who had so much more to discover and pass on. Following serious health problems that apparently developed late last spring, he died at George Washington University Hospital of pneumonia and serious complications from rhinocerebral mucormycosis, a systemic fungal disease.

Glenn was a scientist with many talents across the fields of Quaternary stratigraphy, paleontology, zoology, biogeochemistry, geochronology and paleoclimate. He also had interests in geoarcheology and was most widely known for his specialties in land snail ecology and amino acid racemization studies.

As a native of New Rochelle, NY, Glenn earned his undergraduate degree in zoology from the University of Rhode Island in 1973. He later earned a Masters degree in Evolutionary Biology from the University of Chicago in 1978 and a Ph.D. in zoology from the University of Florida in 1983. From 1983 to 1988 he worked as a post-doctoral fellow and research scientist in the Isotope Department at the Weizmann Institute of Science in Israel. His position there changed to that of senior scientist in the then, renamed, Department of Environmental Sciences & Energy Research. After returning to the U.S., he became a senior Research Associate in the Geophysical Laboratory of the Carnegie Institution of Washington from 1990 to 1998 while also serving from 1993 – 1995 as an adjunct faculty member at John Hopkins in the Environmental Earth Sciences and Policy Program. In 1998, Glenn then joined the Department of Earth and Environmental Sciences at George Washington University as a Research Professor until his death.

Glenn had published more than 40 scientific papers, not counting the ones he likely left unfinished on his computer due to health problems in recent months. As a broad thinker

in his work, he had collaborations with scientists across a range of subdisciplines from taphonomy and paleontology to biogeochemistery.

Glenn most recently was the lead editor of a major volume on *Perspectives in Amino Acid and Protein Geochemistry* (Goodfriend, G. A., M. J. Collins, M. L. Fogel, S. A. Macko, and J. F. Wehmiller (eds.), 2000, Oxford University Press, NY). At his untimely death he had nearly $400,000 in funded grants from the National Science Foundation.

According to John Wehmiller, University of Delaware, the current plans are for several of Glenn's colleagues, including John, to carry on Glenn's work and finish out the research he had started here, something everyone is sure Glenn would have wanted. What I will remember most about Glenn was his gift of sharing and his attention to scientific detail. He allowed an eager senior honors student and I from UMass to pick his brain about lab procedures for a few days in his Carnegie lab. He then took a few more days out of his industrious schedule to visit me at UMass months later to follow up and help me troubleshoot a new lab instrument.

One of Glenn's favorite hobbies included the tasting of fine wines. Having been more interested in quantity rather than quality most of his life (a constant joke I had with him), I will never forget the night when Glenn, as a house guest, presented my husband and me with a bottle of wine so classy that you actually had to filter it before you drank it. On behalf of all of his many colleagues, let me summarize by saying that Glenn and his scientific creativity and contributions will be sorely missed. Like a fine wine, he is gone too soon.

Glenn is survived by his father and stepmother, Morton and Teresa Goodfriend of Huntley, Illinois.

- ***Julie Brigham-Grette***

Bonnie Blackwell, Paul Goldberg, and Julie Brigham-Grette have organized a session at the Seattle GSA meeting to honor Glenn's memory and research contributions. See T27 - Cutting Edge and "Vintage" Geochemistry: Celebrating the Science and Life of Glenn Goodfriend. A wine tasting event will also be held to honor Glenn's love of the vino.

==========

GSA Fellows - 2003

Fully 70% of the new GSA Fellows named by Council on May 3, 2003 are members of at least one Division; this is nearly double the proportion of members overall who are Division members (just under 36% for 2002).

The following members of QG&G are newly awarded the status of GSA Fellows:

William C. Johnson *
Rolfe D. Mandel *
E. Donald McKay, III
Andre J.M. Pugin
Donald T. Rodbell
William W. Shilts
Howard J. Spero

* Also a member of the GSA Archaeological Geology Division

Our Division has many individuals who have distinguished themselves in research and in contributions to QG&G and GSA. Those with fellow status should look around them to recognize and nominate these individuals; with regard to this, please note that none of the new QG&G Fellows are women.

==========

Announcements

GSA Topical Session Announcement

"Tills We Meet Again: Terrestrial Records of Pre-Wisconsinan Glaciations, their Relationship to Other Pleistocene Climate Records, and Their Paleoclimatic Significance"

We'd like to call your attention to this topical session we are organizing for GSA-Seattle this fall, on the subject of dating and correlating early and middle Pleistocene terrestrial sediments. The motivation is that, although glaciers and ice sheets are the defining feature of the Quaternary Earth, and although there

exist extensive terrestrial records of repeated glaciations, most terrestrial sediments (glacial deposits in particular) that predate the useful range of radiocarbon dating are not accurately dated. This has led to a situation where we know about changes in total global ice volume in some detail from marine records but cannot say from terrestrial records which ice sheets were responsible for which ice-volume changes. We are interested in developing new geochronological techniques to address this problem; thus we seek papers that apply old or new dating or correlation techniques to early and middle Pleistocene terrestrial sediments, with the aim of illuminating the role of ice sheets in the Quaternary climate system. The oral session will expand to include posters if enough abstracts are submitted. If your work addresses problems with the age or correlation of pre-Wisconsinan Quaternary sediments, we encourage you to submit an abstract.

- Greg Balco, Cosmogenic Nuclide Lab, University of Washington, Seattle, WA
- Carrie Jennings Patterson, Minnesota Geological Survey, St. Paul, MN

Dendrochronology Database Online

The Bibliography of Dendrochronology is an archive of printed documents relevant to tree-ring research worldwide, that you can search for free. It was compiled and is constantly updated by Henri D. Grissino-Mayer. It currently contains over 8200 references dating back to 1737. <http://www01.wsl.ch/dendrobiblio>

You are welcome to contribute by sending reprints of relevant publications (excluding newspaper or magazine articles) to:

Dr. Henri D. Grissino-Mayer
Department of Geography
University of Tennessee
Knoxville, TN 37996
865.974.6029
<http://web.utk.edu/~grissino>

We also wish to announce a new ONLINE database of species used in dendrochronology! <http://www01.wsl.ch/species>

Call for Papers: 18th International Radiocarbon Conference

Online forms for registration, abstract submission, pre- and post-conference touring offers, and descriptions of special sessions:
<http://www.gns.cri.nz/14conference2003>
We look forward to seeing you all in Wellington in 2003.

"Geomorphology" Tables of Contents via E-Mail

Want to receive "Geomorphology" tables of contents via e-mail as each new issue publishes? Register your e-mail address with ContentsDirect, Elsevier's free e-mail alerting service, and stay on top of newly published research. E-mail <cdsub@elsevier.co.uk> or register at <http://contentsdirect.elsevier.com/> .

IAG Newsletter Online

IAG Newsletter no. 19 (4/2002) on IAG Website: <http://www.geomorph.org>

Dust Deposition Report Available

Dust Deposition in Nevada, California, and Utah, 1984-2002:
<http://pubs.usgs.gov/of/2003/ofr-03-138>

The purpose of this report is to make available an up-to-date set of physical and chemical laboratory data and dust deposition rates.

Contact Merith Reheis <mreheis@usgs.gov> if you have questions.

PAGES

PAst Global changES (PAGES). The core mission of PAGES is to *facilitate international collaborations and interdisciplinary science*, especially between individuals involved in national programs with overlapping interests. The PAGES scope of interest includes the physical climate system, biogeochemical cycles, ecosystem processes, biodiversity and human dimensions. The emphasis is on high-resolution studies of global change – such as that stored in ice cores, tree rings, speleothems, corals, lakes, marine records, etc. -- and the use of these data for making sound estimates of future global change.

What Is PAGES And How Can a GSA/Quaternary Member Get Involved? <http://www.pages.unibe.ch>

PAGES even played a key role with NOAA in establishing the WDC-A for Paleoclimatology as the central depository for global paleoclimate data.

WDC-A stands for World Data Center for Paleoclimatology, which is a part of the NOAA National Climate Data Center (NCDC). <http://www.ngdc.noaa.gov/paleo/paleo.html>

- Julie Brigham-Grette

New Software Available

Those of you interested in software for developing palaeoecological transfer functions or plotting stratigraphic diagrams may like to take a look at my new program C2, which is now available for download at: <http://www.campus.ncl.ac.uk/staff/Stephen.Juggins/software/c2home.htm>

C2 Version 1.3 is a Windows 95/98/NT/2000/XP program for analysing and visualising palaeoenvironmental data.

Call For Papers: Stream Restoration

Call for Abstracts River Restoration Northwest is now accepting oral presentation and poster abstracts for the upcoming Third Annual Stream Restoration Design Symposium to be held at Skamania Lodge in Stevenson,WA, U.S., February 3-5, 2004.

The deadline for abstract submittal is October 1, 2003. Please submit a one-page, 250-word abstract to <submittals04@rrnw.org>. Author, title, affiliation and contact information should be included at the top of the abstract. Please use Microsoft Word format, and use "last name_first name" as the file name. For further information about River Restoration Northwest and our past conferences, please check our website at <www.rrnw.org>.

Proposals are sought for presentations on the following focal topics that address broad concerns when stream restoration projects are undertaken. Individual talks should cover one or more of the suggested topics or some related subject that fits within the theme of this conference. Preference will be given to projects constructed prior to the symposium.

· Bioengineering and Vegetative Streambank Treatments
· Instream and Floodplain Gravel Mining
· Arid Land Restoration
· Dam Removal
· Fish Ladders and Bypass Structures
· Irrigation Diversion Replacement or Upgrades
· Small-Scale, Low Budget Restoration Projects
· Current Applied Research
· Working with Landowners
· Culvert and Other Fish Barrier Replacements
· Monitoring and Project Maintenance
· Regulatory Updates

For more information please contact the Program Steering Committee:
Janine Castro, Geomorphologist, USFWS, Portland, OR
e-mail: Janine_M_Castro@fws.gov

Proceedings of the 2002 International Conference on Wind Erosion and Aeolian Processes Now Available

The joint meeting of the Fifth International Conference on Aeolian Research and the Global Change and Terrestrial Ecosystems-Soil Erosion Network was held July 22-25, 2002 at Texas Tech University, Lubbock, TX. <http://www.csrl.ars.usda.gov/wewc/icar5/index.html>

IAG RC & International Workshop on Landslides in Darjiling & Sikkim Himalayas,INDIA

The organizing Committee on behalf of the Indian Institute of Geomorphologists(IGI) has the pleasure of inviting you to participate in the "IAG Regional Conference and International Workshop on Landslides in Darjiling & Sikkim Himalayas, INDIA". The circular is available at <www.geomorph.org>.

Have you logged on to the Virtual Journal of Geobiology?

This free, online journal now includes over 200 articles from 21 source journals, including

Geomorphology. The Virtual Journal of Geobiology is edited by Professor Lee R. Kump of The Pennsylvania State University. Visit today at <http://earth.elsevier.com/geobiology> and enter your e-mail to receive free alerts as new issues go live.

Call for Papers: "Landslides and Natural Resources"

Thursday, 30 October 2003, Simon Fraser University at Harbour Centre, 515 West Hastings Street, Vancouver, British Columbia, Canada V6B 5K3.

Oral and poster presentations are invited on any aspect dealing with both landslides and natural resources issues (e.g., forestry, fisheries, water, mining). One-day symposium complements the 2nd Annual Meeting of the Board ofRepresentatives of the International Consortium on Landslides. Landslide representatives from a number of member countries are expected to attend. For more information, please contact the conference organizer:
Peter Bobrowsky
Head - Canada Landslide Program
E-mail: <pbobrows@nrcan.gc.ca>

Abstract Deadline: 1 September 2003
Abstract Format: max 2 pages (A4 format) total length, MSWord (digital only)
Abstract Style: Author(s), Affiliation(s), Title, Text, and References.

==========

GSA Pre-Meeting Field Trip – Seattle 2003

The GSA's Quaternary Geologist and Geomorphologist Division will cosponsor a field trip at the upcoming 2003 GSA Annual Meeting in Seattle. That field trip is *Field Trip #2, Glacial Lake Missoula, Clark Fork Ice Dam and Floods Outburst Area: Northern Idaho and Western Montana*. Trip co-leaders are Norman Smyers, U.S. Forest Service, and Roy Breckenridge, Idaho Geological Survey. Norm can be contacted at the Lolo National Forest, Bldg. 24, Fort Missoula, Missoula, MT 59804; Ph: (406) 329-3775 / Fax: (406) 329-3795; nsmyers@fs.fed.us; and Roy at the Idaho Geological Survey, University of Idaho, Moscow, ID 83843; Ph: (208) 885-7993 / Fax: (208) 885-5826; roybreck@uidaho.edu.

The three-day and two-night field trip will begin and end in Spokane, Washington. It will depart Spokane the morning of Wednesday, October 29 at 8:30 a.m. Pacific Standard Time and will return to the same location in Spokane on Friday, October 31 at about 5 p.m. PST. The trip cost of $290 includes bus transportation, three lunches, and two nights' lodging. The trip is open to a maximum of 42 participants.

The first day's travel will be east on Interstate 90 to Missoula, Montana. Stops along this route will include the Rathdrum Prairie ice-dam outburst area just east of Spokane; flood out-wash features in and around Coeur d'Alene, Idaho; Glacial Lake Missoula clay and silt deposits west of Missoula, Montana; and the Glacial Lake Missoula shorelines that are so noticeably etched into the hillsides that surround the city of Missoula.
On the second day, following several stops in the Missoula Valley to examine lake and flood features, the day's travel will turn north on U.S. Highway 93 to view and study the relationship and effect of Glacial Lake Missoula on the valley glaciers along the west side of the Mission Mountains and the pingo scar terrain in valleys below the mountains. Before turning west, terminal moraines associated with the large glaciers that occupied the Rocky Mountain Trench, will be studies at Polson, Montana, and along Flathead Lake at Big Arm. After turning west on State Highways 28 and 200 there will be several stops to examine Joseph T.

Roy Breckenridge at the Eddy Narrows Location

Pardee's classic giant current ripples and gulch fills on the Camas Prairie and along the Flathead River. The last stop of the day will be in Eddy Narrows, the location where Pardee calculated the greatest flood flows at 9.4 cubic miles of water per hour.

On the third and last day, the day's travel will continue west on Montana State Route 200 with stops to discuss the origins of several gravel bars that are believed to be plugs associated with glacial ice (ice-dam) advances up the Clark Fork River. Stops will be made at Cabinet Gorge dam site, a site on the border between Idaho and Montana, along the shores of Lake Pend Oreille, and at Farragut State Park south of Sandpoint, Idaho, to study and discuss various depositional and geomorphic features associated with the ice-dam that repeatedly occupied the Purcell Trench and which is responsible for repeatedly damming up the Clark Fork River and creating the multiple versions of Glacial Lake Missoula. The final miles of the trip, from Farragut State Park to Spokane, will be across the Rathdrum Prairie breakout area to view notable examples of current ripples, depositional lakes, and outwash features.

Gulch Fill: Pardee's classic site, Flathead River

In terms of dress, warm clothing is recommended since weather at this time of year in northern Idaho and western Montana can be cold and snowy. Daytime temperatures can range anywhere from 25 and 45 °F. Sturdy boots are also recommended since several stops will include walking around on moderately steep, rocky, and boulder terrain.

For trip attendees needing lodging the night before the trip, October 28, and/or the night after the trip, October 31, a special-rate arrangement have been made with the Red Lion Inn, Spokane, Washington. The rate is $63.00-Single Occupancy, and $73.00 Double Occupancy. It is up to the individual to make his/her own lodging arrangements with the Red Lion. Through October 1, 2003, reservations may be made by calling 1-800-325-4000 and requesting the *Ice Age Field Trip's* special conference rates. A first night room deposit, purchase order number or credit card number must guarantee all individual reservations. If the room is guaranteed and the individual does not arrive, the individual will be responsible for the first night payment of the room rate, plus applicable taxes.

==========

Friends of the Pleistocene, 2003

2003 Southeastern FOP

Please respond if you think you will come to the FALL SEFOP. You can read below for a general description, or contact me (soon!) for a detailed agenda. For now, please mark your calendars if interested and help spread the news. A registration form will be available in early August. Registration will cost ~$30/person, with a slight discount for students, but we don't have final costs yet. I'll be in the field for 7 weeks from June 17 to July 30, so won't be able to respond to e-mail during that time. Once I'm back, however, registration will open for the SEFOP trip.

Check-in for the Oct 17-19 trip will be Friday evening from 6 PM to 10 PM at the Susquehannock State Park in southeastern PA along the left bank of the Susquehanna River. I've reserved two adjacent Susquehannock State Park group campsites for Friday, Oct 17 and Saturday, Oct 18, with checkout by 3 PM Sunday, Oct 19. The first site sleeps 100 and the 2nd site sleeps 40. You can learn more about the campsite and get directions at <http://www.dcnr.state.pa.us/stateparks/parks/susquehannock.asp>.

- Dorothy Merritts
<dorothy.merritts@fandm.edu>

(continued on p 32)

2003 Rocky Mountain FOP

We are pleased to announce that the 2003 Rocky Mountain FOP will take place September 5-7 in scenic central Idaho. Highlights will include major debris-flow and flash-flood deposits, a variety of erosional features resulting from recent fires and storms, interpretation of alluvial fan stratigraphy, Pleistocene and Holocene terrace sequences, large-scale Quaternary landscape features, landscape evolution in the Idaho batholith region, and the glacial geology and Quaternary paleoclimatology of the spectacular Sawtooth Mountains. Storm events following recent fires in the South Fork Payette and North Fork Boise basins have both produced new deposits, and have exposed Holocene fire-related debris flows and other fire-related sedimentation events in alluvial fan stratigraphy. These fires also provide an opportunity to examine post-fire responses of hillslopes and channels to storm events. The spectacular topography of the nearby Stanley Basin contains a myriad of glacial features, including moraine sequences, and geomorphic and pedologic records of late Pleistocene glaciations. Fall is a beautiful time of year in central Idaho, and the numerous hot springs along the trip route provide an excellent venue to discuss valley incision rates and the role of debris flows in long-term sediment yields. If you are interested in participating and would like to be added to the email list, please email Jennifer Pierce (jpierce@unm.edu). The trip will begin in the South Fork Payette/ North Fork Boise River area, an ~2 hour drive from Boise, Idaho. A campsite for the group will be reserved for Thursday September 4th, and the trip will officially begin on the morning of Friday, September 5th. The trip will end on Sunday the 7th in Ketchum, Idaho (also ~2 hour drive from Boise). Details will be posted soon on Grant Meyer's website: <http://epswww.unm.edu/facstaff/gmeyer/>

==========

Upcoming Events

2003

8th International Conference on Permafrost
July 21-25, Zurich, Switzerland
<http://www.geo.unizh.ch:8080/icop/main.jsp>

Workshop on Modeling and Simulation of Geophysical Mass Flows
Aug. 14-15, University at Buffalo, State University of New York, Buffalo, NY
Mike Sheridan <mfs@geology.buffalo.edu> Tel: 716-645-6800 x3984

Annual Meeting of the British Geomorphological Research Group
Sept. 5-7, Oxford, U.K.
http://www.geog.ox.ac.uk/news/conference07.html

Soil Erosion and Sediment Redistribution in River Catchments: Measurement, Modelling and Management in the 21st Century.
Sept. 9-11, National Soil Research Institute, Cranfield University at Silsoe, U.K.
<www.silsoe.cranfield.ac.uk/nsri/conference/>

The Third International Conference on Debris-Flow Hazards Mitigation: Mechanics, Prediction and Assessment.
Sept. 10-12, Davos, Switzerland
<http://www.wsl.ch/3rdDFHM>

The International Conference of GIS and Remote Sensing in Hydrology, Water Resources and Environment (ICGRHWE)
Sept. 16-19, Three Gorges Dam construction site, China: <http://www.hydroinfor.zsu.edu.cn>

The 2003 Binghamton Geomorphology Symposium
Oct. 3-5, Binghamton University, Binghamton, NY. Contact:
Peter L.K. Knuepfer
Assoc Professor of Geology
Director, Environmental Studies Program
Binghamton University
Binghamton, NY 13902-6000 USA
knuepfr@binghamton.edu
O (607) 777-2389 F (607) 777-2288

Workshop on Soil Micromorphology
Oct. 10-13, Boston University, Boston, MA
Please check the next SAA Geoarchaeology Interest Group or GSA Archaeological Geology Division newsletter for additional information or contact Paul Goldberg <paulberg@bu.edu>.

International Association of Geomorphologists (IAG) and Mexican Society of Geomorphology (SMG) Regional Conference
Oct. 27 – Nov. 2, Mexico City, Mexico
<http://www.smg.igeograf.unam.mx>

30th International Symposium on Remote Sensing of Environment
Nov. 10-14, Honolulu, Hawaii
<isrse.pdc.org>

Advances in Regolith 2003
Central Symposium-Adelaide University, 13-14 November
Eastern Symposium-Australian National University, 19-21 November
Western Symposium-Curtin University of Technology, 24-25 November
<http://crcleme.org.au>

2004

Controlling The Loss of Soil to Water
Jan 21, The Geological Society, Burlington House, Piccadilly, London
http://www.silsoe.cranfield.ac.uk/nsri/conference/bgrg

Marine Sandwave and River Dune Dynamics (MARID)
Apr 1-2, University of Twente, Enschede, Netherlands. Deadlines:
Sept 1, 2003: Preliminary registration
Dec 15, 2003: Submission of full papers
Feb 14, 2004: Reduced registration fee
<www.marid2004.utwente.nl>

International Conference on Sediment and Geochemical Budgets in Geomorphology to Honor Professor Olav Slaymaker
Jun 27-30, The University of British Columbia, Vancouver, Canada
Expressions of interest to attend should be e-mailed to olav2004@geog.ubc.ca as soon as possible. Please indicate whether your participation is certain or tentative. Abstracts must be submitted to Dr. Phil Owens by 1st December 2003.

International Symposium on Sediment Transfer Through the Fluvial System
Aug. 2-6, Moscow, Russia
<http://www.geogr.msu.ru/IAHS2004>

International Geomorphology Conference
Aug. 17-20, Glasgow, Norway
<http://www.bgrg.org/pages/meetings/conference%202004.htm>

32nd International Geological Congress
Aug. 20-28, Florence, Italy
<http://www.32igc.org/home.htm>

==========

QG&G
Minutes of the Management Board Meeting
Sunday, 27 October 2002
&
2003 Annual Report to GSA Council

Action Items for 2003 GSA Council:

1.) The QG&G Division nominates the following three past Division Chairs for Council: ???
2.) The Division has had little contact with its Council Rep for the past 6? Months. In particular, the QG&G Council Rep did not attend the Division Management Board meeting to learn of Division concerns.
3.) The Division is concerned about the representation of geomorphology and Quaternary geology specialties on the editorial boards of Geology and the Bulletin. Would it be appropriate for the Division to recommend experienced geoscientists for Associate Editor positions on the boards of both journals?
4.) For the second year in a row, the Division is asking Council to consider granting equal status to each of the four

major Division Awards (Kirk Bryan Award, Distinguished Career Award, Farouk El-Baz Award, and Easterbrook Distinguished Scientist Award). The Division emphasizes that the long-term benefits to GSA of publishing citations and responses for the QG&G awards in GSA Today will far offset the short-term increase in costs involved in equally promoting the four awards.

Attending:

Craig Kochel, Past Chair
Steve Kite, 1st Vice-Chair
Ellen Wohl, 2nd Vice-Chair
Alan Gillespie, 2nd Vice Chair-Elect
Alan Nelson, Secretary
Janet Slate, Secretary-Elect
Scott Burns, Treasurer
Bill Johnson, Newsletter/Website Editor
Rich Madole, Historian

2002-2004 Panel:
Doug Clark, John Major, Dorothy Sack
2001-2003 Panel:
Kathy Haller, Rich Whittecar, Darrell Kaufman
2000-2002 Panel (retiring):
Carrie Patterson, Grant Meyer, Dave Dethier

QG&G Council Rep did not attend.

The following issues were discussed:

1. **Electronic election nomination and balloting process** (Alan Nelson, Craig Kochel)

Thanks to the 2002-2003 Nominating Committee: Craig Kochel (Chair), Rich Whittecar, and Kathy Haller for selecting a ballot for 2003.

Importance of asking for nominations for the *following* year during beer after Awards Ceremony.

No end in site for paper ballots in newsletters (on request).

2. **Proposal to form nomination committee for Distinguished Career Award was unanimously approved.** (Alan Nelson)

Proposal: Minimum requirements for nominations from the membership are reduced to one letter outlining the qualifications of the nominee, although submittal of the full nomination package (entirely in pdf format or 14 copies) is strongly encouraged. Secretary, in consultation with the Chair, selects two QG&G members to serve on the Distinguished Career Award Nomination Committee (chaired by the Secretary). The nomination committee reviews nominations received in the past year, unsuccessful nominations from the previous three years, and may add its own nominations to those from the membership. The committee must compile a list of at least three nominees to consider each year. The Secretary forwards packages for all nominees to the Management Board and Panel and asks for a ranking of nominees. The Secretary then collates the rankings and determines the winner.

3. **GSA Representation** (Debbie Harden)

Board will nominate three former Chairs (Peter, Les, Craig?) for Division rep to Council.

No response from Council to 2001 Division request (through Council Rep Steve Wells) for equal treatment for four major QG&G awards, including publication of citations and responses in GSA Today. Chair will write a letter to Jack Hess on this issue.

4. **Proposal to develop a QG&G award pin** (Alan Nelson)

Hal Borns suggested a 1-cm-dia QG&G pin. Past Chair will look into costs and design for such a pin, which might be a money maker during INQUA 2003. Regular pin would be available to all members; gold version only to award winners.

5. **Treasurer's Report** (Scott Burns)

Presentation of a revised Division budget and the first accurate tabulation of assets in award

accounts in several years. Value of accounts has dropped 28% since last year, which means that some awards in 2003 will be less than in 2001 and 2002.

Headquarters has mistakenly taken the funds for the Kirk Bryan Award from the general Division budget rather than from the Kirk Bryan Memorial Fund for several years, apparently (due to the loss of institutional memory at headquarters in 2000) because the Fund predates the GSA Foundation.

6. **Secretary's Report** (Alan Nelson)

Pleas: MB members copy Secretary in emails Retiring officers send copies of their division records to Secretary

2003 Election Results:
The percentage of voting members (18%) jumped by an apparent 50% over last year, probably because more members received a ballot this year and membership totals are more accurate this year than in the past few years. The percentage is moving towards the 23-27% response of the mid-1990s. 254 members voted on the GSA web site and 6 paper ballots were received. The paper ballot response tends to confirm that many of the 160 members without email addresses still want to receive a paper newsletter.

Chair: **J. Steven Kite**
1st Vice Chair: **Ellen Wohl** (write-in for Brent Ward)
2nd Vice Chair: **Alan Gillespie**
Secretary: **Janet Slate**
2002-2004 Panel: **Doug Clark, Jon Major, Dorothy Sack**

Special thanks to other QG&G candidates: Robert Thorson, Mike Blum, Kelin Whipple, and Joe Mason. And thanks to Barb Mieras and headquarters staff for arranging the web site balloting and tallying the ballots.

Membership:
Based on considerable research by Barb Mieras at GSA Headquarters, 2002 membership (1384) is similar to that of the 1997-2000 period (data are unreliable for the period from late 2000 through 2001). The 2000-2001 drop in membership due to the 2000 GSA two-year dues fiasco was much less than reported last year, probably about 9%.

Kirk Bryan Award:

Frank J. Pazzaglia and **Mark T. Brandon**, Univ. of New Mexico and Yale University) ($1500, plaque)

For: Pazzaglia, F.J., and Brandon, M.T., 2001, A fluvial record of long-term steady-state uplift and erosion across the Cascadia forearc high, western Washington State: American Journal of Science, v. 301, p. 385-431.

Peter Knuepfer, Citationist

Special thanks to this year's Panel: Carrie Patterson, Darrell Kaufman, Dave Dethier, Grant Meyer, Kathy Haller, and Rich Whittecar

Distinguished Career Award: William B. Bull, Univ. of Arizona

Les McFadden and Peter Knuepfer, Citationists

Four nominations carry over for 2003. Proposal to increase grant to winner from division general fund to $1000 was approved. Beginning this year, the winner of the DCA is offered a 30-min time slot for a talk on a topic of their choice at a regular technical session at the annual meeting, as is offered to the winners of the other major awards.

Gladys W. Cole Memorial Research Grant ($9,500)

Cassandra Rose Fenton (USGS Water Resources - Tucson)

Age-Dating of Quaternary Climate Changes Preserved in Fluvial and Alluvial Deposits in the Colorado River Basin, Southwestern USA

7. **Newsletter Editor/Webmaster's Report** (Bill Johnson)

Bill Johnson agreed to continue in his position as Newsletter Editor/Webmaster (wild applause).

Should division move to a single annual newsletter? Perhaps, but only after the QG&G web site has been redesigned and expanded. Proposal to pay graduate student $500 to work on upgrading and maintaining QG&G site unnecessary.

GSA is preparing member access to member names and addresses, so this is not a feature that needs to be implemented on the QG&G web site.

8. **Historian's Report** (Rich Madole, Alan Nelson)

Due to the popularity of the history articles in the newsletter, Rich will continue this series.

Rich will attempt to compile a complete collection of all newsletters.

Alan and Rich are working on organizing and scanning old documents. 1998-2002 records are stored on a CD in pst, doc, rtf, and text formats.

9. **Second Vice-Chair's Report** (Ellen Wohl)

J. Hoover Mackin Award ($2500, plaque)

Greg Balco, Ph.D. candidate, Univ. of Washington (John Stone)

Erosion beneath the Laurentide ice sheet, and its role in Pleistocene ice age dynamics

J. Hoover Mackin Award Honorable Mention (plaque)

Andrew Wilcox, Ph.D. candidate, Colorado State Univ. (Ellen Wohl)

Velocity structure, turbulence, and morphology of steep mountain stream channels

Arthur D. Howard Award ($2500, plaque)

Nicole Davis, M.S. candidate, Montana State Univ. (Bill Locke, Stephan Custer, Ken Pierce)

Investigations of glacial Lake Musselshell, central Montana

Arthur D. Howard Award Honorable Mention (plaque)

Heidi Natel, M.S. candidate, SUNY Oneonta (P. Jay Fleisher)

Timing, characterization and rates of sedimentation in proglacial Lake Tonawanda, western New York State

Arthur D. Howard Award Honorable Mention (plaque)

Isaac Larson, M.S. candidate, Utah State Univ. (Joel Pederson, John Schmidt)

Linking bedrock geology, precipitation, and hillslope processes to debris flows in Dinosaur National Monument.

Special thanks to this year's Panel: Paul Bierman, Mike Blum, Jon Harbor, Dave Montgomery, Jim O'Connor, Doug Thompson, and Kelin Whipple.

10. **First Vice-Chair's Report** (Steve Kite)

Farouk El-Baz Award ($10,000, plaque)

Jay Quade, Univ. of Arizona

Judith Totman Parrish, Peter DeCelles, and Julio Betancourt, Citationists

Six nominations carry over for 2003.

Status of proposed student FEB Award (Steve Kite); The new FEB student award will be added to the Mackin-Howard award process. The first award in 2003 will consist of the available dispersement from the El-Baz fund minus $5000 for the 2003 FEBA winner.

Plans for 2003 Meeting
2003 JTPC Reps (Kite and Wohl)

11. **Chair's Report** (Debbie Harden)

Donald J. Easterbrook Distinguished Scientist Award:

Richard B. Alley, Pennsylvania State University

(Grant amount dependent on winner's proposal, up to $25,000 for 2002 awardee, plaque)

Peter Clark, Citationist

Special thanks to the nominating committee: Debbie Harden, Julie Brigham-Grette, and Dave Mickelson.

Special thanks to this year's selection Panel for the award: Dave Dethier (EDSA Committee Chair), Kathy Haller, Rich Whittecar, Darrell Kaufman, Carrie Patterson, and Grant Meyer.

Proposal by Dave Dethier to set a 1 July deadline for the EDSA winner's proposal was approved.

Pass through funds from Don Easterbrook for the 2003 winner's proposal will be $30k.

Report on Division Chairs' Meetings – Boulder and Denver. The incoming Chair found the lack of response to participants' questions at the Denver meeting disconcerting.

Report on Joint Technical Program Committee – outstanding job by Chair John Geissman

12. **Adjournment**: 9:30 (amazing).

==========

2003 DIVISION NEWSLETTER EDITORS

Many Divisions "publish" their newsletters mainly by posting them on their Division websites. All Division websites can be accessed from: <http://www.geosociety.org/sectdiv/divisions.htm>. Typical issue dates are approximations only. So if you wish to get the word out on some person, event or whatever …

Archaeological Geology – Mar, Sept
Andrea K. Freeman <freeman@ucalgary.ca>

Coal Geology – July, Sept/Oct
Thomas D. Demchuk
<thomas.d.demchuk@usa.conoco.com>

Engineering Geology – Feb/Mar, June, Sept
Jerome V. (Jerry) DeGraff
<fishlake@worldnet.att.net>

Geobiology & Geomicrobiology – new Division 2001, newsletter schedule not set
Linda Kah <lckah@utk.edu>
David Krauss <kraussd@bc.edu>

Geology & Society – new Division 2003; no editor named, no schedule set yet
Contact: Thomas J. Evans
<tevans@facstaff.wisc.edu>

Geophysics – irregular; no named editor
Contact:: Vice-Chair Mousumi Roy
<mroy@unm.edu>

Geoscience Education – Summer, but currently revising newsletter schedule
Mark Hafen <mhafen@chuma1.cas.usf.edu>

History of Geology – June, Sept/Oct
William R. (Bill) Brice <wbrice@pitt.edu>

Hydrogeology – June/July, Sept/Oct
F. Edwin (Ed) Harvey <feharvey1@unl.edu>

International – irregular; no named editor
Contact:: Chair Dean Kleinkopf
<md.kleinkopf@worldnet.att.net>

Limnogeology – new Division 2002 – June
Michael R. Rosen <mrosen@usgs.gov>

Planetary Geology – June/July
R. Aileen Yingst <yingsta@uwgb.edu>

Quaternary Geology & Geomorphology – June, Sept
William C. (Bill) Johnson <wcj@ku.edu>

Sedimentary Geology – Feb/Mar, Sept/Oct
Mariana L. Rhoades <mrhoades@sjfc.edu>

Structural Geology & Tectonics – Mar, Sept
Barbara E. John <bjohn@uwyo.edu>
Barbara M. Sheffels <barbsheffels@aol.com>

THE GEOLOGICAL SOCIETY OF AMERICA

SCIENCE ▪ STEWARDSHIP ▪ SERVICE

Quaternary Geology and Geomorphology Division Newsletter
Table of Contents