Quaternary Geologist and Geomorphologist

NEWSLETTER OF THE QUATERNARY GEOLOGY AND GEOMORPHOLOGY DIVISION

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MESSAGE FROM THE CHAIR

There are a number of positive signs this past year that I think offer promise for the future of our discipline both within GSA and beyond. First, participation by the QG&G Division was very strong at the Toronto 1998 meeting. With 233 Quaternary geology and geomorphology abstracts and 12 sessions, our Division led in participation in the technical program. Whereas Division officers often encourage members to submit proposals, most of the Quaternary geology and geomorphology sessions were volunteered by Division members interested in seeing quality Quaternary geology and geomorphology research presented and discussed. Such grassroots interest and initiative in the annual meeting program is a healthy sign for the discipline.

For the Denver 1999 meeting, members have again responded by submitting proposals for a stimulating program, many of which address the meeting theme, Crossing Divides. Although those proposals are still under review by the annual program committee at this time, it is clear from the quality of the proposals submitted that there will be another strong program. At least four "Keynote" sessions were proposed by QG&G members for the Denver meeting. These proposed sessions focus on interdisciplinary themes of interest to a broad scientific audience. Many of the proposals submitted for Topical sessions are multidisciplinary and co-sponsored with other divisions and societies, which shows that Quaternary geologists and geomorphologists recognize the need to be involved in integrated research.

The QG&G Division already seems to be on target with the newly adopted GSA Strategic Plan, which embraces a broad unifying scientific society, one that promotes interactions among earth, life, planetary, and social scientists to investigate natural systems and address societal needs. We can take pride in the fact that a number of our members have played critical roles in shaping the new mission, vision, and goals for GSA, including GSA Past President Victor Baker, President Gail Ashley, and Councilor Steven Wells (all are past chairs of QG&G).

One of the goals of the new Strategic Plan is to help strengthen relations between the Council of the Society and the divisions. In that effort, GSA's officers, Council, and staff met with division representatives in Boulder on January 22, 1999. Outcomes of that meeting include (1) commitment for a page devoted to division activities and news in half of the upcoming issues of *GSA Today*; (2) more assistance from GSA headquarters with division membership lists, listservers, home pages, and electronic newsletters; (3) planned meetings of division chairs at the Denver meeting and again next spring in Boulder to facilitate cooperation in program planning; and (4) commitment for a division representative to Council beginning in 2001.

QG&G membership continues to rebound from the slump of the mid-1990s. In fact, QG&G membership has risen steadily over the past three years, and during this past year QG&G became the second largest GSA division. Students remain an important source of new membership; QG&G has more student members than any other division. In recent years, based on the number of proposals submitted, student interest in the Howard and Mackin grants for thesis research has increased. Donations to the Howard and Mackin funds have made it possible, in years of tight competition, for the Division to honor more than one masters and Ph.D. student with a grant. The officers and panel have also chosen to present Honorable Mention plaques to recognize additional students who submitted outstanding proposals. We are discussing ways to support more student research and travel, including grants for undergraduate research. Participation by QG&G members, including students, has been great at recent annual business meeting and award receptions; next year we will have to look for a bigger room and order more refreshments! I encourage you to attend and invite your colleagues to this Tuesday-evening event in Denver. It is open to nonmembers and is a good opportunity for newcomers to the discipline to become familiar with QG&G.

Plans are being finalized for a new prestigious Division honor, the Don J. Easterbrook Distinguished Scientist Award, made possible by a sizeable donation to the QG&G Division by division member and GSA Fellow Don Easterbrook. The award will be for published research that significantly increases knowledge in Quaternary geology and geomorphology. The honoree will be eligible to draw funds from the GSA Easterbrook Fund to finance additional research. Don's donation will enable the Division to substantially support innovative research in the discipline. Watch in *GSA Today* and future newsletters for more details about this award.

From my own perspective, working at a state survey, this is an exciting time of opportunity and challenge for Quaternary geology and geomorphology. In the midcontinent, the Central Great Lakes Geologic Mapping Coalition, a proposed USGS initiative for a partnership among several state surveys and the USGS, has resulted in an increased demand for expertise in Quaternary geology and geomorphology, especially in glacial sedimentology. Additionally, as Les McFadden mentioned last year, a look at the classified ads for

academic geoscience positions every month reveals multiple openings for surficial geologists and geomorphologists, often combined with expertise in environmental science or hydrogeology. At the same time, one of the challenges we still face as a discipline is reversing the trend of the past decade to eliminate Quaternary geology and geomorphology positions in a number of universities. Clearly, we need to increase our efforts to communicate the relevancy of our discipline and continue to train Quaternary geologists and geomorphologists.

Another thing we can do for the future of our discipline is communicate our science to the public. Les McFadden, in his chair's message last year, challenged members to work to get geoscience (including Quaternary geology and geomorphology) in the K-12 curriculum. This past year, geoscientists at the state survey in Illinois had the opportunity to do just that. The State Board of Education recently added earth science to the Illinois science curriculum, and they came to the survey for help. We jumped at the opportunity and conducted regional workshops to help K-12 teachers increase their knowledge about geoscience so they would feel more comfortable teaching it. In the process, we developed many new friends of geoscience and supporters of our research efforts.

Finally, I would like to encourage you to get more involved in QG&G. It is your division, and we need your input if it is to serve you better. Many opportunities exist for you to participate and increase your visibility within GSA and among your colleagues. QG&G always needs good candidates for the panel and officers. Along with serving on the Division Management Board, panel members nominate and evaluate papers for the Kirk Bryan Award; in the future they will be called on to help nominate and select the Don J. Easterbrook Distinguished Scientist. If you are interested in serving on the panel, encourage your colleagues to nominate you for the ballot.

—Ardith Hansel, Division Chair

1998 QUATERNARY GEOLOGY AND GEOMORPHOLOGY DIVISION AWARDS

DISTINGUISHED CAREER AWARD
Dale F. "Dusty" Ritter

The Distinguished Career Award recognizes Quaternary geologists and geomorphologists who have demonstrated excellence in their contributions to science. This year's award goes to **Dale F. "Dusty" Ritter.**

"... one of the most influential geomorphologists of this century. His book *Process Geomorphology* has been the leading English language text for nearly 20 years... arguably one of the most important American geomorphological educators of recent decades." (Victor R. Baker)

"... the term, process geomorphology, which is so frequently used in the discipline today, is a direct result of the first edition of his book, which undoubtedly helped to shape the modern paradigms of geomorphology." (Nicholas Lancaster and Jerry Miller)

Citation read by Jerry Miller, Indiana University-Purdue

The Division's Distinguished Career Award was established to recognize those individuals who have demonstrated excellence in their contributions to Quaternary geology and geomorphology. We thought it only natural to nominate Dale "Dusty" F. Ritter, who has not only made significant contributions in terms of his scholarly works and service, but who has made invaluable contributions to geological education.

Dusty was born in 1932 in Allentown, Pennsylvania. Upon graduating from high school, he enrolled in Franklin and Marshall College and earned a bachelor of arts degree in 1955. Many of you may be surprised to learn that his first major was not in geology. It was in physical education, a major that surely resulted from his deep enthusiasm for sports. During his athletic career at Franklin and Marshall, he was a star player in basketball, football, and baseball and was named to the F&M Sports Hall of Fame. He was an particularly talented quarterback, once setting the all-time Division III record for most yardage in a single game, a record that was just recently broken.

After completing his undergraduate degree, Dusty returned to his home town and became a high school football coach. Fortunately for the geomorphic community, after two years on the side of the football field, he returned to Franklin and Marshall College where he received a B.S. degree in geology in 1959. He went on to conduct graduate studies at Lehigh University before finalizing his formal education at Princeton University, receiving a Ph.D. in geology in 1964.

Dusty began his professional career by returning once again to Franklin and Marshall College, this time as an Assistant Professor. At F&M, Dusty's unassuming but captivating lectures drew scores of undergraduates into his courses in Physical Geology and Geomorphology. Together with his former professor, John Moss, this pied piper of process geomorphology routinely sent out rookie geomorphologists to their big league destinations in graduate school.

He remained at F&M until 1972 when he was actively recruited by Russ Dutcher to develop a geomorphology program, in a small, but growing geology department at Southern Illinois University. Over the next 18 years, he succeeded spectacularly by developing a nationally and internationally recognized program in surficial processes that had a reputation for producing quality Master's students, the terminal degree at SIU during most of his stay in Illinois. During his tenure at SIU, he supervised more than 30 M.S. students and served on the advisory committees of nearly 60 more, many of whom went on to obtain prominent positions in government, at universities and research institutions, and with private organizations. In 1990, Dusty moved from Southern Illinois University to become the Executive Director of the Quaternary Sciences Center at the Desert Research Institute located in Reno, Nevada. His mission was to build an interdisciplinary research

program in Quaternary Geology. In less than five years he developed a research center in Quaternary Geology and Geomorphology that was conducting studies in surficial processes around the globe, and that was becoming internationally recognized for its expertise in arid environments. He retired from DRI in 1996, and is now holds Emeritus Faculty positions at both Southern Illinois University and the Desert Research Institute.

During the past 35 years, Dusty's contributions have included a significant number of service activities. To list a few of the many examples, from 1990 to 1993, he served as the U.S. representative to the International Association of Geomor-phologists; from 1982 to 1984 he served on the panel of the Quaternary Geology and Geomorphology Division; from 1983 to 1985 he was the President of the Yellowstone-Bighorn Research Association; and from 1986 to 1988 he served as the Vice-chair, and then Chair, of this Division of the Geological Society of America. He feels very strongly that advances in Quaternary geology and geomorphology are dependent on high quality reviews of papers and proposals. He spent long hours pouring over both, and in addition to conducting countless reviews for a multitude of professional journals, he served on the editorial boards of *Geotimes* and *Geomorphology*. His comments were occasionally critical of the interpretations being presented, but he has the uncanny ability to point out the weaknesses in the arguments without stifling the enthusiasm for the question at hand.

Dusty's own research addressed a wide variety of topics, leading to the publication of more than 45 articles in refereed journals and books, and the presentation of nearly 75 papers at professional meetings and other symposia around the country. As a Ph.D. student working with Sheldon Judson, he examined the development and evolution of glacio-fluvial terraces along the Beartooth Front in southwestern Montana. The results of his study contradicted the then accepted hypotheses for the Cenozoic evolution of the Big Horn Basin, but his well reasoned, articulately presented data were hard to dispute. His studies now form the foundation for more recent investigations in the area. Perhaps more importantly, his detailed studies serve as one of the primary exposes on terrace formation by cut and fill processes and added significantly to our understanding of the importance of stream capture in the evolution of fluvial landforms along mountain fronts. Dusty has continued to work in southwestern Montana and northern Wyoming ever since his Ph.D. In fact, during the summers of 1996 and 1997, he led a six-week, undergraduate field course with Marv Kauffman which focused on terrace development and the geomorphic history of Rock Creek and the upper reaches of the Clarks Fork River.

From 1979 to 1982, Dusty applied his expertise in glaciofluvial systems to the North Alaska Range, providing some of the first geomorphic data that could be used to assess the potential distribution of prehistoric archaeological sites in the area. Working in the mid-western U.S., he conducted one of the first studies on the formation and stratigraphic significance of coarse-grained overbank deposits, first at Sexton Creek in Southern Illinois, and then along the Gasconade River in Missouri. Other studies have led to significant advances in our understanding of the effects of land-use changes, dam construction, and flow diversions on fluvial systems; the regional rates of landscape denudation; and the controls on the formation of ventifacts. More recently, he has written on the history of geomorphology including his centennial article in the *GSA Bulletin* entitled, "Landscape Analysis and the Search for Geomorphic Unity," an article that many consider essential reading for all students of geomorphology.

No treatment of Dusty's important scholarly works would be complete without recognizing his outstanding contributions to geological education. The first edition of his undergraduate textbook, *Process Geomorphology*, was published in 1978. In a concise and articulate synthesis, the accepted processes governing the development of landforms were laid out in black and white, complete with references, for everyone who was inter-ested to see. It became the most widely used geomorphology textbook in the U.S. for more than a decade. His unique ability to describe complex problems in understandable language was a catalyst that gave real life to the movement of our discipline away from its emphasis on the long-term evolution of landscapes toward the modern paradigms aimed at under-standing the mechanics of landform development. It can be argued that the very term "process geomorphology" that is so ingrained in the literature today is a result of his text upon which so many of us cut our teeth. It is probably fair to say that most of us here tonight have a copy of "*Process Geomorphology*" on our bookshelves, its binder cracked and its pages marked.

Dusty took the same articulate presentation found in *Process Geomorphology* into the classroom. Laced with a bit of history on the forefathers of geomorphic analyses, and a contagious sense of enthusiasm, his students were captivated by his presentations. If it were possible to count those who were converted to the study of geology through his introductory courses, the number would be astounding. His teachings, however, were not limited to science. He taught those around him about the importance of teamwork, conflict resolution, communication, and family. He once said, "In the end, it is only your students that really count." It is a comment that highlights his basic philosophy—to meet the needs of students. His continued contributions to undergraduate education were recog-nized by the presentation of several awards including the AMOCO Foundation Outstanding Teaching Award, the Christian R. and Mary F. Lindback Award for Distinguished Teaching, and the SIU College of Science Award for Outstanding Teaching.

Most of all, Dusty is intensely personable. No matter how busy or tired, he has always been willing to take time to meet with students and colleagues. He has the unique ability to cut through the rhetoric, and get at the meat of the a problem, either scientific or personal. In a few short sentences, he can restructure complicated problems into manageable questions. He possesses a sense of intense humility, great integrity, and unwavering honesty. In a time when these characteristics seem to be increasingly difficult to find, Dusty serves as the ideal role model for students and faculty alike. He is truly an individual deserving of our Division's Distinguished Career Award.

—Jerry R. Miller and Nicolas Lancaster

Response by Dale F. Ritter

I am very pleased that I could be here tonight to accept this wonderful award. I confess, however, that I am somewhat em-barrassed that you have brought me here to walk in the footsteps of my geomorphic heroes who have previously received this award, and to face my more deserving colleagues who have yet to be so honored and by all rights should be standing here in my place. Having said that, I also confess that it is great fun to have super people like Jerry, Nick and others tell enough lies about me to somehow bring me to this moment.

I do not intend to bore you with a discourse about my life. But I believe that what we are has been conditioned by people who have

helped us along the way. It is fitting, therefore, to say thanks to great teachers like John Moss and Shel Judson who taught me what it means to be a professional, and to many friends and colleagues like Russ Dutcher and Marv Kauffman who provided me with numerous opportunities to grow as a professional. Most important, I have been blessed with outstanding students who always gave me more than they received. To all of you, I say thanks for making the last forty years a terrific ride.

I have participated in our science at all levels of academia and, most recently, as an administrator in a soft-money, research organization. Because of that, I have considered our discipline from many different points of view. As my last hurrah, therefore, I would like to share with you some of my thoughts as to what the future might hold for geomorphology and Quaternary geology. I admit that my crystal ball is clouded, but I believe that this lack of clarity exists because the future of our science depends on factors that are often beyond our control.

First, I believe, like most of you, that advances in our science will depend on money. This is true not only regarding how many dollars are available for science in general, but also on what kinds of research will be funded out of a limited total pool. You have heard many of our colleagues argue that our science does not receive the respect that it deserves, and in my experience, it was certainly true that Quaternary geologists and geomorphologists have always led a cinderella existence. But I see signs that it may be our time to go to the ball. National priorities are beginning to match the expertise of surficial scientists, and there seems to be genuine concern about natural catastrophic events and the possibility of a significant climate change. More important, people are starting to wonder what the environmental responses will be to those changes. Given those concerns, cinderella's magic slipper will fit QG&G because no other group of scientists is better prepared by training and experience to answer the critical environmental questions that are certain to plague society in the near future. I caution you, however, that there will be imposter groups who will claim that they can do it better. It is important that you do not let them steal your thunder. It is also important to remind ourselves that obtaining money is not research but only the means to do research. All the money in the world will not advance our discipline if the questions we ask are not significant, creative and imaginative. My guess is that in the future you will have to be smarter, with fewer resources, than we have been in the past.

Second, the future of our science will depend on the emergence of new technology. This generation of surficial scientists is blessed with an array of analytical tools that, in comparison, makes those of us starting out forty years ago look like scientific cavemen. For example, in those days remote sensing meant a pair of binoculars. Computers were graduate students with pencils. No fax, no e-mail, no teleconferences. No EDM or GPS except as call letters on the stock market. Age determinations consisted of a new fangled technique known as radiocarbon dating, but we usually relied on more definitive statements like " it looks old". In fact, until recently I thought that granite boulders sticking of a moraine were great places to rest during a hot afternoon in the field. Little did I know that while I sat there my butt was being bombarded by zillions of cosmogenic radionuclides. No wonder I could never figure anything out. My point is that no one can predict what the next wave of technology will place in your hands, or what questions you will be able to answer that are now beyond your analytical capabilities. But I can predict with certainty that your students, and their students, will view your current efforts as only one step beyond the cave.

Finally, given the unknowns about money and technology, you might question why we participate in a scientific endeavor that is unappreciated, underfunded, and uncertain about it's future. The simple answer is that what we do is so damn much fun. So I say in closing, damn the torpedoes, full speed ahead, and remember that Fox Mulder told us that the truth is out there. Go find it, and have as much fun as I did while you are looking for it.

Thank you again for this great award.

KIRK BRYAN AWARD
Vance T. Holliday

The Kirk Bryan Award is given to the author or authors of a published paper of distinction advancing the science of Quaternary geology, geomorphology, or a related field. The 1998 award goes to **Vance T. Holliday**, University of Wisconsin-Madison for *Stratigraphy and Paleoenvironments of Late Quaternary Fills on the Southern High Plains*, published in 1995 as Geological Society of America Memoir 186.

Citation by Rolfe D. Mandel, University of Kansas

The 1998 Geological Society of America Kirk Bryan Award is presented to Dr. Vance T. Holliday, Professor in the Department of Geography at the University of Wisconsin, for his monograph Stratigraphy and Paleoenvironments of Late Quaternary Fill on the Southern High Plains, published in 1995 as GSA Memoir 186. Although Vance's memoir is ostensibly a report on a five-year systematic study of ten dry valleys or "draws" on the Southern High Plains of Texas and New Mexico, it is really a culmination of more than 20 years of research in the region. Since the completion of his dissertation in 1982, Vance has continued to focus on the late Quaternary soils and stratigraphy of the region. His efforts have led to many outstanding publications in books and prestigious journals. However, it is Memoir 186 that brings all of this work together in a coherent synthesis that provides a key to understanding the late Quaternary soils, stratigraphy, paleoenvironments, and human history of the Southern High Plains. Vance Holliday has devoted a good part of his life to deciphering the complex record of late Quaternary landscape evolution on the Southern High Plains. In doing so, he has built on the foundation laid down by Glen L. Evans, a contemporary of Kirk Bryan and a great Quaternary scientist in his own right. Although Vance's main focus has been on the Holocene and late Pleistocene, he has shed considerable new light on the entire Quaternary history of the Southern High Plains.

In Memoir 186, Vance used data gleaned from more than 400 cores and exposures at 110 localities to document the late Quaternary geomorphic evolution and stratigraphic record of the draws. This information, combined with archaeological, paleobotanical, paleontological, and stable-carbon isotope data, provides a key to understanding the paleoenvironmental evolution of the region over the past 12,000 years. In addition, Vance builds an important radiocarbon-based alluvial chronology for the Southern High Plains, and he uses it to demonstrate that there were synchronous, regional, geomorphic and soil-forming events in the draws. Memoir 186 is a remarkable piece of interdisciplinary research that sets the standard for regional studies of Quaternary landscape evolution.

A case can be made that Kirk Bryan indirectly had a hand in Vance Holliday's career. Born in San Antonio, Texas, Vance attended San Antonio College from 1968 to 1970 and majored in architecture. It did not take him long to realize that he was going to become an architect with no sense of design. Faced with this situation, Vance took a trip to Austin in 1969 and visited the Anthropology Department at the University of Texas. It was during this visit that he encountered Dr. E. Mott Davis, an archaeologist who, as a graduate student at Harvard, worked closely with Kirk Bryan. Davis encouraged Vance to pursue his nagging interests in archaeology at the University of Texas, which he did in 1970. While at UT, several individuals, including the late Dr. David Dibble, were influential in steering Vance towards interdisciplinary archaeology. However, it was Mott Davis who preached the gospel of Kirk Bryan, and Vance heeded the Eleventh Commandment: thou shalt know the geologic context of archaeological deposits.

While most Texans, including myself, have great appreciation for the song, "Happiness is Seeing Lubbock in the Rear View Mirror," Vance Holliday has listened to other tunes. In 1973, he headed north to be a member on the first archaeological field crew at the Lubbock Lake site in Yellowhouse Draw. He eventually moved to Lubbock in order to pursue an M.A. in Museum Science, with a minor in Soil Science, at Texas Tech University. His Master's Thesis, "Cultural Chronology of the Lubbock Lake Site," set the stage for his dissertation, "Morphological and Chemical Trends in Holocene Soils at the Lubbock Lake Archaeological Site, Texas," which was accomplished at the University of Colorado under the guidance of his advisor and mentor, Dr. Peter Birkeland. Subsequently, Lubbock has served as a launching point for Vance's research on the draws that crosscut the Southern High Plains.

Lubbock, Texas, is situated in the middle of the Llano Estacado, a broad, flat region that is dreadfully hot and dry in the summer and bitterly cold in the winter. Strong winds sweep across it year round, raising thick, reddish-brown clouds of silt that evoke vivid images of the Dust Bowl days. The monotony of the landscape is broken only by small playas and the occasional stream valley or draw. The significance of the playas and draws, however, cannot be understated. Freshwater sources are rare on the uplands of the Southern High Plains; hence, the playas and spring-fed draws are beacons to life in this region. These localities have attracted animals and prehistoric hunters and gatherers over the past 12,000 years, and Vance has been drawn to them to unravel the stratigraphic and archaeologic records that they harbor.

It seems very appropriate that Vance Holliday is receiving an award named for Kirk Bryan. Bryan has often been described as a diehard field geomorphologist who loved to get his hands dirty. The same can be said of Vance. He is happiest when he is in the field describing an outcrop or examining a core, regardless of the scorching temperatures and blowing dust. Moreover, there are few workers out there today who so well carry on the research tradition established by Kirk Bryan. Vance's Memoir 186, which is the centerpiece for this evening's award ceremony, is thoroughly interdisciplinary, broadly synthetic, addresses important issues of Quaternary stratigraphy, environment, and geochronology, and makes significant contributions to other disciplines, especially archaeology. This is the type of research that Kirk Bryan relished and promoted.

I think that Vance Holliday's efforts reflect the spirit and the standards of the award he is receiving, and that both the Geological Society of America and past award recipients should be proud to recognize him in this way. It is a great pleasure and honor to introduce my friend and colleague, Professor Vance T. Holliday, for the presentation of the 1998 GSA Quaternary Geology and Geomorphology Division Kirk Bryan Award.

—Rolfe D. Mandel

Response by Vance T. Holliday

Going all the way back to my graduate school days at the University of Colorado, the Kirk Bryan Award has been considered the Holy Grail in recognition of Quaternary Research. I am deeply honored to receive this award and truly humbled to have my work ranked with my Quaternary mentors and heros. My sincere thanks and appreciation to Rolfe Mandel and the Kirk Bryan Panel of the QG&G Division. In many ways over the years I have been fortunate to literally follow in Kirk Bryan's footsteps. And the list of past recipients includes many folks who directly or indirectly influenced my work and my career, including Robert Ruhe, Lee Gile, John Hawley, and my Ph.D. advisor Pete Birkeland.

As Rolfe mentioned, I began my career as an archaeologist at the University of Texas, and was directed along an interdisciplinary path by Mott Davis on the Anthropology faculty. Not only was Mott influenced by Kirk Bryan, but Mott's grandfather was William Morris Davis and his son was the late Jonathan Davis, a noted Quaternary geologist and geoarchaeo-logist in his own right. As an undergraduate I didn't realize what heavy-duty intellectual roots I was exposed to, but now I am certainly quick to claim them!

The work reported in *Memoir 186* had its roots in my involvement with the Texas Tech Museum's Lubbock Lake archaeological project, which I joined just after its beginning in 1973. I started on the project as an archaeologist, but over the years my interests grew to include the soils and stratigraphy of the site and now encompass the upper Cenozoic history of the Great Plains. My particular interest in the late Quaternary record of the draws culminated with *Memoir 186*. Eileen Johnson, C.C. "Tex" Reeves, and B.L. Allen, all at Texas Tech, sparked and encouraged this interest.

Any research venture spanning so many years and so many miles, inevitably will involve a number of individuals and agencies. Whatever success I achieved in this work is due in large measure to the assistance of these people and organizations, and it is with considerable pleasure that I publicly acknowledge their support. A full set of acknowledgments is provided in the book, but I must reiterate some

thanks. Funding for the research was provided largely by the National Science Foundation, with additional support from the University of Wisconsin Graduate School. Prior to 1988, the research was under the auspices of the Lubbock Lake Project, directed by Eileen Johnson at Texas Tech University. That work was supported by a variety of organizations, including NSF, the Moody Foundation, West Texas Museum Association, and Texas Tech University. My thanks to the GSA for accepting the manuscript for their book series, and to Sharon Schwoch and Amy Arnett in the GSA Book division for their hard work in sheparding it through the system. And my gratitude to Diane, my wife, for enduring my absences. However, my summer field work did allow her to survive a gross anatomy class and also to complete her dissertation.

Several of my graduate students worked as field and lab assistants on this project: Peter Jacobs, Ty Sabin, and Garry Running. I am indebted to them for their hard work, good humor, and insights. We had a lot of fun cruising the High Plains.

I also thank several colleagues whose expertise contributed directly to the research and whose work appears in the book: Steven Bozarth on phytoliths, Scott Elias on insects, Rick Forester on ostracodes, Herbert Haas on radiocarbon dating, Stephen Hall on pollen, Raymond Neck on molluscs, and Barbara Winsborough on diatoms.

I am indebted to Eileen Johnson, Director of the Lubbock Lake Project and my long-term research partner, for her many years of moral and financial support, particularly between 1988 and 1992, when she provided considerable logistical assistance for my work on the draws. David Meltzer, archaeologist at Southern Methodist University, provided crucial logistical assistance on the southern Llano Estacado and was a stimulating research partner. Our work together on the southern draws led to a most enjoyable and, I hope, permanent professional partnership, and a highly valued friendship.

Other colleagues provided additional assistance and advice, and two stand out: Vance Haynes has always been ready and enthusiastically willing to share his insights on the stratigraphy and paleoenvironments of the Clovis site and eastern New Mexico in general. Tom Gustavson also shared his experience and many ideas regarding the longer-term landscape and especially drainage evolution of the region.

Beyond the specifics of this project, I must also acknowledge four individuals whose work in the 1940s and 1950s provided a solid geological and archaeological foundation for my research. The monograph is dedicated to these four men who led the way: E.H. Sellards, Glen Evans, who Rolfe already mentioned, Earl Green, and Grayson Meade. It has been a particular privilege to know Glen, Grayson, and Earl.

More than anyone else, however, this book strongly reflects the influence of my PhD advisor, Pete Birkeland in Geological Sciences at the University of Colorado. This includes the way I approach my field work and the attitude I try to bring to my writing and teaching. I am also trying to emulate Pete's model for balancing career and family. Pete instilled in his students an appreciation for scientific rigor and objectivity, and hard work. More significantly, he showed us that the most important thing about our interpretations is that we arrive at them honestly and that a lot of what we do may ultimately be proven wrong, but that is OK. Perhaps Pete's biggest impact on me was confirmation of my notions that field work and research could and should be fun. He was quietly emphatic that our work probably wasn't worth doing unless we enjoyed it and that it shouldn't be taken too seriously. This was and remains in stark and refreshing contrast to the graduate-education-as-suffering-misery-and-indentured-servitude approach found in some departments. I remember being at a conference when I was a graduate student and talking to another student from a large, well-know program in Quaternary studies. He asked where I was going to school. When I told him, he looked at me somewhat wistfully and said "Oh—Colorado. You are the ones that have fun." Indeed we did. My education at CU was one of the great experiences of my professional life. I thank Pete along with Bill Bradley, Ted Walker, and Ed Larson for their enthusiasm, wisdom, and good humor.

As Rolfe noted, my work and my career is field-based. On behalf of all of us in Quaternary geology and geomorphology who are literally "in the trenches" I want to acknowledge and thank the Kirk Bryan Award committee for continually recognizing this aspect of earth science research. For those of us who dig our own soil pits and pull our own cores, doing what we want to do rather than going for the hot topics and the big money, and for those of us who are not high tech, this is energizing and encouraging. I thank you.

CALL FOR NOMINATIONS
1999 DISTINGUISHED CAREER AWARD

The Distinguished Career Award was established in 1985 to recognize Quaternary geologists and geomorphologists who have demonstrated excellence in their contributions to science. The recipient need not be a member of the Geological Society of America or the QG & G Division. Nominations will be accepted at any time during the year, but the **deadline is April 15.**

Nominations should be sent to the Division Secretary, Alan Nelson, and require: (1) a supporting letter of nomination documenting the contributions of the nominee, (2) three letters or signatures of additional members supporting the nomination, (3) a resume of the candidate (such as a photocopy from American Men and Women of Science), along with a bibliography of the nominee's most significant papers. The Division Chair will appoint a committee to oversee the collection and completion of award nominations. The names of unsuccessful candidates proposed for the award will remain open without renomination for the following three years. Further consideration after this period will require renomination.

Recipients of the Distinguished Career Award

Year	Recipient	Citationist (s)
1986	Richard P. Goldthwait	D.M. Mickelson
1987	Aleksis Dreimanis	S.R. Hickock, P.F. Karrow
1988	A. Lincoln Washburn	S.C. Porter
1989	Clyde Wahrhaftig	R. Janda
1990	John T. Hack	M.G. Wolman
1991	Luna Leopold	M.G. Wolman
1992	Herbert E. Wright, Jr.	A.F. Schneider
1993	Victor K. Prest	D.A. St. Onge
1994	William C. Bradley	J. Andrews, P. Birkeland, N. Caine, J. Pitlick
1995	David M. Hopkins	J. Brigham-Grette
1996	Robert P. Sharp	A. Gillespie, D. Easterbrook
1997	Stanley A. Schumm	E. Wohl
1998	Dale F. Ritter	J. Miller, N. Lancaster

HOWARD AND MACKIN FUNDS CONTINUE TO NEED YOUR SUPPORT

As was noted in the September 1998 issue of the Newsletter, your contributions to the Howard and Mackin Funds are essential to the expansion of these award programs. It is hoped that the fund principal will grow such that the amount of the awards can be increased. Simply opt to contribute to the GSA Foundation through the Century Challenge or Geostar. Your generous contributions will expand the Division's ability to support the many talented graduate students in Quaternary studies.

NEW DIVISION AWARD! CALL FOR NOMINATIONS

FAROUK EL-BAZ AWARD FOR DESERT RESEARCH

Thanks to the generosity of GSA Fellow Farouk El-Baz, the Quaternary Geology and Geomorphology Division is pleased to announce that it has established the Farouk El-Baz Award for Desert Research. El-Baz is the director of the Center for Remote Sensing at Boston University. According to El-Baz, "The award is intended to encourage young scientists to strive for excellence in desert research. Deserts have not received as much attention by geologists as other types of landforms, that is why we need to encourage and reward arid-land studies."

The award will provide annual cash awards for outstanding work in this field by earth scientists. Any scientist may be nominated for this award, and applicants need not be geologists or U.S. citizens. Documentation of published research results that significantly advance our knowledge of deserts must accompany the nominations, which are to be sent to, Professional Development Division Coordinator, Geological Society of America, 3300 Penrose Place, or P.O. Box 9140, Boulder, CO 80301-9140. Nominations will be considered by the Quaternary Geology and Geomorphology Division Award Committee. **Nomination Deadline: May 31, 1999.**

MINUTES OF THE QG & G MANAGEMENT BOARD MEETING, TORONTO, CANADA
October 25, 1998
and
1999 ANNUAL REPORT TO GSA COUNCIL

Attending: Chair L. McFadden; 1st Vice Chair A. Hansel; 2nd Vice Chair P. Clark; 2nd Vice Chair-elect C. Kochel; Secretary & Treasurer-elect S. Kite; Secretary-elect A. Nelson; Newsletter Editor R. Whittecar; Panelists J. Brigham-Grette, B. Burke, E. Muller, D. Rodbell, J. Ritter, E. Wohl; GSA Councilor S. Wells; D. Easterbrook.

1. The meeting opened with discussion of the new Don J. Easterbrook Distinguished Scientist Award. The intent of the Easterbrook Award is to recognize individuals whose research programs have contributed significant advancements in Quaternary geology and geomorphology. Detailed planning for the award will revolve around tax considerations for both the award fund and recipients. (Discussion has continued into 1999, with a goal of announcing the first award recipient at the 1999 annual meeting.)

2. Secretary's Report: 1998 Election Results: Only 121 (9.7%) of 1,246 ballots were returned. The return rate was down from 29% in 1996, and 23.2% in 1997. The following were elected to office:

Chair: Ardith Hansel
1st Vice Chair: Peter Clark
2nd Vice Chair: Craig Kochel
Secretary: Alan Nelson (2 year term)
Treasurer: Steve Kite (1 year term)
1998-2000 Panel: Julie Brigham-Grette, Donald T. Rodbell, Jim E. O'Connor

Membership: GSA showed 1346 Members on 7 October 1998, slightly more than 1330 members on 8 December 1997. We had 1245 members in 1996, and 1179 members in 1995. QG&G is the second largest GSA Division, pulling ahead of Hydrogeology (1333) but behind Structure/Tectonics (1501). We had more student members (195) on 2 June than any other division.

Financial Report: The two student award programs are healthy. As of 1 October 1998, the J. Hoover Mackin and Arthur D. Howard award accounts had balances of $46,241.18 and $43,293.56, respectively. Unfortunately, the Division account showed a deficit of $331.92 in 1997 (and a projected $700 deficit for 1998). A dues increase was discussed. (In early 1999, the Management Board voted to place a proposal to raise dues from $5 to $8 per year on the 1999 QG&G ballot.)

GSA's Kirk Bryan Award Fund held net assets of $42,559.07, but the 1998 award was for only $500. As directed in our bylaws, the Division recommends GSA raise the award amount to $1500.

The 1998 Kirk Bryan Award Recipient: Holliday, Vance T., 1995, *Stratigraphy and Paleoenvironments of Late Quaternary Valley Fills on the Southern High Plains*: Geological Society of America Memoir 186, Rolfe Mandel, citationist. Three papers will be carried over for 1999 Kirk Bryan deliberations.

Two other awards were announced: Gladys W. Cole Memorial Research Grant ($11,000): Steven L. Forman, University of Illinois, Chicago, *Holocene eolian activity on the eastern Snake River Plain, Idaho*. Robert K. Fahnestock Memorial Research Award ($2160): Suzanne Florence Leclair, Binghamton University.

3. Newsletter Editor Rich Whittecar announced some cost-cutting measures for 1998 Newsletters and his resignation from the editorship. (Bill Johnson agreed to take over the newsletter in December 1998)

4. Second Vice-Chair Peter Clark discussed plans for the 2000 meeting in Reno and announced the following student awards:
J. Hoover Mackin Research Grant ($2000): Noah P. Snyder, Ph.D. candidate, Massachusetts Institute of Technology, *Channel response to varying uplift, King Range, northern California.*
Arthur D. Howard Research Grants ($1500 each): Yarrow L. Axford, M.S. candidate, Utah State University, *Late Quaternary glacier fluctuations and vegetational change in the northwestern Ahklun Mountains, southwestern Alaska.* Sarah L. Brown, M.S. candidate, University of Vermont, *Lacustrine records of Holocene hillslope erosion in New England.* Arthur D. Howard Honorable Mention: David K. Mitchell, University of New Mexico; Matthew A. Pachell, Utah State University; Tammy M. Rittenour, University of Massachusetts.

5. First Vice-Chair Ardith Hansel discussed plans for field trips, Pardee Keynote Symposia, and topical sessions at the 1999 meeting in Denver. Hansel announced the 1998 Distinguished Career Award

winner, Dale F. Ritter, and citationist, Jerry Miller. A $500 award from the Division will partially cover travel costs for Dr. Ritter.

6. Chair Les McFadden reported that the Joint Technical Program Committee (JTPC) struggled to find enough quality space and meeting times for the many papers presented in Quaternary geology and geomorphology at the 1998 meeting. McFadden advised all future JTPC representatives serving on behalf of the Division to act proactively in order to protect our members' interests.

The Second Vice-Chair will be put forth as a potential JTPC member from our Division in environmental geosciences.

McFadden reported on new annual meeting activities discussed at the Division Chairs Meeting. These include the Pardee Keynote Sessions, Topical Sessions, and Field Forums (field-based activities lasting up to a week, first offering planned for the 2000 meeting). Division members are encouraged to submit topical sessions to GSA.

The Division is looking forward to creation of a GSA webmaster to act as liaison with Division officers and assist with dissemination of Division information. The Management Board voiced the unanimous opinion that this position was vital to the long-term vitality and financial well-being of GSA divisions.

7. Other business

GSA Council member Steve Wells announced an initiative to invite INQUA to meet in Reno, Nevada in 2003.

Panelist Rodbell suggested the Management Board develop an undergraduate research award or citation. This issue will be explored more fully at the 1999 Management Board meeting.

Panelists Brigham-Grette and Ritter brought up several important issues that are negatively impacting libraries throughout the world. The costs of journals and lack of shelf space is inhibiting research in many programs. Public universities in Ohio have addressed the issue by negotiating reduced rates for hard copy and on-line resources from "for-profit" publishers. Conflicts are beginning to rise between scholars, universities, and publishers over copyrights to on-line publications. Each of these issues warrant close scrutiny by our Division members.

8. The meeting adjourned at 10:00 p.m.

9. In early 1999, the Division Management Board learned it will be overseeing the Farouk El-Baz Award for research in desert geomorphology. The Division is genuinely appreciative of the generosity of Farouk El-Baz, which has made it possible to offer an award of $1000 for 1999.

REPORT FROM THE OUTGOING SECRETARY-INCOMING TREASURER, J. Steven Kite

I have been reticent to clutter the pages of the newsletter since being elected as Secretary four years ago, but I can't let the end of my tenure in that position pass without a heartfelt expression of thanks to the members and officers of the Division. The Secretary position has been a substantial task, as evidenced by the 1268 E-mail message I have saved the last 18 months, but never a chore because of the cooperation and appreciation I have received from everyone in the Division and on the GSA Staff. I am looking forward to continuing these warm relationships as the first QG&G Treasurer.

My last official Secretary's report to the QG&G Management Board in Toronto was justifiably optimistic in a number of areas. Our membership has grown by nearly 15 percent in the last 3 years, reaching 1346 just before the GSA meeting. We are now the second largest GSA division, second only to Structural Geology and Tectonics. Compared to all other divisions, we have the largest number of student members and the highest number of abstracts at the national meeting.

Our two student award programs are quite healthy, dominated by excellent applications in quantities that tax the energies of our erstwhile volunteer reviewers. As of October 1, 1998, the J. Hoover Mackin and Arthur D. Howard award accounts showed balances of $46,241.18 and $43,293.56, respectively, despite 10 percent declines during the late-summer sag in the stock market. Award amounts have risen substantially in the last few years, and now range from $1500 to $2000. In addition, the GSA's Kirk Bryan Award Fund held net assets of $42,559.07.

Unfortunately, there is one unavoidable concern raised in my report, the state of the Division account. Independent of the award accounts, the Division account showed deficits of $331.92 in 1997, and ca. $700 for 1998. After several years of resisting an increase in Division dues, I must now acknowledge the harsh reality that, without more income, we can no longer function as the membership expects.

Most of our expenses stem from our newsletters and annual meeting. Both activities become more costly as the Division grows and becomes even more active. In other words, increasing Division membership actually makes the shortfall worse. The newsletter constitutes over 60 percent of our costs, despite some substantial cost-cutting measures implemented by Newsletter Editor Rich Whittecar and the GSA staff in the last year. Although the Society and Division are planning further newsletter cost-cutting through electronic dissemination, this move would not eliminate set-up costs and would not eliminate the need to produce and mail paper copies of the newsletter to a large constituency within our membership.

Our next largest cost reflects our activity at the annual meetings. The more QG&G members who attend the annual meeting, the more food and refreshments we consume, and so the more we spend. We have taken collections to help defray beer costs at the last few meetings, but as generous as the participants have been, donations have never covered a third of the inflated costs of such libations at a major convention center. The alternative of a cash bar was proposed a few years ago, but I relented on that issue when an overwhelming member response suggested that implementation of that policy could lead to tar-and-feathering of the Secretary!

The Management Board has placed a dues increase on the ballot in response to this fiscal problem. If the dues increase is not approved, we will continue to operate for the immediate future. We might be able to cover the recent deficits through a special appeal for donations to the membership, but I would personally prefer these donations toward the continued growth of our awards accounts. More than likely, without more income, the Division may have to terminate several well-selected commitments made in recent years, including $500 expenditures to partially cover travel costs of Distinguished Career Award recipients and half of the U.S. contribution to the IAG. Although a firm believer in cost-containment in professional societies, I must whole-heartedly endorse the QG&G dues increase at this time. I honestly expect that most of you will agree that this small $3 increase to your overall GSA bill will be more the offset by the long-term benefits of being a member of the best Division in the Society!

1998–1999 DIVISION OFFICERS AND COMMITTEES

Division Officers:

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

Panel Members:

1997-1999: Jennifer Harden, Raymond "Bud" Burke, Ernest H. Muller

1998-2000: Donald Rodbell, Julie Brigham-Grette, Jim E. O'Connor

1999 Nominations Committee: Raymond "Bud" Burke, Ernest H. Muller, and James C. Knox

1999 GSA MEETING IN DENVER, October 25–28, 1999

Paper Sessions

There will be two Pardee Keynote Symposia presented at the Denver meetings that should be of interest:

1) *The Case for Steady-State Mountain Belts: Observations, Models, and Implications for Global Tectonics* (Advocate/Convener: Peter L. Knuepfer)

2) *Human transformation of the Physical Landscape* (Advocate/Convener: Lisa E. Wells)

Topical Sessions of possible interest include:

Geologic and Biologic Evidence for Late Cenozoic Drainage Rearrangements in North America: Implications for Aquatic Biogeography (Advocate/Convener: Robert Hershler and Marith C. Reheis)

Glaciation and Reorganization of Asia's Network of Drainage: The Effects on Late Quaternary Global Change (Advocate/Convener: Lewis A. Owen)

Fire and Geology: Surface Processes and Stratigraphic Records (Advocate/Convener: Mark A. Gonzalez)

Geomorphic and Ecological Responses to Natural and Anthropogenic Disturbances (Advocate/Convener: Jerry R. Miller)

Integrated Landscapes: The Colorado Front Range (Advocate/Convener: Ellen E. Wohl)

Landscape Erosion and Sedimentation Modeling (Advocate/Convener: Russell S. Harmon)

North Atlantic Crossroads: Terrestrial and Marine Environmental Records of Iceland (Advocate/Convener: John T. Andrews)

Shallow Subsurface Mapping: Using Geophysics for Geological, Groundwater

Resource and Contamination Studies (Advocate/Convener: Susan E. Pullan)

Subglacial Processes and the Behavior of Ice Sheets (Advocate/Convener: Edward B. Evenson)

Surficial Three-Dimensional Geologic Mapping: Basic Map Products and Applications (Advocate/Convener: Richard C. Berg)

The Case for Steady-State Mountain Belts: Observations, Models, and Implications for Global Tectonics (Advocate/Convener: Frank J. Pazzaglia)

Field Trips

Many of the announced field trips may be of interest to the division members.

Pre-Meeting:

Coal mining in the 21st Century (M. Brownfield, R. Affolter, E. Johnson, C. Barker)

Cretaceous Hydrocarbon Plays - Southern Colorado (P. Krutak)

Geological Reconnaissance of Dinosaur Ridge and Vicinity (N. Cygan, B. Rall, "T" Caneer, B. Raynolds)

Geology of the Heart Mountain detachment and Related Structures, Northeast Absaroka Range, Wyoming (D. Malone, T. Hauge)

K/T Boundary in the Raton Basin, New Mexico and Colorado (C. Pilmore, D. Nichols)

Laramide to Recent Structural Development of the Northern Colorado Front Range (E. Erslev, K. Kellogg)

Sedimentology and Stratigraphy of Cambrian and Ordovician Inner Detrital Belt Facies of Western Colorado (P. Myrow, J. Taylor, J. Miller, R. Ethington, R. Ripperdan)

200,000 years of Climate Change Recorded in Eolian Sediments of the High Plains of Eastern Colorado and Western Nebraska (D. Muhs, J. Swinehart, D. Loope)

Post-Meeting:

Geological Reconnaissance of Dinosaur Ridge and Vicinity (N. Cygan, B. Rall, "T" Caneer, B. Raynolds)

Geology and Paleontology of the Gold Belt Back Country Byway, South-Central Colorado (H. Meyer, T. Henry, D. Grenard, E. Evanoff)

Laramide Minor Faulting and Tectonics of the Northeastern Front Range of Colorado (E. Erslev, S. Holdaway)

Late Cenozoic Geology of the Southern Panhandle of Nebraska-Relationship to Occurrence of Water and Other Natural Resources (R. Diffendal, J. Cannia, D. Oldham, R. Joeckel)

Phosphoria Rock Complex of West-Central Wyoming: An Integrated Sequence Stratigraphic and Paleoceanic Model (E. Hiatt, P. Choquette, D. Budd)

Soil-Geomorphic Relationships Near Rocky flats, boulder, and Golden, Colorado area, With a Stop at the Pre-Fountain Formation of Wahlstrom (1948) (P. Birkeland)

OPPORTUNITIES FOR DIVISIONAL MEMBERS

GEOMORPHOLOGY

Jacques Kiebert, Senior Publishing Editor (j.kiebert@ elsevier.nl) has indicated that the 1999 subscription cost is $96, not $91 as reported in the last newsletter, for members and that the number of volumes will be increased from four to five.

ARCHAEOLOGICAL GEOLOGY DIVISION AWARDS

For those students engaged in Quaternary research projects involving archaeological geology or geoarchaeology, the Archaeological Geology Division offers two awards. The Student Paper Award is designed to encourage the presentation of research papers by graduate students at the division's technical sessions. An award of $500 is provided for travel expenses to the annual GSA meeting. The Claude C. Albritton, Jr. Award provides $500 which is to be used to support graduate student research. The application deadline is May 31, 1999 for both awards. For further information, go to the Archaeological Geology Division website accessible through the GSA website.

RESEARCH GRANTS FOR ISOTOPIC ANALYSES

Geochron Laboratories, a division of Krueger Enterprises, Inc., annually awards a series of research grants to graduate students

requiring interesting or new applications of isotopic analyses. The awards consist of analytical services to be performed free of charge to the winner in each category. For the past several years awards have been offered in K-Ar dating, C-14 dating, and stable isotope ratio analyses (SIRA), SIRA in dietary studies, and SIRA of fluid inclusions in minerals. The awards are offered by Geochron Labs in an effort to encourage the application of isotopic analytical techniques to solve original and significant problems. The deadline for applications is May 1, 1998. Early application is suggested to assist with prompt evaluation and notification of winners. For Research Award Program Guidelines and official rules, call 617-876-3691, fax 617-661-0148 or write 711 Concord Ave., Cambridge, MA 02138.

UPCOMING MEETINGS

March 11-13, 1999: ***Annual Meeting of the Western Division of the Canadian Association of Geographers,*** Kelowna, British Columbia. Includes a symposium entitled *Late-Quaternary Palaeoecology and Palaeoclimatology* (contact: Ian Walker, Dept. of Biology, North Kelowna Campus, Okanagan Univ. College, 3333 College Way, Kelowna, British Columbia, Canada, V1V 1V7; tel: 250-762-5445, local 7559; fax: 250-470-6004; e-mail: iwalker@okanagan.bc.ca; http://www.ouc.bc.ca/fwsc/iwalker/ #CONTACT, and http://www.geog.ouc.bc.ca/wcag/info.html).

March 23-27, 1999: ***Annual Meeting of the Association of American Geographers,*** Honolulu, HI. (contact: AAG, 1710 Sixteenth St., NW, Washington, DC 20009; tel.:202-234-1450; http://www.aag.org).

March 24–28, 1999: ***Annual Meeting of the Society for American Archaeology***, Sheraton Chicago Hotel and Towers, Chicago, IL (SAA website: http://www.saa.org)

March 26–April 1, 1999: ***Loessfest 99: Loess: Characterization, Stratigraphy, Climate, and Societal Significance***, Bonn and Heidelberg, Germany (contact: Ludwig Zoeller, Geogr. Inst., Univ. of Bonn, Meckenheimer Allee 166, D-53115 Bonn, Germany; tel.: 49-228-735398; fax: 49-228-735393; zoeller@slide.giub.uni-bonn.de; http://www.gg.rhbnc.ac.uk/loessfest).

March 28–April 1, 1999: ***European Union of Geosciences***, Strasbourg, France; selected sessions include *Holocene and Pleistocene decadal to Millennial Scale Climate Variability: The Terrestrial Record, Holocene and Pleistocene Decadal to Millennial Scale Climate Variability: The Marine Record, Linkages and Feedbacks Between Marine and Terrestrial Systems, Lake Drilling Projects—Monitoring Climate Change* (see http:// eost.u-strasbg.fr/EUG/symposia. html)

April 10–11, 1999: ***7th Multidisciplinary conference on Sinkholes and the Engineering and Environmental Impacts of Karst***, Harrisburg, PA (contact: Gayle Herring, pelaor@usit.net)

May 16-20, 1999: ***2nd International Mammoth Conference: "200 Years of Mammoth Research***, Rotterdam, The Netherlands (contact: J. J. Saunders, Chair, Geology Section, Illinois State Museum, Research and Collections Center, 1011 East Ash, Springfield, IL 62703; tel.: 217-524-7909; fax: 785-2857; http://www.museum.state.il.us/).

May 21-27, 1999: ***Paleoclimate Modeling and Analysis***, Albufeira, Portugal (contact: Josip Hendekovic, European Science Foundation, 1 quai Lezay-MarnΘsia, 67080; tel.: 333-8876-7135; fax: 333-8836-6987; e-mail: euresco@esf.org).

June 20-24, 1999: ***Coastal Sediments '99: Scales of Coastal Sediment Motion and Geomorphic Change***, Long Island, NY (contact: Nicholas C. Kraus, http://www.coastalsediments.org)

July 17-22, 1999: ***IAG Regional Conference*** (contact: http://www.ufrj.br/eventos/iag99)

August 3-12, 1999: ***INQUA Congress***, Durban, South Africa; *The Environmental Background to Hominid Evolution in Africa* (contact: Conference Africa, P.O. Box 1722, Parklands, 2121, Johannesburg, South Africa cafrica @iafrica.com, and T.C. Partridge, Climatology Research Center, Univ. of the Witwatersrand, 13 Cluny Road, Forest Town, Johannesburg 2193, South Africa; tel.: +27-11-646-3324; fax: +27-11-486-1689; e-mail: 141tcp@cosmos.wits.ac.za; http://www.geoscience.org.za/inqua/inqua.html or http://inqua.nlh.no/).

August 17-21, 1999: ***Japan-Korea/Korea-Japan Geomorphological Conference***, Chonju City, Korea (contact: Choi Seong-Gil Dept. of Geography Education, College of Education, Chengdu National University, Chengdu 314-701, Korea hak119 @knu.kongju.ac.kr)

Fall 1999: ***2nd International Paleoflood Conference***, Central A[illegible] (contact: P. Kyle House khouse @maxey.dri.edu)

March 27-31, 2000: ***Commission of the Holocene***, Environmental changes in Holocene sequences-methods, processes, and correlation; Seville, Spain (contact: Dominik Faust, tel: xx49-(0)8421-93/1391, /1302; dominik.faust@ku-eichstaett.de)

June 26-30, 2000: ***Weathering 2000***, British Geomorphological Research Group, http: //boris.qub.ac.uk/bgrg/diary/weathering2k.html (contact: W. Brian Whalley, bwhalley@qub.ac.uk)

August–September 2001: ***5th International Conference on Geomorphology***, International Association of Geomorphol-ogists; Tokyo, Japan (contact: Japanese Geomorphological Union jgu@slope.dpri.kyotu-u.ac.jp; c/o Disaster Prevention Research Institute, Kyoto University, Gokasho, Uji, Kyoto 611, Japan)

September 2-9, 1999: ***BSRG/BGRG Joint Field Meeting***, Almeria Province, Spain; multidisciplinary 3rd International Earth Science field conference focusing on the Almeria Province, and adjacent areas, which has become the focus of a wide range of research, particularly in the fields of sedimentology, biogeography, geomorphology, environmental issues, archaeology, tectonics, and remote sensing applications. The aim of the week is to draw together this research, exchange information and ideas and stimulate interdisciplinary discussion focused on the geographical region (contact: Anne Mather, Dept. of Geographical Sciences, Univ. of Plymouth, Drakes Circus, Plymouth, PL4 8AA, UK; tel.: +44 (0) 1752 233113; fax: 233117; e-mail: amather@ plymouth.ac.uk or Martin Stokes, Dept. of Geological Sciences, m1stokes@plymouth.ac.uk; http:// www.science.plym.ac.uk/DEPARTMENTS/GEOGRAPHY/urra99/urra99.htm).

September 6-10, 1999: ***The 9th International Conference on Luminescence and Electron Spin Resonance Dating***, Rome, Italy; at the Complesso Monumentale del San Michele a Ripa; topics range from fundamental studies of the basic physical phenomena to dosimetry, advances in equipmen[illegible] technology and applications of the dating techniques in Quaternary research, accident dosimetry, archaeology and history of art (contact: Emanuela Sibilia, Dipartimento di Scienza dei Materiali, Via Emanueli, 15, 20126 Milano; tel.: +39266174-165 or -.167; fax: +66174400; e-mail: sibilia@ mater.unimi.it).

September 22-26, 1999: ***Archaeometry Meeting***, Vila Real, Portugal; intends to encourage researchers to present new results about archaeometric research and the Iberian Peninsula–includes dating systems, pottery analysis, archaeozoology, archaeo-botany, biomolecular archaeology; coordinators: Joao Peixoto Cabral, Inst.Tecnologico Nuclear, Sacavem and Jordi Juan-Tresserras, SERP/University of Barcelona (contact: ADECAP, 3 Congreso de Arqueologia Peninsular, R. Anibal Cunha, 39, 3, sala 7. P-4050-Porto, Portugal).

For information on GSA Section meetings and other meetings, check the GSA website (www. geosociety.org) under meetings and upcoming events.

FRIENDS OF THE PLEISTOCENE FIELD TRIPS

Pacific Northwest Cell Sept. 18-19, 1999 (tentative dates)

The trip will focus on the lower Columbia River, essentially from the crest of the Cascades (Stevenson, WA) to Clatskanie, OR (about 10 miles upstream from the mouth). The theme of the trip will be the interface between geology and archaeological sites. The human response to geological processes will be discussed at Chinook Indian villages and resource processing sites near Bonneville Dam, Airport Way in Portland, the lower Columbia Slough, Ridgefield National Wildlife Refuge and near Clatskanie, Oregon. The trip will also include landslides (large and small), lahar sequences on the Sandy and Lewis rivers, Bretz Floods features just about everywhere and Holocene alluvial landforms and sediments on the largest but least studied river in the world, the

Columbia. Base camp will be at Oxbow Regional Park on the Sandy River about 8 miles from Troutdale, OR. Contact: Alex Bourdeau, US Fish and Wildlife Service, 20555 SW Gerda Lane, Sherwood, OR 97140, 503-625-4377; fax: 503-625-4887; alex_bourdeau@fws.gov.

South-Central Cell Spring, 1999

Brian Carter and Phil Ward III of Oklahoma State Univ., will host *Soil geomorphology of the Arkansas River valley, eastern Oklahoma*. Pleistocene river terraces, archeological sites, and soils of the Arkansas River valley will be highlighted. Contact: Brian Carter, Dept. of Plant and Soil Sciences, 160 Agriculture Hall, Oklahoma State Univ., Stillwater, OK 74078; 405-744-6414

Midwest Cell May 21-23, 1999

The conference will convene approximately 20 miles southeast of South Bend, IN, and focus on Late Wisconsin interactions of the Saginaw, Lake Michigan and Huron-Erie Lobes in north-central IN and south-central MI. Contact: Steve Brown, Indiana Geological Survey, at steebrow@indiana.edu.

Pacific Cell

The 1999 meeting will be organized by Charlie Narwold and entitled *Late Quaternary Faulting and Pluvial Lake History of the North Quinn River and Alvord Valley, Southeastern Oregon*. Contact Charlie Narwold, cfn1@axe.humboldt.edu

Rocky Mountain Cell September 10-12, 1999

The trip, entitled *Quaternary and Environmental Geology of the Southwest San Juan Mountains, Colorado*, will be led by Mary L. Gillam, consulting geologist; Robert W. Blair, Fort Lewis College; and Stanley E. Church, U.S. Geological Survey; and co-leaders Scott Elias, INSTAAR; Robert W. Kirkham, Colorado Geological Survey; Thomas Perry, consultant; Fred Phillips, New Mexico Tech; and others. This trip, which is still being planned, will address natural processes and deposits in formerly glaciated and unglaciated areas as well migration of heavy metals from mineralized zones, and will focus on the Animas River valley in Colorado and New Mexico but may include other areas if time allows. Tentative themes will be the influence of climatic, tectonic, and bedrock controls on moraine, terrace, and related deposits; dating by radiocarbon, amino-acid, and incision-rate methods; and contaminant movement in alluvium of late Holocene and historic age. Proposed stops will feature moraines, terraces, rock glaciers, landslides, loess, soil development, Lava Creek B ash, heavy-metal contamination, and post-glacial deposits at Lake Emma. A premeeting hike to remote sites may be added. Contact: Mary L. Gillam at 115 Meadow Road East, Durango, CO 81301; 970-259-0966, gillam@rmii.com

Northeast Cell May 21-23, 1999

The trip, *Paleo-periglacial Features and Landscapes Near the Glacial Margin in the Ridge and Valley, Central Pennsylvania*, will visit good examples of familiar periglacial features: sorted patterned ground, boulder fields, tors, debris fans and ancient fan fragments, dunes, loess, and shale chip colluvium; examine some periglacial features not seen previously seen on a FOP trip—ground ice scars, wind-transverse nivation welts, and associated thermokarst(?) features; and review the relative positions of Pre-Wisconsin till bodies, outwash surfaces, stream derangements, and terraces. Contact: Ben Marsh, Dept. of Geography, Bucknell University, Lewisburg, PA 17837; 570-577-1381; marsh@bucknell.edu.

Southeast Cell October 8-10, 1999

Soils and Quaternary Geology of the Big Sandy Valley, West Virginia and Kentucky will be held at the Caveland Lodge, Carter Caves State Resort Park, Kentucky. Contact: David Cremeens, GAI Consultants, 570 Beatty Rd., Monroeville, PA 15146; 412-856-6400x3234; dlcremeens@aol.com or env_engineering@gaiconsultants.com.

See the AMQUA website for up-to-date information on Friends trips: http://vishnu.glg.nau.edu/amqua/

BIOGRAPHIES OF THE CANDIDATES

BETTIS, E. ARTHUR III, b. Sioux City, IA, 2-14-53. QUATERNARY GEOLOGY, GEOMORPHOLOGY, PALEOPEDOLOGY, GEOARCHAEOLOGY. Educ: Iowa State Univ. BS, 71; MS, 79; Univ. of Iowa Ph.D., 95. *Prof. Exp.:* Research Soil Scientist, IA State Univ., 79-81; Remote Sensing Analyst, IA Geological Survey, 82-84; Research Geologist, IA Dept. Natural Resources-Geol. Survey Bureau, 84-98; ASST PROF OF GEOLOGY UNIV OF IOWA, 98-present. *Memberships and Prof. Service:* AMQUA (council 98-2000), GSA (Archaeological Geology Div. vice-chair 89-90, chair 90-91, JTPC 88, 99), SEPM, SAA (geoarchaeology interest group); Science Team-Marsokhod Silver Lake Field experiment; U of IA Center for Global and Regional Environmental Research, Professional. Soil Classifiers of IA, *Research:* Quaternary geology of midcontinent USA, alluvial stratigraphy and sedimentology, loess stratigraphy and paleopedology, glacial geomorphology and stratigraphy, paleoclimate records extracted from paleosols and terrestrial deposits, geological controls on the archaeological record. Mailing Address: Geology Dept., Univ. of Iowa, 121 Trowbridge Hall, Iowa City, IA 52242; art-bettis@uiowa.edu

BIERMAN, PAUL R., b. Baltimore, MD, 10-24-61. GEOMORPHOLOGY, ISOTOPE GEOLOGY, HUMAN IMPACT ON LANDSCAPES. *Educ.:* Williams College, BA 85; Univ. of Washington, MS 90, Ph.D. 93. *Prof. Exp.:* Hydrologist, GCA, Boston, MA 1985-1987; Asst. Prof., Univ. of Vermont, 1993-1998; Assoc. Prof., Univ. of Vermont, 1998-pres. *Memberships:* GSA (Fellow), AGU, AMQUA, PKAL, Sigma Xi. *Prof. Service:* GSA Bull. Assoc. Editor, 1997-pres.; primary advisor, 11 MS and 1 Ph.D. student; GSA short course instructor, 1994, 1995, 1997; GSA symposia and short course organizer, 1991, 1994, 1997, 1998; AAAS symposium orgnizer, 1998; NSF water and watersheds panelist, 1995. *Awards:* GSA Donath Medal, 1996; NSF Career, 1997. *Research:* Cosmogenic estimates of erosion rates and ages, Holocene landscape history of New England, Integration of research and education, Groundwater recharge in mountainous terrain, Rates of neotectonic processes. Mailing address: Geology Dept., Univ. of Vermont, Burlington, VT 05405; pbierman@zoo

BURNS, SCOTT, ENGINEERING AND ENVIRONMENTAL GEOLOGY, SOILS, QUATERNARY GEOLOGY, GEOMORPHOLOGY. *Educ:* Stanford Univ., B.S., M.S., Univ. of Colorado, Ph.D.; *Prof. Exp.:* taught in Switzerland, New Zealand, Washington, Colorado and Louisiana, PROF. OF GEOLOGY, PORTLAND STATE UNIV.; *Memberships:* GSA, AEG, IAEG, NAGT, SSSA, AMQUA, and Sigma XI; registered geologist in Oregon; Service: past president of the Oregon soil Science Society and current chair of the Oregon section of AEG; a Kellogg National Leadership Fellow from 1990-93 with the Kellogg Foundation, Mem.-at-large EGD Management Bd., 96, EGD Secretary, 97, Vice-Chair/Chair-Elect, 98; Chair, Burwell Award Comm, 96-97; *Research:* landslide inventory and susceptibility maps, earthquake hazard maps, radon and heavy mineral hazard maps, soil development, and loess; Mailing address: Dept. of Geology, Portland State Univ., P.O. Box 751, Portland, OR 97207-0751; scott@ch1.ch.pdx.edu

HARDEN, DEBORAH R., b. Pittsfield, Mass, GEOMORPHOLOGY, FLUVIAL SYSTEMS; *Educ:* Stanford, BS, MS 1973; Univ. of Colorado, PhD 1982; *Prof. Exp.:* Professor, San Jose State Univ. 1986-present; Geologist, Woodward Clyde Consultants, 1980-83, Hydrologist, USGS, Menlo Park, 1974-89, Tech USGS 1971-74; *Membership:* GSA, QGG Div. panel member 1989-90, Sec 1990-94; *Interests:* Fluvial processes; tectonic effects on stream systems; watershed impacts; California geology; teaching and geoscience literacy. Mailing address: Dept. of Geology, San Jose State Univ., San Jose, CA 95192-0102; harden@geosun1.sjsu.edu

KITE, J. STEVEN, QUATERNARY GEOLOGY, GEOMORPHOLOGY. *Edu.:* James Madison Univ., B.S., 1976, Univ. of Maine, Orono, M.S. 1979; Univ. of Wisconsin, Madison, Ph.D., 1983; *Prof. Exp.:* Instr., James Madison Univ., 1978-80, Asst.-Assoc. Prof., WEST VIRGINIA UNIV., 1983-date; *Memberships:* GSA (QGG Secy. 1994-98, treas.1998-99), AMQUA, AAG, WV Arch. Soc., Southeastern FOP (executive officer 1987-date); *Res.:* Late Cenozoic history of the Appalachian Mountains, paleohydrology of the Ohio River basin, sedimentology & geomorphology of debris flows & related events; Mailing Address: Dept. of Geology & Geography, West Virginia Univ., Morgantown, WV 26506-6300; JKITE@WVU.EDU; Web site: http://www.geo.wvu.edu/~kite/

KNUEPFER, PETER , GEOMORPHOLOGY, NEOTECTONICS. *Educ.:* Stanford Univ., B.S., 1976, M.S., 1977; Univ. of Arizona, Ph.D., 1984. *Prof. Exp.:* Staff-Project Geologist, Woodward-Clyde Consultants, 1977-80; Post-Doctoral Research Assoc., Cornell Univ., 1985; Asst.-Assoc. Prof., STATE UNIV. OF NEW YORK AT BINGHAMTON, 1986-date. *Memberships:* GSA, AGU, SSA, AMQUA, NZ Geol. Society. Assoc. Editor, GSA Bulletin, 1999-2001. Steering Comm., Binghamton Geomorphology Symposium. *Research:* Tectonic geomorphology of rapidly uplifting mountain ranges (Taiwan, New Zealand); paleoseismology (Idaho, Philippines); isostatic rebound and post-glacial incision (New York). Mailing Address: Dept. of Geological Sciences and Environmental Studies, Binghamton Univ., Binghamton, NY 13902-6000; knuepfr@binghamton.edu.

The Geological Society of America
3300 Penrose Place - P.O. Box 9140 - Boulder, Colorado 80301 - 303/447-2020 - FAX 303/447-1133

Quaternary Geology and Geomorphology Division

To Voting Members of the Division:

Proposal to Increase Division Dues

Faced with a deficit budget in each of the past two years, the Management Board has reluctantly voted to increase dues for membership in the Division. The proposed increase is from $5 to $8 for Members and Fellows and from $2 to $4 for Student Members (graduate), Student Associates (undergraduate), and Teacher Members. The proposed increase would begin with the year 2000 dues and put Division dues in line with those of most other divisions. The proposed dues increase must be approved by a majority of voting Division members. Please vote in the space below. Thank you. Please return your signed ballot to GSA Headquarters by **June 1, 1999**.

For the Proposal to Increase Division Dues ☐

Against the Proposal to Increase Division Dues ☐

Election of Officers for the Quaternary Geology and Geomorphology Division

The slate of officers for the Division is submitted herein. Please vote by checking the appropriate box or by writing in the name of your nominee in the space provided. Biographical data for nominees can be found beginning on page 11 of the newsletter.

Your ballot must be returned no later than **June 1, 1999,** and must be signed in the space provided on the reverse side to constitute a valid ballot. Election results will be announced at the business meeting of the Division in Denver, Colorado, in October.

CHAIR (vote for one candidate):

Peter U. Clark ☐

Write In _____ ☐

FIRST VICE-CHAIR (vote for one candidate):

R. Craig Kochel ☐

Write In _____ ☐

SECOND VICE-CHAIR (vote for one candidate):

J. Steven Kite ☐

Deborah R. Harden ☐

Write In _____ ☐

TREASURER (vote for one candidate):

Scott Burns ☐

Write In _____ ☐

AWARD PANEL (vote for three candidates):

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

Paul R. Bierman ☐ Frank J. Pazzaglia ☐ G. Richard Whittecar ☐

Write In _____ ☐

Please return your signed ballot to GSA Headquarters by **June 1, 1999**.

PAZZAGLIA, FRANK J., b. New Brunswick, NJ, 05-09-64; M 87, C 3. TECTONIC GEOMORPHOLOGY, QUATERNARY GEOLOGY. *Educ.:* Penn State Univ., B.S., 1986, Univ. of New Mexico, M.S., 1989, Penn State Univ., Ph.D., 1993; *Prof. Exp.:* Asst. Geologist, State of New Jersey Dept. of Envn. Prot., 1986-87, NSF Post-Doctoral Research Fellow, Yale University, 1993-94, ASST. PROF. OF GEOLOGY, UNIV. OF NEW MEXICO, 1994-present; *Memberships*: GSA, AGU, NAGT; *Service:* Editor, New Mexico Geology, Editorial Board, Geology; *Research:* Tectonic geomorphology and long term landscape evolution of passive (U.S. Atlantic) and active (Cascadia) continental margins, active tectonics, fluvial geomorphology and the genesis of fluvial terraces, record of late Cenozoic climate change in terrestrial stratigraphy; Mailing address: Dept. of Earth and Planetary Sciences, Univ. of New Mexico, Albuquerque, NM, 87131-1116, (505) 277-5384; fjp@unm.edu

REHEIS, MARITH C., b. Roswell, NM, 8-13-50. QUATERNARY STRATIGRAPHY, SOILS, EOLIAN PROCESSES. *Educ.:* Univ. of Georgia, BS 72; Univ. of Colorado, MS 74, PhD 84. *Prof. Exp.:* Geologist, Cons. Div., USGS, 1974-1978; part-time geologist, Central Environmental Geology, USGS, 1978-1984; RESEARCH GEOLOGIST, Regional Geology and Climate History, USGS, 1984-present. *Memberships:* GSA (Fellow), Colo. Sci. Soc. (past secretary and councilor), SSSA, AMQUA, AGU. Prof. service: GSA Bull. Assoc. Editor, 1993-present; member of 3 thesis committees; helped organize and conduct numerous field trips for FOP, GSA, etc. *Awards:* Gilbert Fellowship, USGS, 1995. *Research:* aridic soils and surface processes (responses to climate and human controls), eolian processes, long pluvial lake records, paleoclimate, neotectonics, soil chronosequences, fluvial history of Bighorn Basin. Mailing address: U.S. Geol. Survey, MS-980, Federal Center, Box 25046, Denver CO 80225; mreheis@usgs.gov.

WHITTECAR, G. RICHARD, b. Concord, N.C., 6-17-52. GEOMORPHOLOGY, QUATERNARY GEOLOGY, ENVIRONMENTAL GEOLOGY. *Educ.:* Univ. of No. Carolina-Chapel Hill, BS, 74; Uni. of Wisconsin-Madison, MS, 76, PhD, 79. *Prof. Exp.:* Asst.- ASSOC. PROF, OLD DOMINION UNIV., 79-present. *Awards:* Univ. Prof. (first), Old Dominion Univ. 98-02; *Memberships:* GSA, AAG, AGU, AMQUA, NAGT, Assoc. Groundwater Scientists and Engineers, Soc. Wetland Scientists, Vir. Assoc. Professional Soil Scientists, Friends of the Pleistocene—Southeastern Cell. *Service:* GSA Southeastern Section, Field Trips Chair and Guidebook Ed., GSA QG&G Div., Nominating Comm., 90; Editor, *Quaternary Geologist and Geomorphologist*, 94-98. *Research:* Hydrologic and geomorphic history of wetlands; boulder streams and alluvial fans of the Blue Ridge; geomorphology and stratigraphy of soils in coastal dunes and marine strata. Mailing address: Dept. of Ocean, Earth, and Atmospheric Sciences, Old Dominion Univ., Norfolk, VA 23529; rwhittec@odu.edu.

MESSAGE FROM THE NEWSLETTER EDITOR

For the last several years, Rich Whittecar did a laudatory job as the divisional newsletter editor and manager of the website. As new editor, I hope to serve the division in the same spirit as did Rich.

Please send your announcements and other news items for inclusion in the Newsletter. Our next issue will be prepared in August for September publication. Also, I have taken over the divisional web page from Rich and will update it this spring; suggestions will be very much appreciated.

Bill Johnson, Dept. of Geography
1 Jayhawk Blvd, University of Kansas
Lawrence, KS 66045-2121
785-864-5548; 785-864-5378 (fax); wcj@ukans.edu

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