



Quaternary Geologist and Geomorphologist

NEWSLETTER OF THE QUATERNARY GEOLOGY AND GEOMORPHOLOGY DIVISION

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CHAIR'S MESSAGE - WHY AND HOW WE MUST CHANGE: QG&G AT THE END OF THE 20TH CENTURY

The geosciences are undergoing accelerated change at the end of the twentieth century, and the changes are having direct effects on Quaternary geologists and geomorphologists. The Geological Survey is downsizing and internally redistributing resources with direct implications for the pursuit of federal geoscience for surface processes and forms. Reductions in force and terminations of programs are a continuing fact of life for our colleagues in the USGS. Similar adjustments are taking place in our universities, where the once sacred cow of tenure is under serious review in at least half the states and provinces, with program reviews sure to follow. Universities and geology departments are also downsizing in some cases. Fortunately the number of geologists, at least those affiliated with the Geological Society of America, has held relatively steady; from 1990 to the present, GSA membership has declined only 2% (from 14,760 to 14,400). However declines in GSA divisions have been more precipitous; membership in the Geophysics Division dropped by 32% between 1990 and 1994, while even the much heralded Hydrogeology Division shrank by 11%. The Quaternary Geology and Geomorphology Division lost 13% of its members during the same period (the second lowest loss rate among all the divisions), a trend that is continuing in 1995. In many cases, the losses were among our student members, not surprising in view of the more than 25% decline in graduate students in geology programs since the late 1980s.

The changes are not limited to geology or surface process sciences, but we should not delude ourselves into thinking that everyone is in the same boat. Botany and zoology are enjoying considerable success in universities, and though the National Biological Service was threatened with extinction, no such action is forthcoming. In any case, life scientists are found in many governmental agencies at federal and state levels--certainly far more commonly than are geologists. Another sibling discipline, geography, seems well and growing: the Association of American Geographers has a membership that is at an all time high, and the Geomorphology Specialty Group of the association continues to grow.

The changes that affect us in the QG&G are wide-ranging, and they have implications for the future of our science. The general lack of appreciation for the geology (including Quaternary geology

and geomorphology) among the public and its elected representatives, along with shrinking budgets and a reduced commitment to research in general at the national scale are primary causes of the outcomes that we all now experience. The quality and wisdom of our responses to these changes will determine the vitality of our science in the early twenty-first century. Many aspects of the situation such as the nature of the market economy, necessity for budgetary restraint, and occasional changes in the political arena are out of our direct control, but there are responses that we can initiate in the activities that we do control. Frankly, we must reinvent ourselves individually as scientists and collectively as an organization.

Some avenues toward redefinition that we might consider and discuss include the following.

1. We must insure that the research questions we ask are relevant to the society that pays the bills. I am not arguing that we should turn away from basic research--I am suggesting that when we choose problems, we ought to make an effort to address issues that are of importance to someone in addition to ourselves.

2. In a related issue, we need to become less insular, less arrogant, and more integrated with other environmental sciences. We should work with life scientists in ecosystem research, interact with planners in seeking to establish and maintain quality environments, deal with engineers to better blend the built and natural environments, and interface with social scientists to improve the connection between society and nature. In some cases, they will not come to us, and we must go to them.

3. We should be more involved with the policy world, whether in the formulation of policy through better information, through legislative connections, or along legal avenues. For too long we have held ourselves above these arenas, arguing that our science should not be tainted by such associations. As a result, we make ourselves irrelevant to those who make the decisions.

4. We should write more often for nonspecialists, either in articles or through the production of books. We produce so many

scholarly articles addressed to incredibly narrow audiences, each individual article becomes buried in the avalanche of information that has come to characterize our communications. Those outside our science do not see (and therefore do not share) the excitement we feel for earth science.

5. We need to reach the general public more effectively, perhaps through GSA outreach programs, and when such programs appear, Quaternary scientists and geomorphologists should enthusiastically participate in them. After all, it is the surface of the earth that members of the public most often directly experience.

6. We need to reach school-age children through cooperative efforts by colleges, universities, and government agencies. If we instill in young people an appreciation for the value of geoscience, we insure our scientific and political future.

7. We must search for new ways to conduct our scientific business. There will be fewer of us, with fewer resources, to address more needs in the future. We are all more busy than ever before. We need to find new efficiencies in our professional lives to make the kinds of impacts we desire. The annual GSA meeting, as a starting point, needs redesigning as field trip attendance continues to decline and members are increasingly unable to attend the entire meeting, all because of pressing professional or personal commitments elsewhere.

8. On a personal level, we must be open to change and be willing to work with people who are potential cooperators, but who not know the details of our science. We must accommodate them by investing greater amounts of time and effort in preliminary arrangements and planning, in some cases presenting our own view of the world convincingly to sponsors who might not have considered them before. Such approaches require time and patience.

The list could, of course, go on, but this is a representative sample. In GSA and QG&G, there are already indications that we are in the business of re-invention. Many young QG&G scientists are addressing issues of societal concerns, from Quaternary specialists providing a context for human-induced environmental change to geomorphologists trying to explain the dynamics of critical habitats for endangered species. Geoscience is broadly recognized among biological scientists as the critical building block of ecosystems. But we need to do more. To pursue public education, for example, requires money and programs from GSA to follow up on 1995 GSA President David A. Stephenson's plea for attention in this area in his presidential address at New Orleans. In order to do our business more efficiently and in a more socially relevant way, each one of us must address how we will, as individual scientists, meet the challenge of change. The only logical response for us is to embrace change and evolve; to enter the market place of ideas aggressively and with confidence. If we are unsuccessful, our numbers and our influence will dwindle, and in the end, the activities we should do by dint of our training and experience will be done by others. If we are successful, we will have the satisfaction of creating and implementing new knowledge in the search for a sustainable balance between economic vitality and a quality life. —Will Graf

1995 AWARD WINNERS AND CITATIONISTS

Photographs by Susan Kite



Kirk Bryan Award winner for 1995 and citationist: Jim O'Connor (left) and Vic Baker, citationist.



Distinguished Career Award winner for 1995 and citationist: (left to right) Steve Coleman, 1995 Chair of QG&G Division; David Hopkins, Award winner; Julie Brigham-Grette, citationist.

1995 QG&G DIVISION AWARDS

The complete citation and acceptances for the Kirk Bryan Award, the Society Award that is bestowed by the QG&G Division, will be published in the March 1996 GSA Today. Only excerpts, edited for economy, are printed here. The Distinguished Career Award is solely a QG&G Award; its citation and response are not published elsewhere and are printed in full here.

KIRK BRYAN AWARD

Citation by Victor Baker

The 1995 Geological Society of America Kirk Bryan Award is presented to Dr. Jim O'Connor, U.S. Forest Service, for his monograph "Hydrology, Hydraulics and Geomorphology of the Bonneville Flood" published in 1993 as Geological Society of America Special Paper 274. This paper documents the processes associated with an ancient fluvial event of exceptional intensity for energy expenditure. As geologists we explore the world of the past. This is the world that has been called "deep time." Let there be no mistake, however, this is not the time of which theoretical physicist Stephen Hawking writes in his very popular book *A Brief History of Time*. For us geologists time is not some parameter input by the analyst into his or her modeling equations. Time is nothing in geology if not the richness, detail, and complexity of all natural experience. I submit that the essence of geological experience lies not in some numerical formulation but rather in those rare conjunctions of intense processes that are sometimes accorded the label "catastrophic." The energy levels for these events are so high that process indicators are profoundly impressed upon the landscapes, sediments, and the minds that interpret them. These impressions are signs read by geologists and they constitute a language of nature expressed with the loudest of exclamations.

The paper we recognize tonight is a reading of nature's language through the working hypotheses of its author. Nature's language is translated through to the symbols, including words, diagrams, and mathematics, that most effectively convey the story to an audience of fellow scientists. Though the story is nature's, we can indeed celebrate its telling and its teller, much as we celebrate the poet, whose love of human language enriches another kind of telling.

Just as the poet must love her human language, so the geologist must love nature's language. The paper we celebrate here would not be possible without a profoundly creative and loving author, one whom I value immensely for association in that education experience which we label as professor and graduate student.

Jim O'Connor is no stranger to honors by this division. He twice received the J. Hoover Mackin Award, first in 1984 for his M.S. work and then in 1987 for his Ph.D. proposal. Jim also received in 1988 the GSA's Robert K. Fahnestock Award for his Ph.D. project, the successful culmination of which resulted in GSA Special Paper 274. This latter award was highly appropriate, since Ken Fahnestock was an ardent proponent of the approaches so ably refined in Jim's Special Paper. It is also fitting that this Kirk Bryan Award is the second for a study of the Bonneville Flood, following Hal Meade's work a quarter century ago. Hal, of course, followed hints from G.K. Gilbert, thereby tying to a continuum of heroic geological inquiry.

Jim O'Connor was destined to do this study. Born in the city where J. Harlen Bretz taught high school, Jim graduated in 1982 from The University of Washington. He then moved to southern

Arizona, where graduate fluvial geomorphology students were influenced, gently I hope, to listen and to communicate nature's shoutings, that is to let ancient floods tell their own stories.

There is indeed something about great cataclysms that makes one feel very small. Perhaps there is a kind of primordial memory, embedded in the human psyche, that collectively recalls migrations across landscapes that were suddenly and spectacularly transformed by immense flows of water. Our awardee will now have to give us his own reflections, but mine are rather intense. One works as an educator and as a researcher in the profound hope that these are not two disparate activities, separately indulged, as accounted for in the short-term productivity mania sweeping our universities. Science, education, research, and service comprise a continuum of activity. When a student/colleague receives the highest recognition by a scientific body, then one can feel that this continuum with nature, with colleagues, and with science has been maintained. Jim's advisor was mentored by Bill Bradley, last year's Distinguished Career Award recipient. Bill studied with Arthur D. Howard and J. Hoover Mackin, both of whom were students of Douglas Johnson. Johnson, of course, was mentored by William Morris Davis, whose advisor was Nathaniel Southgate Shaler. Shaler, in turn, was the student of Louis Agassiz, who studied with Baron George Cuvier, perhaps geology's most eminent catastrophist. We are, all of us, a part of this continuum with the world. We are all seeking to be the poets for nature's great stories. It is in this spirit that I have the pleasure and the honor of participating in the presentation of the 1995 GSA Quaternary Geology and Geomorphology Division Kirk Bryan Award to Jim E. O'Connor.

RESPONSE BY JIM E. O'CONNOR

I am truly honored and flattered to be standing here tonight. As previous Kirk Bryan Award recipients have noted, there is a twinge of discomfort associated with being selected for such a prestigious award, knowing that many equally deserving papers have not been selected for such recognition.

You now know from Vic's comments that the Hydrology, Hydraulics, and Geomorphology of the Bonneville Flood is basically an unadulterated version of my dissertation. Although I am now five years and several postdocs removed, I still find it relevant to share with you my perspectives on being a student.

At Arizona, faculty such as Vic Baker, Bill Bull, Clem Chase, Owen Davis, and Simon Ince, among many others, were the people that, for me, tuned the instrument of learning at the University of Arizona. The music was really made, however, by an ensemble of graduate students with a wide variety of backgrounds, abilities, and interests working under faculty members that encouraged reaching out across disciplines. The result was a concert of enthusiasm, inquisitiveness, and creativity. This leads to a message I want to state clearly: I feel that Vic Baker's and Bill Bull's success as scientists and teachers, and the success of their students, isn't necessarily a direct consequence of Vic's and Bill's powerful intellects, keen field skills, or the quality of their prose. In my mind, their biggest success will stem from their ability to bring together people that are excited about learning, and foremost, fostering an environment where young scientists are allowed and encouraged to explore in directions that are satisfying to themselves. Guidance and judgement are offered, but not forced. In my opinion, this is the type of environment that promotes the creativity that leads to steps forward in our science.

Since graduating, I have been fortunate to have worked as a government scientist, first with the U.S. Geological Survey, and now with the Forest Service. Government science is in the process of adjusting to new realities. At the same time, we all know that human activities all over the world are increasingly resulting in hydrologic and geologic consequences that are posing serious risks to the ecologic integrity of the planet. I am truly optimistic about the positive role that science, especially geomorphology and surficial geology, will play in future policy. But we have to make it happen. We must go beyond simply conducting research that is "relevant". Most of us are lucky enough to be in positions to make positive changes. We must launch wholeheartedly into issues that we know and care about, and attempt to make contributions, whether they be scientific, educational, or other, that are truly meaningful in terms of improving the state of our magical world.

I am truly lucky and thankful for the doors that have been opened for me and for the remarkable privilege of accepting the 1995 Kirk Bryan Award. Thank You.

DISTINGUISHED CAREER AWARD: DAVID HOPKINS

Citation by Julie Brigham Grette

The growth of Quaternary science over the last half century has been nurtured and shaped by a truly remarkable group of individuals, each of whom has left an enduring mark on our view of geologic processes, multidisciplinary science, and the scientific process itself. David Moody Hopkins stands tall among this group of individuals for his work throughout Beringia--the great land bridge between Asia and North America. We honor him this evening as the 1995 recipient of the Quaternary Geology and Geomorphology Division's Distinguished Career Award, so please bear with me for a few minutes while I place this phenomenal man high on a pedestal, a position he has always held in the eyes of his colleagues and his students. Last year at the Seattle GSA, we honored Dave with a full day Sunday symposium highlighting both his accomplishments in the past, and his influence on the current status of Quaternary Beringian science across such diverse fields as bedrock geology, archeology, coastal geology, regional stratigraphy, marine geology, paleobotany, permafrost, and paleoclimatology over the last 53 years. After all, the man is a walking encyclopedia! For his contributions in geoarcheology, Dave received the GSA Archeology Division's Rip Rapp Distinguished Career Award in 1992.

David Hopkins is probably the one person most responsible for developing and popularizing the geologic history and paleogeographic significance of the Bering Land Bridge. Important contributions to this legacy are the two interdisciplinary books which he organized and meticulously edited. The first book *The Bering Land Bridge* (Hopkins, 1967) published in 1967, includes two landmark chapters by Dave, one of which earned him the Kirk Bryan Award from this Division in 1968. In 1982, he and his colleagues published *The Paleogeology of Beringia* (Hopkins et al., 1982), a book that has also become a classic reference. I first met Dave in his office at the USGS in 1979 when I was first considering the prospects of a dissertation project on the marine transgressions of the Alaskan North Slope. It quickly became clear to me as a young graduate student just how passionate Dave was about the subject when he slowly reached up and pulled the '67 Bering Land Bridge Book from the shelf. He paused to look at the outside cover and as a

sly grin came to his face he said "You know, I like to think of this as the Old Testament".

During his 42 years with the US Geological Survey Dave had a major impact on a variety of research programs. In 1961 he initiated the first geologic studies of the Alaskan offshore, the largest area of continental shelf in the US. In cooperation with the US Navy in 1965, he launched the initial studies of the Bering Sea that led to the discovery of substantial Cenozoic basins beneath the otherwise flat shelf. Moreover his work led to the discovery of major subsea drainage systems and canyons developed at times of low sea level throughout the Pleistocene. At about this same time, Dave was also influential in advising Alan Cox, Dick Doell, and Brent Dalrymple on stratigraphic methods for testing their early ideas of paleomagnetic reversals. Dave's idea of a sampling trip to the Pribilof Islands with the group led to confirmation of the Olduvai as a global event and yet another revision in the paleomagnetic timescale as the science evolved rapidly in the 60s. One of Dave's most enduring attributes is his endless enthusiasm for new ideas and approaches to solving geologic problems. For example, Gifford Miller, University of Colorado, credits Dave with giving him his first \$5,000 to start up his Amino Acid Geochronology Lab in the mid seventies. Over the last several decades, Dave has provided the encouraging shove that has propelled countless careers in Quaternary science.

During the early to mid-60s Dave's collaboration with paleobotanist Jack Wolfe, USGS, contributed to our current understanding of the Tertiary evolution of plants during the Cenozoic decline of global temperatures and concurrent changing geography. This work established a standard template against which all other Arctic and Subarctic Tertiary floras are compared, even today.

Dave has always shown a unique ability to cut through rhetoric and get to the heart of a scientific problem. For example, he ended a 20-year debate over the age of the Pleistocene/Holocene boundary with a simple one page paper in GSA's *Geology* magazine in which he proposed an age of 10,000 yrs BP because, quite simply, "it is a nice round number".

As an outgrowth of his dedicated interests in the Bering Land Bridge, Dave pioneered the first reciprocal scientific exchanges with Soviet geologists and paleontologists in the 1960's when the Cold War made exchanges much more difficult than they are today. In the Preface (pg. VII) to *The Bering Land Bridge* book, Dave painted for us a colorful image that reflected his yearning for collaborative work on the Russian coast of the Bering Strait. "...storm-bound at Wales village, I studied the mist smoking over a turbulent Bering Strait and wondered who, on this violent day, might be shouldering the wind on the Asian shore to share my search for traces of the past. Near me rose a peaty mound, the midden left by generation upon generation of Eskimos dwelling at the western tip of North America; behind me rose Cape Mountain, scarred by ancient glaciers, carved by ancient waves. Perhaps someone was at that moment sheltering his Cyrillic notes from the mist as he huddled on a terrace on East Cape, at the eastern tip of Siberia or in an Eskimo burial ground at Uelen, Siberia's eastern most village..." The thaw of the Cold War in recent years has finally made it possible for Dave to see for himself the mirrored image of the Beringian landscape from the Russian side. The development of the Bering Land Bridge National Preserve on northern Seward Peninsula by the National Park Service (the site of Dave's dissertation work) and the ongoing success of the NPS US/Russian Beringian Heritage Project are now a legacy to his wholistic view of this grand geographic crossroads and its people.

Dave worked closely with the NPS on a science plan for NW Alaska, which provided the scientific basis for the Beringian Heritage Program that is now ongoing. This program has been an outstanding success in terms of a collaboration between the NPS, university researchers, and most importantly Alaskan native inhabitants. It reflects the inclusiveness that is needed in science and resource management - something Dave has always promoted - government-funded science not just going in and taking information and observations, but working WITH the native communities and bearing the communities needs in mind. People...People...that is also what David Hopkins is all about. Throughout his long career, Dave has been an important mentor to younger colleagues and countless students, sharing not only his vast field experience, but his outlook on the pursuit of science. Dave's love and commitment to teaching continue to this day at the University of Alaska where he has been instrumental in expanding the scope of the Alaska Quaternary Center through a broad range of interdisciplinary research and scholarly activities. He is a person of great warmth and compassion, always giving equal attention to a distinguished foreign visitor or to a graduate student with a reference request. Dave has given freely of his time and energy to provide advice on field plans, critiques on manuscripts, and guidance on evolving ideas. More than anyone else, Dave has taught many of us that it is OK to admit your interpretation or idea was wrong, and that here is great joy in revising and getting it right, a sign of impressive scientific maturity to which we all should aspire. But as we all know Dave, you really have been right most of the time!

RESPONSE BY DAVID M. HOPKINS

Thank you, my colleagues and my friends, for your recognition. And thanks especially to you, Julie, for saying such nice things about me, but more important, thank you for seventeen years (if I haven't lost count) of working together, of endless arguing, of writing papers together, and of unflagging friendship. Also, I apologize again for cutting your hair too short that time at the Wainwright Dew Line Station.

On an occasion like this, I hope that it's appropriate to be a bit self-indulgent and to talk about myself, although I was certainly brought up not to!

I was drawn into geology at a time when I was wondering why I was in college - I knew that I should be in college, but why was I there? Preparing for life, I guessed.

I was and I still am an avid railfan. Until I left Greenfield, NH, I thought I was the only railfan in the world. I would have been delighted to spend the rest of my life coupling and uncoupling freight cars and riding in the caboose. Unfortunately, and with apologies to you, Rich Madole, in my family it wasn't considered respectable for me to be a railroad man. Maybe instead I could go to college, learn to be a mechanical engineer, and make a living designing freight cars?

At home in Greenfield, I had also been an avid catcher and keeper of live snakes, turtles, salamanders, toads, and frogs and their pollywogs and eggs. In fact, George Proctor, the game warden, and I knew more about the local lower vertebrates than anyone else in southern New Hampshire. Maybe I could be a herpetologist like Raymond Ditmars and go to tropical jungles to collect snakes and lizards?

But then again, I was really mixed up in my solitary, nerdlike-way, so when I arrived at college, I began to try to understand

myself by sitting up into the wee hours, reading Freud's "Psychology of Dreams", then drowsily scribbling down my dreams next morning. Maybe I could be a psychologist?

I liked to write, and my lady English professor was the only teacher that really praised me, that first year at UNH. Maybe a writer's life awaited me? But then, still again, in high school I'd had the apparent misfortune to be stuck in a study hall supervised by the typing teacher. This was a lady who disliked me almost as intensely as I disliked her. Incredibly enough, this typing teacher also taught another course, something called "physiography", and so to relieve my boredom and stay out of trouble in her study hall, I began to read her text, Spurr's Forest Physiography. Maybe Physiography would be interesting, although I had not the faintest idea how you could make a living at it!

My first year at the University of New Hampshire established that I had neither the skills nor the temperament to be any kind of engineer, so, in desperation, I devoted my second year to taking courses in biology, psychology, creative writing, and geology. Freshman Biology at UNH turned out to be a boring review of systematics and anatomy; neither ecology nor life history of salamanders was ever mentioned. Psychology proved to be concerned with memorizing the names of various psychoses and various degrees of mental retardation, relieved by field trips to the state insane asylum and the New Hampshire Home for the Retarded. Freud was never mentioned!! It was fun in the Creative Writing course to compose comic sketches about life in my Yankee village, but instead of a final exam, we were required to write a short story, and I couldn't even think up a plot - terminal writer's block, and not for the last time, either!!

By default, that left Geology! My first course in Geology featured the excellent and enthusiastic lectures of Donald Chapman. I loved working on maps in the lab, and I loved the field trips that explained the landscape that I'd grown up in. But the most captivating thing that I learned was that doing geology was like being in a detective story field work, close observation, logical deduction! Another surprising discovery was that, unlike chemistry, physics, and biology - so I thought - the frontiers of knowledge weren't distant at all, and even a mediocre mind like mine could make contributions to knowledge.

A couple of years later, I was faced by another dilemma. What kind of a geologist should I be? Inspired by the name of Marland Billings, who with his students was slowly mapping the whole state of New Hampshire, quadrangle by quadrangle, I decided that I would be a structural geologist, so I enrolled in the 1942 summer session at Harvard Graduate School. But before I could catch my breath at Harvard, the problem of what to be was settled for me. A telegram came from the USGS asking me whether I would accept employment in Alaska. Accept a job in Alaska? You bet!!! And so, at the tender age of twenty, I found myself embarking on the career of an Alaskan geologist.

In the 1940's and the early 50's, Alaskan geologists were just exactly that - specialists in the geology of Alaska. All of the old guys - J.B.Mertie, Fred Moffit, P.S.Smith, for example - and some of my contemporaries - Clyde Wahrhaftig, Bob Black, Joe Hoare - dabbled in a little bit of everything. Measure dips and strikes on cleavage in Birch Creek Schist today, collect bones in the Pleistocene muck tomorrow.

Gradually, I began to focus on the Cenozoic. Coming from New Hampshire, where the youngest rocks were Permian and where the tectonics seemed to have died three hundred million years ago, I

was fascinated by Alaska's abundant display of young deformed rocks. So I managed to attach myself to a project with Tom Payne, mapping and trying to figure out the structure, sequence, and age of what we then thought were Eocene coal-bearing rocks in the Matanuska Valley (now we know they're Paleocene). More and more, I zeroed in on the Cenozoic. For a while, I tried to be the Alaska Branch specialist on Tertiary rocks and Tertiary-events - their biostratigraphy, their paleoecology, their deformation history. But to me, the most interesting deposits and the most vivid events were the real young ones - the spectacular folds in the Nenana Gravel; the huge Aleutian calderas, good old Imuruk Lake embedded in its graben in a huge lava plateau.

Of course, coming under the spell of Kirk Bryan soon after I returned to graduate school (actually, I went back planning to be a petrographer!) played a big role in the way I evolved. In Kirk Bryan, I found a geologist interested in geoaerchology, which hadn't even been invented yet!! Here was a geologist interested in the new subject of permafrost and frost action, just when the USGS had put me to work trying to figure out how to study permafrost. Here was a geologist interested in landscape evolution but also interested in the sediments, the faults, the stratigraphic and structural records so vital to understanding landscape evolution!! I thought that Kirk Bryan had invented Pleistocene geology, though now I know that it was already in the air. Still, as far as I knew then, everyone else interested in the Pleistocene was an arm-waving peneplain visionary - tough for me, because I didn't believe in peneplains.

Those of you who have survived the last few decades must be as conscious as I am of the knowledge explosion. In the 1940's, it was possible to just be a geologist - not a structural geologist, not a ground-water geologist, not a Pleistocene geologist-certainly not a marine geologist, not a paleoecologist, not a paleoclimatologist. In the 1940's it was possible for someone like me to be familiar with the entire body of literature on the geology of Alaska - and not only with geology, but also with almost everything else written on the natural history of that huge state. I suppose that's why it took me roughly 25 years to narrow my focus down to the geomorphology and Quaternary geology of the Arctic and especially of Beringia.

As I said on another occasion, I like to think of myself as a paleo-naturalist - a naturalist interested in the history of the natural world. It would be daunting to set out to be a paleo-naturalist, today - but then, I didn't consciously set out to do so. Anyhow, nowadays, there is so much to read, so much to know. Yet, it seems that it's still possible to be a paleo-naturalist.

To change the subject: These are tough times. No one wants to say it, but it is clear to me that we are in a depression, and it's a depression of the spirit as well as a depression of the wallet. The mid-1990s seem to me a miserable and mean-spirited time, a time perhaps even worse than the 1930's. I worry about what the future holds for my children, my grandchildren, and my students. I was dismayed to hear earlier speakers take a *mea culpa* tone, exhorting us as Quaternary geologists and geomorphologists to get out of our ivory towers and make our work more relevant. Hogwash! We are not any worse off than science in general. Let's quit asking ourselves where we went wrong, and get active in politics! The enemy is us - or at least our apathy. The mean-spirited politicians hold sway because their constituency is zealous, and we are not.

It's hardly news that our work should produce some tangible benefits to society! I was trained very early that my work must have a practical side as well as that curiosity-driven side which I am incapable of suppressing. I would hope that most of us realize that society doesn't provide us with research opportunities for nothing, and also that the practical side of our work can be challenging, thought provoking, and done best by a person consumed with curiosity. The practical side and the curiosity-driven sides of our work feed each other.

Meanwhile, I feel very fortunate to have found what I really wanted to do and then to have been able to spend at least 53 years doing it! For 43 years, the United States Geological Survey was a wonderful and inspiring place to work for 43 years. And for the last ten years, so was the University of Alaska. If these hadn't been such wonderful places to work, I wouldn't be standing here, receiving a career award today. Thanks again to all of you for this recognition and thanks to many of you for many years of friendship!

QG&G DIVISION COMMITTEES FOR 1995-1996

✓ **Division officers:** William L. Graf (Chair); Karen L. Prestegaard (First Vice Chair); Leslie McFadden (Second Vice Chair); J. Steven Kite (Secretary).

✓ **Division Panel:** Michael N. Machette, Ellen A. Cowan, Robert S. Anderson (1995-1997); Peter U. Clark, Lisa L. Ely, Dorothy J. Merritts (1996-1998).

✓ **The Committee on Long-Range Planning** is chaired by Steve Wells (909) 787-4367. Other committee members are Rich Madole and Vic Baker.

✓ **The Committee on Education** is chaired by Brian Tormey.

✓ **The Committee on Environment** members are Jack Schmidt (Chair) and Richard Kessel.

✓ **The 1995 Nominations Committee** consisted of Parker Calkin (Chair), Lisa Ely, and Tom Davis.. They have produced a slate of candidates for this year's elections and are thanked for this work.

MEMORIALS

Robert L. Nichols As an enthusiastic geology teacher, Bob Nichols influenced hundreds of students and associates for more than 50 years during his lectures, laboratories, local field trips, and geological expeditions to Arizona, New Mexico, Oregon, Greenland, and Antarctica. His acceptance of the National Association of Geology Teachers' Neil A Miner Award for Distinguished Teaching in 1969 was the occasion of his presentation of his famous three levels of student learning. The Academy of Sciences of the Soviet Union bestowed on him in 1977 their Bellingshausen Memorial Medal for his work during 7 expeditions to Antarctica.

- Sidney E. White

QG&G MANAGEMENT BOARD MEETING

NEW ORLEANS, LOUISIANA - 6 NOVEMBER 1995

Chaired by Steve Colman, Division Chair. Minutes compiled by Steve Kite, Division Secretary. Others attending: V. Baker, P. Calkin, E. Cowan, L. Ely, W. Graf, R. Madole, L. McFadden, K. Prestegaard, J. Teller, B. Tormey, S. Wells, R. Whittecar.

Secretary's report: (Steve Kite):

1. Minutes for the 1994 Management Board Meeting were distributed. No Board members objected to their content.
2. A request was made to move the deadline for the Distinguished Career Award from 15 April to 1 April to avoid end of school year conflicts. No objections to this suggestion were noted. The change would occur in 1997.
3. The 1995 Kirk Bryan Award recipient was Jim E. O'Connor for his paper Hydrology, hydraulics and geomorphology of the Bonneville Flood published as Geological Society of America Special Paper 274.
4. 1995 Division election results: 243 ballots (21% of Division membership) were returned to GSA, an increase from 217 ballots (17%) returned in 1994. Those elected:
Chair: Will Graf (uncontested)
First Vice Chair: Karen Prestegaard (uncontd)
Second Vice Chair: Leslie D. McFadden
Panel Members ('95-'97): Peter U. Clark, Lisa L. Ely, and Dorothy J. Merritts
5. Division Membership (as of 6 October 1995) is 1168, down from 1255 at the end of 1994. This 6.9% decline is disturbing, but since 1990 we have lost a smaller percentage of members than any division of GSA.
6. As of 31 December 1994, GSA showed the following balances:

Division Fund:	\$ 1,061.23
J. Hoover Mackin Fund:	\$ 20,582.55
Arthur D. Howard Fund:	\$ 31,776.59

[Future newsletters will contain a year-end financial statement; however, this statement was not available in time for this newsletter. — Ed.]
7. Interest earnings will allow the stipend associated with the Arthur D. Howard Award to increase in 1996.

Second Vice Chair's report (K. Prestegaard):

1. Two Ph.D. student earned Mackin Awards of \$750 for 1995:
Michael Kaplan, University of Colorado: "Late Quaternary ice-sheet dynamics, southeast Baffin Island"
Joseph Licciardi, Oregon State University: "Chronology of high-frequency Late-Pleistocene climate change, western North America"
2. One Arthur D. Howard Grant of \$500 was awarded:
Adam Light, University of Colorado: "Amino acid paleothermometry: a north/south transect of the Lake Bonneville Basin, Utah, since the last glacial maximum"
3. The Mackin and Howard review process will be changed from the present system of numerical scores to rankings, in order to insure each reviewer has equal weight in determining the recipients. Reviewers will still use the existing

numerical score guidelines to produce their rankings. Ways of increasing donations to the Mackin Fund were discussed, including advertisement by the GSA Foundation and in the Division newsletter, and solicitation of past award winners. Michael Machette has volunteered to organize the latter, and will be contacted to do so.

4. The Gladys W. Cole Memorial Research Award went to Robert S. Anderson, University of California-Santa Cruz, for "Validation of new cosmogenic radionuclide dating strategy on the Wind River Terraces, Wyoming." The Robert K. Fahnestock Memorial Research Award went to Steven Drew Thorne, Florida State University, for "Transverse Bars: their origin and influence on flow structure, sediment transport and channel evolution in a boulder-bed stream."
5. Several possible theme sessions and symposia are being organized for the 1997 Annual Meeting in Salt Lake City.
6. An ad hoc committee will be convened by the Second Vice Chair to plan theme sessions and symposia for all future meetings. This practice will be encouraged in the future to allow better long-range planning for the annual meetings.

First Vice Chair's report (W. Graf):

1. David M. Hopkins is the 1995 recipient of the Distinguished Career Award.
2. Several symposia and theme session concepts are being actively recruited for the 2 January 1996 deadline. A possible Division symposium related to soils and soil-forming processes will be pursued by Graf. No G.K. Gilbert short course has been proposed, but the Management Board recommended one on remote sensing. Several names were given to Graf to pursue.
3. Linking of symposia and related theme sessions has allowed invited papers and review papers to be presented along with "fresh" unsolicited contributions, commonly from younger researchers. This practice should be encouraged in the future.

Report on the Joint Technical Program Committee (P. Calkin):

1. About 120 abstracts were submitted in Quaternary Geology and Geomorphology for the national meeting. (The rejection rate was about 10%)
2. GSA now requires theme sessions include at least 16 papers, although this requirement could be interpreted as 15 papers with a 15 minute break.
3. Future symposia should be linked to a related theme session.

Chair's report (S. Colman):

1. Jack Schmidt has agreed to take over the Division Environmental Committee and to be the interface between the Division and the Institute for Environmental Education (IEE). Colman recommended, and the Board agreed, that Schmidt be encouraged to continue his efforts. New IEE program manager Sarewitz will be invited to future Division Management Board meetings, as will the Chair of the U.S. National Committee for INQUA.
2. The Long-Range Planning Committee (P. Calkin, S. Wells, V. Baker) and new Chair (Graf) will determine if other people might contribute to the Division by attending

Management Board meetings. They will also designate the United States Representative to the International Association of Geomorphologists (IAG).

3. The QG&G Newsletter format and content was again an item of considerable discussion. Several members expressed a desire to revamp the format and include more news of activities and research opportunities in Quaternary geology and geomorphology. Rich Whittecar took over the position of Newsletter Editor with the Fall 1995 issue. The relation between the newsletter and the Internet as media for dispensing information and attracting attention to the Division was discussed in detail. It was decided that a paper version of the newsletter would continue to be published, but that electronic information and communication strategies would be explored. Whittecar will explore ways to implement a QG&G Division home page on the World Wide Web.
4. The question of "How do we (the division) cope with the changing nature of the discipline?" developed out of the newsletter discussion. The Long-Range Committee was invited to set an agenda as to how the Division will make effective use of new electronic media and entice participation by new members.

IAG Representative's report (V. Baker)

1. Goals and a schedule of meetings of the International Association of Geomorphologists (IAG) were discussed. The Board agreed to continue its role as one of three U.S. organizations comprising the American membership in IAG; the Association of American Geographers (AAG) and the American Geophysical Union (AGU) are the others. The Division is in arrears for its \$350 share of United States' dues for each of the last two years (1994-95). The Board agreed these dues will be paid upon receipt of an invoice from IAG.
2. In view of the uncertainty of AGU participation in IAG, the Board agreed to fund as much as half (\$500) of the United States' dues for 1996, if AGU does not contribute. The AAG Geomorphology Specialty Group contributed \$350 for 1994 and 1995.
3. The "white paper" on the scientific health of Quaternary Geology and Geomorphology has been transformed into a report of the U.S. National Committee for INQUA. The focus has been widened to include consideration of a national organization of geomorphologists and coordinated activities on drainage basin hydrology and processes. This paper will be available once it clears INQUA review.

Other Business

1. Brian Tormey, Chairman of the Education Committee, presented the Division with \$250.00, part of the proceeds from a successful GSA Iceland field trip during 1994, a trip in which the Division played a prominent role.

The meeting adjourned at 12:15 p.m.

QUATERNARY GEOLOGY AND GEOMORPHOLOGY ON THE WORLD WIDE WEB

NEW SITES ON THE WEB

Quaternary Geology and Geomorphology Division information, research opportunities for students, and links to sites with information about geomorphic processes and Quaternary studies:

<http://www.ocean.odu.edu/~grw100f/quat/index.html>

American Quaternary Association (AMQUA) information and links to other Quaternary sites:

<http://cc.usu.edu/~DKaufman/AMQUA.html>

Flood Remote Sensing page with weekly global flood maps and associated data:

<http://www.dartmouth.edu/artsci/geog/floods/Index.html>

Quaternary Research Center, University of Washington

<http://weber.u.washington.edu/~qrc/>

Lamont-Doherty Earth Observatory, including new maps and images of the U.S. seafloor

<http://www.ldeo.columbia.edu>

QEN, a Quaternary vegetation atlas and literature database in a preliminary version:

<http://www.soton.ac.uk/~tjms/adams1.html>

Programs and manuals for plotting pollen and stratigraphic data AND a catalogue of pollen from the British Isles on a server at Cambridge:

<http://www-palecol.plantsci.can.ac.uk/>

National (U.S.) Landslides Inventory Center

http://gldage.cr.usgs.gov/html_files/nlicsun.html

Association of Polish Geomorphologists maintains an active site that includes The Virtual Geomorphology page and links to karstological and speleological sites:

<http://hum.amu.edu.pl/~sgp/welcome.html>

American Association of Stratigraphic Palynologists site includes a global email directory of palynologists:

<http://www.geology.utoronto.ca/AASP>

Quaternary Research Association, a UK-based group with over 1100 members from many nations

<http://www2.tcd.ie/~pcoxon/qra.html>

Journal of Paleolimnology with information about a special Quaternary volume:

<http://www.umanitoba.ca/geosci/PALEOLIM/jopl.html>

Desertification Information Network, recently started by the World Conservation Monitoring Centre with da Vinci (Belgium) and SCOT Conseil (France):

<http://www.wcmc.org.uk/~dynamic/desert>

Irish Association for Quaternary Studies:

<http://www2.tcd.ie/~fmitchll/iqua.html>

Canadian Association of Geographers:

<http://www.usask/~martz/cag1.htm>

International Permafrost Association

<http://www.geodata.soton.ac.uk/ipp>

Abstracts of articles in *Geographie physique et Quaternaire*:

<http://ftp.lemig.umontreal.ca/dept/rgpq.htm>

Tropical Geomorphology Newsletter:

<http://www.zikzak.net/tgn>

LISTSERVERS

Geomorphology Listserver: All messages sent to the GEOMORPHLIST members are screened by the moderator, Jeff Lee. To join GEOMORPHLIST, send a message to Jeff at: adgjl@ttacs.ttu.edu. For the directory please provide the following information: your name, mailing address, phone and fax numbers, email address, and a few keywords to specify your interests in geomorphology.

Quaternary Listserver: A listserver for all interested in Quaternary research, particularly but not exclusively in Canada, is established through the Canadian Quaternary Association. Many items of interest to CANQUA members appear on the list. But anyone, CANQUA or otherwise, can subscribe. To subscribe send to the address listserv@morgan.ucs.mun.ca the following message: subscribe quaternary your name (e.g. subscribe quaternary Mike Mammoth). The subject category should be left blank. You should receive acknowledgement of your subscription. To sign off the list send this message to the same address: signoff quaternary. Messages to the list should be sent to: quaternary@morgan.ucs.mun.ca. The listowner is Dave Liverman, Newfoundland Geological Survey, Department of Mines and Energy, P.O. Box 8700, St. John's, Newfoundland, A9B 4J6 email: dgl@zeppo.geosurv.gov.nf.ca.

Palynology Listserver: To join a listserver for exchange of news and information about Palynology and Pollination Biology please send email message to: stserve@uoguelph.ca with the message: subscribe polpal-l your-real-name (e.g. subscribe polpal-l Mike Mammoth). The subject category should be left blank. To post a message to this list, please send it to the address: polpall@uoguelph.ca. The list owner is Peter Kevan at University of Guelph.

Radiocarbon Dating Listserver: The listserver C14-L has been established for discussion of radiocarbon dating and related issues. To subscribe please send email message to: listserv@listserv.arizona.edu with the following content: SUBSCRIBE C14-L Your Name, where "Your Name" is your first and last name. For further information please contact David Sewell at email address: dsew@packrat.aml.arizona.edu.

FRIENDS OF THE PLEISTOCENE FIELD TRIPS

Rocky Mountain Cell - Pajarito Plateau, N.M.

The Pajarito Plateau is a young landscape developed on the Banderlier Tuff, bordered to the west by the Pajarito fault zone (a major bounding structure of the Rio Grande rift) and to the east by White Rock Canyon of the Rio Grande. The field trip will be on or adjacent to the Los Alamos National Laboratory. Discussions will cover a wide range of topics including geomorphic responses to late Quaternary climate changes, soil development, neotectonics, transport of contaminated sediments, tephras, drainage evolution, archeology, and historic erosion and vegetation changes. Tentative dates are September 13-15, 1996. Contacts: Steve Reneau (sreneau@lanl.gov); (505)665-3151 or Eric McDonald (emcdonald@lanl.gov); (505)667-5055, Geology and Geochemistry Group, MS 462, Los Alamos National Laboratory, Los Alamos NM 87545.

Northeastern Cell - Eastern coastal Maine

The Northeastern FOP will gather in May 1996 (date to be announced) in eastern coastal Maine. The focus will be on the high resolution record of ice-marginal recession and accompanying marine transgression between 14,000 and 12,000 years ago as seen in the emerged glacial marine sediments. In addition we will examine the paleoecological, prehistoric human occupation and sea level records for the area. Contact: Harold W. Borns, Jr., Institute for Quaternary Studies, Boardman Hall, University of Maine, Orono ME 04469. (borns@maine.maine.edu); (207)581-2196)

Pacific Northwest Cell - Olympic Peninsula

On May 30 - June 2, 1996, Glenn Thackray, Frank Pazzaglia and others will lead a FOP trip on the western slope of Washington's Olympic Peninsula. The trip will focus on Pleistocene interglacial-glacial stratigraphy revealed in superb coastal and riverine exposures, Quaternary tectonic deformation of the coastal section, and uplift patterns recorded in the terrace sequence of the unglaciated Clearwater Valley. Contact: Glenn Thackray, Department of Geology, Idaho State university, Pocatello ID 83209 (thacglen@isu.edu); (208)236-3560).

North-Central Cell - Lake Agassiz Plain

On May 31-June 2, 1996, Friends will gather to examine the landforms, stratigraphy, hydrogeology, and archeology of the Lake Agassiz Plain and adjacent areas of Minnesota and North Dakota. Announcements will be mailed to those on the usual list and others who contact one of these leaders: Ken Harris (harris015@maroon.tc.umn.edu), John Reid (joreid@badlands.nodak.edu) or Mark Luther (mark@eagle.ndgs.state.nd.us).

Southeastern Cell - Madison County Floods

The summer floods of 1995 in central Virginia exposed many new sections of Quaternary sediments. On-going research at some of these sites and other sections of alluvial sediments elsewhere along the eastern slopes of the Blue Ridge mountains will be the focus of the SEFOP trip on May 17-19, 1996. Announcements will be mailed to those on the mailing list and others who contact Alan Howard : ah6p@erode.evsc.virginia.edu or Rich Whittecar: grw100f@giraffe.tech.edu ;(804)683-5197.

Pacific Cell - Lake Lahontan Basin

From September 28-30, 1996 Ken Adams and others will share the results of recent work on the pluvial Lake Lahontan basin in Nevada and California. Major topics include the isostatic adjustments due to loading during the last lake cycle, active faults, soils, dating of depositional beach features, and the pluvial lake record. For more information contact Ken Adams, Center for Neotectonic Studies, MS 169, University of Nevada, Reno, NV 89557 (702)784-1382 kadams@seismo.unr.edu.

South-Central Cell - Fort Hood

In the Fort Hood area, Holocene geomorphology, alluvial stratigraphy, and geoarcheology will be discussed at sites along tributaries of the Leon River. Contact the trip leaders for more information: David Carlson, Anthropology Dept., (409)847-9248 dcarlson@tamu.edu and Lee Nordt, Soil and Crop Sciences, lnordt@tamu.edu, both at Texas A&M University, College Station, TX 77843.

OPPORTUNITIES FOR DIVISION MEMBERS

SPECIAL JOURNAL SUBSCRIPTION RATES QG&G Division Members

GEOMORPHOLOGY Elsevier offers the journal *Geomorphology* to QG&G members at a special rate of \$70 for 1996. Contact Customer Services at (212)6333750. Send your manuscripts to the Journal Editor, Jack Vitek, Dept. Geography, Oklahoma State University, Stillwater OK 74078.

QUATERNARY GEOCHRONOLOGY/

QUATERNARY SCIENCE REVIEWS Members of the QG&G Division also qualify to get both *Quaternary Science Reviews* AND *Quaternary Geochronology* for the special group rate of \$95/year (ten issues total). This offer is for personal subscriptions only. Subscription orders with payment (and/or Free Sample Copy) can be sent directly to: Agnes Impellitiere, Elsevier Science Inc., 660 White Plains Road, Tarrytown NY 10591. Please identify yourself as a QG&G Division member of GSA. Bill Farrand, Regional Editor for QSR, is soliciting manuscripts. Prospective authors should write him at Exhibit Museum, University of Michigan, Ann Arbor, MI 481091079. Send manuscripts for QC to Rainer Grun, Quaternary Dating Research Centre, RSPacS, ANU, Canberra ACT 0200, Australia, Tel: + 61 6 249 3122, fax: + 61 6 249 0315.

GEOARCHAEOLOGY QG&G Division members can get *Geoarchaeology* for the group rate of \$75/year. The rate for Division members outside North America is \$105. The offer is for personal subscriptions only (subscription orders must include GSA membership number). Payment can be sent directly to: Subscription Department, John Wiley & Sons, Inc, P.O. Box 72478491, Philadelphia, PA 191708491. U.S. members should include appropriate state sales tax and Canadian members should add 7% GST, which Wiley is obliged to collect.

GLACIER BOREHOLE VIDEO AVAILABLE

As a part of research at the Haut Glacier d'Arolla, Switzerland, Luke Copland and Jon Harbor used a miniature borehole video camera to investigate the internal structure of the glacier. They have produced a 22 minute composite video of the best parts of the recordings from the summer of 1995. The tape is intended as a resource for teachers of geomorphology and glaciology courses, as well as the general research community. It includes sections on the process of hot water drilling on a glacier; changes in ice structure with depth visible down the borehole; englacial voids and channels; the glacier bed; changes in water turbidity down a borehole; changes in hole orientation; and drilling problems. The tape was shown at the AGU meeting in December and will be shown at the AAG meeting in Charlotte in April. If you would like a copy of the tape by mail please write to Luke or Jon (Dept. Earth and Atmospheric Resources, Purdue University, West Lafayette, Indiana 47907). They ask for a \$10 contribution to help with the costs of production and mailing to North American addresses. Please make checks payable to Purdue University and add a note "unrestricted gift to Harbor's research" on the check itself.

RESEARCH GRANTS FOR ISOTOPIC ANALYSES Geochron Laboratories

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 to encourage the application of isotopic analytical techniques to solve original and significant problems. The deadline for applications is May 1, 1996. Early application is suggested to assist with prompt evaluation and notification of winners. For Research Award Program Guidelines and official rules, call 6178763691, fax 6176610148 or write 711 Concord Ave, Cambridge, MA 02138.

Ravidya Maharaj, a Quaternary Geology and Geomorphology Division member now living in Jamaica, won the radiocarbon research award given last year by Geochron. Congratulations!

STUDENT RESEARCH AND TRAVEL GRANTS Southeastern GSA Members

The SEGSA will again support travel and research grants for undergraduate and graduate students who are members of GSA. Deadline for student research grants, February 15, 1996; for travel grants to Jackson MI, March 1, 1996; and for travel to Denver CO, October 1, 1996. For more information, contact Dr. Harold Stowell, Dept. Geology, University of Alabama, Tuscaloosa AL 35487 (205)3485089 email: hstowell@wgs.geo.ua.edu or log onto the SEGSA Web page: <http://www.geo.ua.edu/segga/segga.html>.

APPLICATIONS FOR 1996

Gladys W. Cole Memorial Research Award Robert K. Fahnestock Memorial Research Award

The Robert K. Fahnestock Memorial Research Award honors the memory of Ken Fahnestock who was a member of the Committee on Research Grants. It is given annually to the student who submits the most outstanding research proposal to the Geological Society of America in the field of sediment transport or related aspects of fluvial geomorphology. The Gladys W. Cole Memorial Research Award provides research support for investigations of the geomorphology of semiarid and arid terrains in the U.S. and Mexico. In past years, it has been given annually to a GSA Fellow between the ages of 35 and 60 who has published one or more significant papers on geomorphology and who proposed new research. Now, both GSA Members and GSA Fellows are eligible for the Cole Research Award.

The application forms for both of these awards are available from the Research Grants Administrator, Geological Society of America, P.O. Box 9140, Boulder, CO 80301; phone (303) 447-2020, ext. 137. Applications must be postmarked by February 15, 1996, to be eligible; the award is made in April.

DATA SETS AND RECENT PUBLICATIONS

The World Data Center-A for Paleoclimatology, supported by NOAA, provides numerous data sets including Paleooceanographic Coral Data; Paleooceanography Data; Sea Level Change and Ice Topography and Extent; Orbital Variations and Insolation Time Series; Ice Core Data; GCM Output; Historical Climate Indices; Climate Since A.D. 1500; Isotopes in Precipitation; Tree Ring Data; The Sahara in the Holocene Radiocarbon Data; Global Pollen Database; Elk Lake Data; Global Lake Levels; Correlation of Geomagnetic Polarity Timescales. WDC-A data and other electronic products can be accessed via the Internet at the Web site <http://www.ngdc.noaa.gov/paleo/paleo.html>. To order data via disks contact the WDC-A for Paleoclimatology, Dept. 967, E/GC, 325 Broadway, Boulder, CO 80303 (303)497-6227 email: paleo@ngdc.noaa.gov.

The Ice Age World by Bjorn Andersen and Harold W. Borns Jr. 1995. Scandinavian University Press, PO Box 2959 Toyen, N-0608, Oslo, Norway. 208 pages (from publisher: "A beautifully illustrated book on the ice ages for introductory courses in geology, geography and bio-history, and even for the interested layman.")

The Pleistocene Boundary and the Beginning of the Quaternary edited by John Van Couvering. Cambridge University Press. Spring 1996. (from the publisher: "...represents the results of a 40 year international study to precisely define the most important boundary in geology, the beginning of the Ice Ages. Chapters authored by regional experts cover the definition and country-by-country application of the newly adopted official boundary, about 1.8 mya...")

A Dictionary of Quaternary Acronyms and Abbreviations by Alwynne Beaudoin is accessible through the Canadian Association of Palynologists home page at <http://gpu.srv.ualberta.ca/~abeaudoi/cap/cap.html>. Over 300 pages of acronyms and abbreviations commonly used in Quaternary studies.

Geomorphology and Quaternary History of the Lower Mississippi Valley, prepared by Roger T. Saucier, U.S. Army Corps of Engineers Waterway Experiment Station, Vicksburg, Mississippi (2 volumes). U.S. Army Engineer District, Memphis, ATTN: CELMM-ED-HC, 167 N Mid-America Mall, Room B202, Memphis TN 38103. \$25. (from the publisher: "...a comprehensive synthesis aimed at a multi-disciplinary audience concerned with multiple aspects of water resources engineering and cultural resources management...contains full-color maps (1:250,000) of alluvial environments of deposition for the entire alluvial valley and deltaic plain, contours on the suballuvial surface, typical cross sections and 13 paleogeographic reconstructions for key dates during the Quaternary.")

Pollen of the Southeastern United States by G. Jones, V. Bryant, M. Lieux, S. Jones, and P. Lingren. 1994. American Association of Stratigraphic Palynologists, Palynology Laboratory, MS-4352, Texas A&M University, College Station, Texas 77843. \$27. (From the publisher: "...nearly 1000 SEM photographs of 400 different taxa found in the flora of the Southeastern U.S...five separate indexes that make finding the picture of any pollen grain easy.")

Quaternary Stratotypes of North America Volume 1 (revised edition) edited by Paul F. Karrow. 1993. Quaternary Sciences Institute, Department of Earth Sciences, University of Waterloo, Waterloo, Ontario, Canada N2L 3G1. \$15 U.S.; \$19.20 CAN. (from the publisher: "...updated edition presents 29 Canadian and 29 U.S. descriptions of formally defined stratigraphic units, the work of the INQUA Subcommittee on North American Stratigraphy.")

Ancient Peoples and Landscapes edited by Eileen Johnson. 1995. 368 pages. Museum of Texas Tech University, Box 43191, Lubbock, Texas 79409. \$35. (Table of contents indicates 24 chapters by a wide range of Quaternary researchers working on or near hominid sites of Southwest Asia, China, India, Australia, South America, Mexico and the U.S. High Plains.)

Paleogeography and Paleoecology of 6000 yr BP in Canada edited by Helene Jette. 1995. Volume 49, No.1 of *Geographie physique et Quaternaire*. (From the publisher: "...a first collective contribution of Canadian paleoecologists towards the reconstruction of environmental conditions for one of the target times for the Paleoclimate Model Intercomparison Project.")

Ice-Age History of Alaskan National Parks by Scott A. Elias. 1995. Smithsonian Institution Press, Washington, D.C. 224 pgs. Paper. (from the publisher: "...vividly describes the geology, climate, ancient plant and animal life, and human presence in four of Alaska's national parks and preserves: Denali, Kenai Fjords, Glacier Bay, and Bering Land Bridge...Geared for the general reader, this is the first in a series that will also survey the prehistory of the Rocky Mountain and Southwest national parks.")

Ice on the Equator by William Mahaney. 1993. Wm. Caxton Press, 12037 Highway 42, Ellison Bay, Wisconsin 54201. (from the publisher: "...documents the Quaternary record on Mount Kenya including the geological background, glacial chronology, paleosol genesis, paleoclimatology, paleoecology, prehistoric and historic environmental impact, correlation with other tropical alpine areas and with the deep sea record.")

Wetlands: Characteristics and Boundaries by the Committee on Characterization of Wetlands, National Research Council. 1995. National Academy Press, 2101 Constitution Ave., N.W., Washington, D.C. 20418. \$38. (A review and evaluation of the scientific understanding of wetland definition, functions and structures, and regional differences.)

The Glacial World According to Wally by Walter Broecker. 1995. 2nd ed: Eldigio Press, LDEO, Palisades, N.T. 10964 (pcat@ldeo.columbia.edu). \$80 (Table of contents suggests this is a Quaternary paleooceanography text with four sections dealing with paleoclimatic proxies, dating techniques, oceanic geologic records, and physical marine dynamics.)

Modern Glacial Environments - Processes, Dynamics and Sediments and Past Glacial Environments - Sediments, Forms and Techniques by J. Menzies. 1995. \$75 each. Tuuterworth and Heinemann, 313 Washington Street, Newton MA 02158 ((617)928-2613 jbs@bh.com). 700 p. and 605 p. respectively. \$75 each.

OTHER MEETINGS

Apr 9–13, 1996: **Association of American Geographers Annual Meeting**. Charlotte, N.C. Special sessions include Quaternary soils geography; soil geomorphology; weathering and erosion; dryland geomorphology; coastal plain rivers; fluvial geomorphology. Contact: AAG, 1710 Sixteenth St. NW, Washington DC 20009; (202)2341450.

Apr 17–19, 1996: **Workshop on Glaciation and Hydrogeology**. Stockholm, Sweden. Nordic Nuclear Safety Research. Contact: Louisa King-Clayton, Intera Information Technologies Ltd., 47 Burton Street, Melton Mowbray. Leics., LE13 IAF, U.K. email: lkc@intera.co.uk

Apr 22–26, 1996: **8th International Conference on Luminescence and ESR Dating**. Canberra, Australia. Contact: Secretary General, International Glaciological Society, Lensfield Road, Cambridge, CB2 1ER, U.K.

May 11–16, 1996: **Canadian Association of Geographers Annual Meeting**. Saskatoon. At least two sessions of special interest: "Global Change in the Palliser Triangle," "Aeolian Research," and "The Changing Human Landscape on the Canadian Prairies," will be sponsored by CANQUA. A pre-meeting trip to aeolian features of the Palliser Triangle is planned. Contact: Alec Aitken, Dept. Geography, Univ. of Saskatchewan (aitkenae@sask.usask.ca; (306)966-5672)

May 20–22, 1996: **American Quaternary Association, 14th Biennial Meeting**. Flagstaff, Arizona. "Global Warming: Interglacials, Interstadials, Climatic Optima, and Other Events." 14 pre- and post- symposium field trips planned. Contact: Jim Mead, Dept. Geology, Northern Arizona University, Flagstaff AZ (520)5239220 email: jim@vishnu.glg.nau.edu.

Aug 5–10, 1996: **28th International Geographical Congress**. The Hague, Netherlands. Contact: Congress Secretariate 28th IGC, Faculteit Ruimtelijke Wetenschappen Universiteit Utrecht, Postbus 80.155, 3508 TC Utrecht, The Netherlands email: r.vanderlinden@frw.ruu.nl.

Sept 27–29, 1996: **27th Binghamton Geomorphology Symposium**. Champaign, Illinois. "Scientific Nature of Geomorphology." Organizers: Bruce Rhoads and Colin Thorn.

Oct 28–31, 1996: **GSA Annual Meeting**. Denver, Colorado. Short courses will include "Geomorphic Expression of Active Tectonics" by Frank Pazzaglia and Nicholas Pinter.

June 10–12, 1997: **International Symposium on Physics, Chemistry and Ecology of Seasonally Frozen Soils**. Fairbanks, Alaska. Co-sponsored by the USDA-Agricultural Research Service, University of Alaska, and Cold Regions Research and Engineering Laboratory. Contact: Brenton Sharratt (bsharrett@mail.mrsars.usda.gov; (612)589-3411) or Dr. Pieter Groenevelt, Dept. Land Resource Science, Univ. Guelph, Guelph, Ontario CANADA N1G 2W1

May 19–21, 1997: **Geological Association of Canada Annual Meeting**. Ottawa

Aug 28–Sept 3, 1997: **4th International Conference on Geomorphology**. Bologna, Italy. Second announcement will be sent to those who request information before Sept 30, 1996. Contact: I.C.G., Planning Congress s.r.l., Via Crociali 2, I-40138 Bologna, Italy email: forti@geomin.unibo.it. 28th Binghamton Geomorphology Symposium, "Engineering Geomorphology," will be held at the 4th ICG in Bologna. Contact: Rick Giardino.

BIOGRAPHIES OF THE CANDIDATES QUATERNARY GEOLOGY AND GEOMORPHOLOGY DIVISION

- BURNS, SCOTT F., QUATERNARY GEOLOGY, GEOMORPHOLOGY.** Education: Stanford Univ, B.S. 1969, M.S. 1970; University of Colorado, Boulder, Ph.D., 1980; Professional Experience: Asst. Prof. American College of Switzerland, 1970-1976; Research Asst, Univ. of Colorado, 1976-1980; Visiting Asst. Prof., Lincoln College, New Zealand, 1980-1981; Asst. Prof. Western Washington Univ. 1981; Visiting Asst. Prof, Univ. of Colorado, 1982; Assoc. Prof. Louisiana Tech Univ, 1982-1990; Assoc. Prof. Portland State Univ, 1990-date; Memberships: GSA, NAGT, AEG, IAEG, AMQUA, FOP, SSSA, ISSS, NSTA, Sigma Xi; Research: Landslide detection, monitoring, analysis, and hazard mapping; soil geomorphology esp. of mountains; loess; Missoula Flood paleosols; radon hazards; heavy metal distributions; Mailing Address: Dept. of Geology, P.O. Box 751, Portland State University, Portland, Oregon 97207-0751.
- HANSEL, ARDITH K., QUATERNARY GEOLOGY, SEDIMENTOLOGY.** Education: Univ. of Northern Iowa, B.A., 1970, M.A., 1976; Univ. of Illinois, Ph.D., 1980; Professional Experience: Asst.-SENIOR GEOL., ILLINOIS STATE GEOLOGICAL SURV., 1981-date; Memberships: GSA (North-Central Section management board, 1994-97, QG&G panel member, 1993-95), AMQUA (council, 1988-92), INQUA (Commission on Glaciation secretary, 1995-99). Research: Late Quaternary stratigraphy of the Lake Michigan lobe, glacial geology and sedimentology, late glacial and postglacial lake level fluctuations in the Lake Michigan basin; Mailing address: Illinois State Geol. Survey, 615 E. Peabody Dr., Champaign, IL 61820.
- HICOCK, STEPHEN R., GLACIAL AND QUATERNARY GEOLOGY.** Education: Univ. of British Columbia, B.Sc. (Hons.), 1973, M.Sc., 1976. Univ. of Western Ontario, Ph.D., 1980; Professional Experience: Postdoc., Univ. of Western Ontario, 1980-82, ASST.-ASSOC. PROF., Univ. of Western Ontario, 1982-date; Memberships: GSA, AMQUA, SEPM, CANQUA (Councillor), Geol. Assoc. of Canada (Fellow); Research: subglacial dynamics of Pleistocene Cordilleran and Laurentide ice sheets; Quaternary stratigraphy and history of southern British Columbia and Ontario. Mailing Address: Dept. of Earth Sciences, Univ. of Western Ontario, London, Canada, N6A 5B7
- KARROW, PAUL F., QUATERNARY GEOLOGY, STRATIGRAPHY, GEOMORPHOLOGY.** Educ: Queen's Univ. (Kingston) B.Sc. 54; Univ. Illinois Ph.D. 57. Prof. Exp: Geologist Ont. Dept. Mines 57-63, Geological Survey of Canada summers 65-68, 70; Ontario Geological Survey summers 64, 73-74, 82-87; Asst. Prof. Dept. Civil Engineering Univ. Waterloo 63-65; Chairman Dept. of Earth Sciences, University of Waterloo 65-69; Assoc. Prof. to PROFESSOR, DEPT. OF EARTH SCIENCES, UNIV. WATERLOO, WATERLOO 65-; Director Quaternary Sciences Institute, Univ. Waterloo 87-89. Visiting Scientist Scripps Institution for Oceanography, La Jolla CA 70, 76-77; Visiting Professor University of South Florida, Tampa FL 84; Visiting Scientist British Columbia Geological Survey, Victoria BC 92. Mem: GSA, GAC, SEPM, IAGLR, AMQUA, CANQUA, QRA (UK), Sigma XI, Ont. Arch. Soc., AMQUA Council 80-84, QG&G Panel 86-88, INQUA Subcommittee on North American Stratigraphy Vice Pres. 73-77, 89-, President 78-89. Award: CANQUA W.A. Johnston Medal, 1995. Res: Late Quaternary stratigraphy, sub-till organics, Great Lakes history, sea level history. Mailing add: Dept. Earth Sciences, Univ. Waterloo, Waterloo, Ontario, N2L 3G1.
- KITE, J. STEVEN, QUATERNARY GEOLOGY, GEOMORPHOLOGY.** Education: James Madison Univ., B.S., 1976, Univ. of Maine, Orono, M.S. 1979; Univ. of Wisconsin, Madison, Ph.D., 1983; Professional Experience: Instr., James Madison Univ., 1978-80, Asst.-ASSOC. PROF., WEST VIRGINIA UNIV., 1983-date; Memberships: GSA, AMQUA, WV Arch. Soc., Southeastern FOP (executive officer); Research: 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
- MCFADDEN, LESLIE D., b Orlando, FL, Jan 11, 1952; m 90; c 0. QUATERNARY GEOLOGY, SOIL GEOMORPHOLOGY, SOIL GENESIS.** Educ: Stanford Univ, BA, 73; Univ Arizona; MS, 78; Univ Arizona, PhD, 82. Prof Exp: ASST Prof, Dept of Earth and Planetary Sciences, Univ of New Mexico, 81-87; ASSOC Prof, 87-94; Prof, 94-. Mem: GSA (Fe 1), Quaternary Geology & Geomorph (panel 90-92), AMQUA, SSSA, NMGS. Edit. Board: Catena. Res: Quaternary soil development and soil-landscape evolution western United States; climatic geomorphology California, Arizona, Nevada, and New Mexico; numerical modelling of soils in arid climates; volcanic and tectonic hazard studies; geoarcheology in New Mexico. Mailing add: Dept Earth and Planetary Sciences, Univ of New Mexico, Albuquerque, NM 87131.
- MARSTON, RICHARD A., ENVIRONMENTAL GEOMORPHOLOGY, HYDROLOG** Education: Univ. of California-Los Angeles, B.A., 1974; Oreg State Univ., M.S. 1976, Ph.D. 1980; Professional Experience: Visiting Asst.-Asst. Prof., Univ. of Texas-El Paso, 1980-8 Asst.-Assoc.-full PROF., UNIV. OF WYOMING, 1986-date; Concurrent Position: DIRECTOR, FOUND. FOR GLACIER & ENVIRO RES., 1996-date; Honors and Awards: Elected Fellow Explore Club 95, Fulbright Research Award 93, Extraordinary Faculty Merit 91/89/88/83, Elected Fellow RGS 91, AAG Appli Geography Award 84, AAG Dissertation Award 81, Spe Achievement Award, U.S. EPA 77; Memberships: GSA, AGU, A (Treas.-Chair, Geomorph. Spec. Grp., 85-86), AIH (Cert. Pro Hydrol. #488, 84), AWRA (Tech. Prog. Co-Chair, 94), AGI BGRG, IGS, IMS, Sigma Xi (Chap. VP 85); Research: river floodplain interactions, human impacts on geomorphologic for process adjustment, glacier meltwater, meander migration education in earth system science; Mailing Address: Dept. Geography & Recreation, Univ. of Wyoming, Laramie, WY 8207 3371
- PAZZAGLIA, FRANK J., TECTONIC GEOMORPHOLOGY, QUATERNARY GEOLOGY.** Pers: Married, 2 children; Education: Penn State Univ., B.S., 1986, Univ. of New Mexico, M.S., 1989, Penn State Univ., Ph.D., 1993; Professional Experience: Assistant Geologist, State of New Jersey Dept. of Envn. Prot., 1986-87, NSF Post-Doctoral Research Fellow, Yale University, 1993-94, ASSISTANT PROFESSOR OF GEOLOGY, UNIVERSITY OF NEW MEXICO, 1994-present; Memberships: GSA, AGU; Service: Editor, New Mexico 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 Quaternary stratigraphy; Mailing address: Dept. of Earth and Planetary Sciences, University of New Mexico, Albuquerque, NM, 87131-1116, (505) 277-5384, email: fjp@unm.edu
- PRESTEGAARD, KAREN L., b. Readstown, WI, 11-3-54; m. 86; c. 1. GEOLOGY, HYDROLOGY, GEOMORPHOLOGY. EDUC.:** Univ. Wisconsin, Madison, B.A. (honors), 75; Univ. California, Berkeley, M.S., 79, Ph.D., 82. **PROF. EXP.:** Explor. geol., Cities Service Minerals, 75-76; hydrologist, California Coastal Comm., 79; asst. prof., Franklin and Marshall Coll., 81-86; asst. prof. Univ. Illinois, Chicago, 86-90; ASSOC. PROF., DEPT. GEOLOGY, UNIV. MARYLAND, 91--. **OTHER POSITIONS AND SERVICE:** Adv. Comm. Earth Sciences, 84-88, liaison, Adv. Comm. Atmos. Sci., panels for various programs, Natl. Sci. Found.; chair, Erosion and Sedimentation Comm., Hydrology Sect., Am. Geophys. Union, 84-88. **MEM.:** Am. Geophys. Union (secy., Hydrology Sect.); Geol. Soc. Amer.; Intl. Assoc. Hydrological Sciences; Assoc. Groundwater Sci. and Engrs. (NWWA). **RES.:** Hydraulics and sediment transport studies in rivers and beaches, runoff processes and associated erosion processes in watersheds; surface-groundwater interactions; wetland hydrology. **PREVIOUS GSA SERVICE:** Quaternary Geol. and Geomorphology Div. Panel on Kirk Bryan Award, 88-90; GSA Councilor, 92-94; Comm. on Continuing Education, 94-97, chair, 94; Program Comm., 92-95; Executive Director Search Comm., 93-94.
- RITTER, JOHN B., QUATERNARY GEOLOGY, GEOMORPHOLOGY.** Education: Pennsylvania State Univ., B.S., 1983, Univ. of New Mexico, M.S., 1987, Pennsylvania State Univ., Ph.D., 1990; Professional Experience: ASSOC. PROF., Wittenberg Univ., 1990-present, Assoc. Ed., GSA Bulletin, 1996-1998; Awards: Wittenberg's Omicron Delta Kappa Excellence in Teaching Award, 1995; Memberships: GSA, AMQUA, AGU, Sigma Xi; Research: Influence of climate and tectonism on alluvial fan evolution, Montana, Nevada, and California; late Quaternary proglacial and post-glacial drainage development and stream piracy in west-central Ohio; Mailing Address: Dept. of Geology, Wittenberg Univ., P.O. Box 720, Springfield, OH 45501
- WOHL, ELLEN E., GEOMORPHOLOGY, QUATERNARY GEOLOGY.** Education: Ariz. State Univ., B.S., 1980, Univ. of Ariz., Ph.D., 1988; Professional Experience: Asst.-ASSOC. PROF., COLORADO STATE UNIV., 1989-date; Memberships: GSA, AMQUA, AGU; Research: bedrock channel morphology, flood paleo-hydrology, mountain channels; Fulbright Award to Australia, 1986-87, Fulbright Award to Israel, 1991-92, Gladys W. Cole Memorial Award (GSA), 1995, Member of Phi Beta Kappa; Mailing Address: Dept. of Earth Resources, Colorado State University, Ft. Collins, CO 80523