



Quaternary Geologist and Geomorphologist

NEWSLETTER OF THE QUATERNARY GEOLOGY AND GEOMORPHOLOGY DIVISION

Volume 31, Number 1, Corrected Issue

March 1991

MANAGEMENT BOARD MEETING DALLAS, OCTOBER 1990

The Management Board of the QG&G Division met on Monday, October 29, 1990, during the Annual Meeting of the Geological Society of America in Dallas. Attending were: K. Pierce, R. Madole, J. Costa, S. Wells, D. Harden, J. Knox, K. Prestegard, B. Molnia, J. Vitek, and V. Baker.

The meeting agenda included the following items. (1) Approval of minutes of 1989 meeting. (2) Verification of 1990 election results. (3) Discussion of solicitation for Mackin Grant donations in order to increase the grant amount. (4) Discussion of lack of applicants for Gladys W. Cole Award and what the Management Board might do to increase applications. (5) Report from Bruce Molnia about GSA Today, which replaces GSA News and Information. One issue annually will be devoted to QG&G Division issues and activities of interest to GSA members. One suggestion was for a discussion of the declining number of academic positions for geomorphologists, in spite of the relevance of geomorphology to environmental and global change issues. (6) Discussion of the new format for QG&G awards ceremony and get together. Members agreed that the less expensive format is desirable, but that efforts should be made to include simple snacks if this can be done at a reasonable price. The present evening format will be continued at the San Diego meeting. (7) Concern was expressed at the lack of QG&G involvement in developing theme sessions for annual meetings. (8) Report on International Association of Geomorphologists. Association of American Geographers' nominee to replace J. Knox as U.S. representative is D. Ritter. Board voted to approve this nomination. The IAG newsletter had not been mailed to members as of October 1990 because the IAG did not provide postage. A motion was passed to support a single IAG newsletter mailing, but that future IAG newsletters would be financed by subscribers. (9) Vic Baker led a discussion about the alarming number of geomorphology positions in academia that are being lost. A 7-person QG&G committee to be convened by Ken Pierce will prepare a consensus statement in early 1991 that will hopefully provide initiative for the NAS Earth and Environmental Sciences Division to study the problem further.

Gremlins plagued the March 1991 issue of *Quaternary Geologist and Geomorphologist*:

The photo of John T. Hack, who received the Distinguished Career Award, appeared, incorrectly, with the citation for the Kirk Bryan Award.

The last half of the citation by M. Gordon Wolman for the presentation of the Distinguished Career Award to John T. Hack appeared in a separate, unrelated article.

This issue has been corrected and reprinted.

QUATERNARY GEOLOGY & GEOMORPHOLOGY DIVISION

STATEMENT OF FINANCIAL CONDITION September 30, 1990

Division Fund Balance 12/31/89	\$1,407.23	
1990 Division Dues Income	<u>5,423.00</u>	
Total Division Resources		\$ 6,830.23
Division Expenses:		
Newsletters and Ballots	1,063.52	
Member labels	45.00	
Postage, handling & envelopes	<u>501.43</u>	
Total division expenses		<u>1,609.95</u>
Division Fund Balance 9/30/90		\$5,220.28

J.HOOVER MACKIN APPROPRIATED FUND STATEMENT OF FINANCIAL CONDITION September 30, 1990

Fund Balance 12/31/89	\$ 8,864.78	
Contributions	42.00	
Earnings through 9/30/90	<u>356.13</u>	
Total Fund Resources 9/30/90		\$ 9,262.91

HOW TO HAVE INPUT TO THE DIVISION

1. Submit nominations for Division offices and awards.
2. Submit suggestions, gripes, etc., for consideration by the Division Management Board.
3. Submit contributions to the Division Newsletter.

Correspondence to the Division may be sent to our Division Secretary: Deborah R. Harden
Department of Geology
San Jose State University
San Jose, CA 95192-0102

Or you may write directly to the Division Chair:

Richard F. Madole
U.S. Geological Survey MS 966
Box 25046, Federal Center
Denver, CO 80225

Newsletters are mailed in February and August of each year; deadlines for contributions are January 15 and July 15, respectively. Members are encouraged to use their Division newsletter to communicate with other members. Please send contributions to the Newsletter Editor:

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Cascades Volcano Observatory
U.S. Geological Survey
5400 MacArthur Blvd.
Vancouver, WA 98661
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1990 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 Bulletin. Therefore, in the interest of economy, only excerpts are printed here. As the Distinguished Career Award is solely a Division Award, its citation and acceptance won't be published elsewhere, and thus are printed in full below.

Presentation of the Kirk Bryan Award to Arthur S. Dyke and Victor K. Prest

Excerpts from Citation by John T. Andrews

It is a great personal pleasure for me to issue the citation for the Kirk Bryan Award to two individuals whom I have known and respected for 30 years in one case and 17 in the other. Between them they have studied a considerable fraction of the land area of North America that was covered by the Wisconsinan Laurentide Ice Sheet. This combined knowledge is probably unparalleled within the North American Quaternary community and is one reason why their maps and discussion led to the Kirk Bryan Award being bestowed upon them.

Vic Prest received his BSc and MSc from the University of Manitoba (1935) and his PhD from the University of Toronto (1941). After several years mapping bedrock geology he moved to the Geological Survey of Canada and commenced his investigations of glacial landforms and deposits. Art Dyke received his BSc from Memorial University of Newfoundland (1972) and his MA and PhD from the University of Colorado (1975). He then moved to the Geological Survey of Canada and mapped large areas of northern Canada from the Yukon Territory to northwest Baffin Island....

Art Dyke and Vic Prest's paper that is the recipient of this year's award, "**Late Wisconsinan and Holocene history of the Laurentide ice sheet**", was written as part of a special symposium of the XIIth INQUA Congress that was held in Ottawa, Canada, in the summer of 1987. Bob Fulton and I were the convenors of the symposium and editors for the special issue of "Géographie Physique et Quaternaire", v. 41, no. 2, on "The Laurentide Ice Sheet". In their paper, Dyke and Prest set out to establish the patterns of ice flow during the deglaciation of the Laurentide Ice Sheet, and to provide an update of the 1969 isochrone maps prepared by Prest and by Bryson and others. That they did this well is evident by the number of times that their paper is quoted in the recent Quaternary literature. Vic Prest is "retired" and the word is advisedly in quotations. He has made enormous contributions to both the observational and conceptual sides of our knowledge of the North American ice sheets. This award is thus for a career as well as a single paper. Art Dyke continues to work in the Canadian Arctic and I hope will continue to do so for many more years. He is not yet "retired" and I expect that his name will re-appear in considerations of future Kirk Bryan Awards.

Excerpts from Acceptance by Arthur S. Dyke

Last year's recipient of the Kirk Bryan Award pointed out that most award recipients feel embarrassed in being singled out from their peers while at the same time feeling immensely honoured. I think there is also something of a feeling of shock. The shock results perhaps from the fact that most authors of scientific papers after a few years of gauging the impressive apathy of their colleagues to their treasured research and after a few passes through the critical review process, become case hardened as a defensive or survival strategy. A well-respected American colleague spoke from experience when, after complimenting the paper you are honouring today, he added "...but you have just made a lot of people angry at you." With good reason, we so automatically assume a bland or negative or even angry reaction to our little offerings that we are ill prepared, though delighted, when the opposite occurs. When that reaction is in the form of the coveted Kirk Bryan Award, it tends to be overwhelming--and more than a little therapeutic.

The topic of our paper, the Laurentide Ice Sheet, has been one of pre-eminent interest to scientists studying the Quaternary of North America in general and of Canada in particular.... However, the first Survey geologist to make it a major responsibility to keep track of progress in understanding the history of the Laurentide and other North American ice sheets was Vic Prest.... He has an intimate familiarity with the Quaternary of Canada that is shared by few others and will never be replicated by anyone of my age; he not only knows the research results but he knows or knew all of the researchers personally and has visited a large number of their key sites in the field.... Vic's 1968 Glacial Map of Canada ranks as one of the most influential of the Survey's publications and his ice retreat map of 1969 has been the model for many subsequent publications. As an undergraduate, these two maps were the most prominent wall hangings in my apartment.... I am sure that the fascinating patterns they presented were part of the brew that sparked my interest, hence career, in glacial geomorphology.

.... The synthesis of Dyke and Prest was done the old fashioned way amid stacks of reprints and hand drawn reductions of numerous, often conflicting, local reconstructions of ice marginal positions and ice flow patterns. It is based primarily on glacial geological data and on radiocarbon dates, but we did strive to guide the reconstructions with elementary glaciological principles, without infusing too much glaciological inference and thus straying too far beyond our primary geological controls.

It is probably the last that will be attempted that old fashioned way simply because of the continued rapid growth of the data base. The future need will be for more interactive modelling that relies on ice mechanics and rebound data as well as on the glacial geological data. Much of this work has already been done but numerical modellers have tended to work apart from the field mappers. We, thus, tend to receive their results as pronouncements and so they are received less sympathetically than they perhaps deserve to be. We mappers have endless room to contribute detailed reconstructions of ice sheet history as systematic mapping progresses.... We have only begun to make these detailed local reconstructions so the future looks promising.

The reason that I am standing here as an award recipient is that I had the good fortune to be recruited by the Geological Survey after graduate school. There is probably no finer place for a fresh young recruit to cut his teeth and hone his skills than at GSC. Over the past 16 years, the Survey has given me the opportunity to carry out field mapping with excellent support in large areas of the eastern and central Arctic and in the Yukon.... The Survey, in particular Terrain Sciences Division and Atlantic Geoscience Centre, is the core of Quaternary research in Canada.... In recognizing this paper on the Laurentide Ice Sheet, you honour GSC Quaternary scientists collectively, more so than the individual authors.

There is another major reason that I was able to contribute to this overview and that is that I had the exceedingly great fortune to do my graduate work at the University of Colorado under the guidance of John Andrews at the Institute of Arctic and Alpine Research. John's knowledge of the Quaternary sciences is broader than that of anyone else I have met and his creativity, not to mention his productivity, is apparently effortless and astounding.... Early guidance from John led me to appreciate the necessity of always fitting ones research into the context of broader questions rather than concentrating on marshalling an ever increasing collection of technical tools with which to pursue research.... He encouraged us to always try to see the bigger picture, to think in terms of hypothesis testing, and, just as importantly, not to be afraid to address controversial issues or to generate controversy and thus stimulate debate.... I have always regarded the interactions with other students, among them John England, Ray Bradley, Giff Miller, Bill Locke, Tom Davis, Dana Isherwood, and Charlene Wright in the Baffin Room at INSTAAR as being as important a part of my education as any other....

I must also acknowledge the influence of two of my undergraduate teachers at Memorial University on my career. Joyce Macpherson is the single finest lecturer I have had.... Bob Rogerson, also a fine lecturer who peaked my interest in glacial geomorphology, is almost solely responsible for the fact that I pursued graduate studies. Without his assurances, I would have classified myself as a "terminal Bachelors." I have never forgotten that reality and I hope there are lots of teachers

out there who are encouraging their students to accept challenges that will stretch their capabilities.

Ladies and gentlemen, the Kirk Bryan Award is an immense honour. Like Vic, I am grateful to the nominators and to the review committee.

Excerpts from Acceptance by Victor K. Prest

When I was approached by colleagues in Ottawa to participate as a co-author in three parts of the INQUA/87 Symposium on the Laurentide Ice Sheet I indeed felt honoured as I was, even then, long retired. The Symposium was a great one as many here this evening are well aware. Little did I dream that the paper and maps on the late Wisconsinan and Holocene by Arthur Dyke and Vic Prest would receive the attention of Quaternarists outside of Canada and would merit the 1990 Kirk Bryan Award. I am indeed proud to be here but I must emphasize that my part in that work was minimal. I can only surmise that my earlier works along somewhat similar lines provided useful background information. But it was Arthur who seized the INQUA meetings to up-date and really advance our understanding of many facets of late Wisconsinan and Holocene history. I am glad that Arthur included me in his fine work. And I am doubly pleased at this time on the occasion of the prestigious Kirk Bryan Award.

Perhaps in view of my years I may be allowed to reminisce this evening re my early career in that there is such a contrast with present day investigations, especially in regard to transportation and welfare. My first geological field work was in 1934 as a student with the Manitoba Mines Branch investigating reported gold occurrences off the southeast end of Lake Winnipeg.... The next summer I was employed by the Geological Survey of Canada as a 'junior assistant' on an 8-man party that was to explore and map a large region in northern Manitoba off the southeast end of Reindeer Lake on the Manitoba-Saskatchewan border. In those days that meant three days and nights on the train to 'The Pas'. There we remained for several boring days because someone had neglected to ship our canoes. In the meantime the hired canoe men were rounded up, one of them from the local jail....[the trials, tribulations, and triumphs of a mid-1930s GSC field season are omitted here--catch them in the Bulletin]....

On obtaining my doctorate from the University of Toronto I worked for the International Nickel Co., based in Copper Cliff, Ontario--field work in the summer and the Research Laboratory or underground in the winter. Following a stint with the Canadian

Navy I returned to the Ontario Department of Mines and pursued bedrock mapping in more developed mining camps.... It was during 1948 that I was asked to leave my bedrock party at work in the field, and investigate new reports of placer gold activity in the Vermilion River valley off the northeast end of the Sudbury basin. This got me back to a long-held interest in the glacial or Pleistocene field....

I left the Ontario government employ reluctantly in mid-season 1950 to join the Geological Survey of Canada, being enticed by more money and a trip to the Arctic as the Canadian geologist on the USS Edisto as part of the Resupply Mission to Thule, Greenland, and several Canadian bases. Following that trip I was asked to take over the fledging Pleistocene, Engineering

and Groundwater unit of our Geological Survey. Thus my interest in the Laurentide Ice Sheet was renewed. Compilation work on published glacial features and air photo studies were well underway by the mid-fifties. When Toronto was chosen to host the International Glaciological Society meetings for 1957 it was decided to combine this work with the data obtained by Dr. J.T. Wilson on his post war 'Operation Muskox' studies in Keewatin District, Northwest Territories. He had funding from the Defence Research Board and thus an overall compilation was started with his co-worker George Falconer in Toronto. Dr. Bill Mathews of University of British Columbia supplied the requisite data on the Cordillera. A hand-drawn coloured map was readied for display at the glaciological meetings; publication followed in 1958 on a scale of 1 inch to 60 miles....

The Geological Survey of Canada updated this map on a scale of 1 to 5,000,000 in 1968 (Map 1253A); the authors were Vic Prest, Doug Grant and Vern Rampton. Since then other maps and accounts pertaining to the Laurentide Ice Sheet have been produced at the Survey. And that brings us to the 1987 Symposium and Art Dyke's definitive paper. But for those interested in the history of the Laurentide Ice Sheet and the intriguing dispersion of erratics from the southeastern end of Hudson Bay may I refer you to my recent paper entitled "Laurentide ice-flow patterns: a historical review, and implications of the dispersal of Belcher Islands erratics" published in *Geographie Physique et Quaternaire*, volume 49, number 2, 1990--the same journal that published the INQUA/87 volume.

In closing I again thank Arthur Dyke for including me in his fine paper. And my heart-felt thanks to the Kirk Bryan Award committee for the tough decision they must have made in view of many excellent papers published by young scientists in recent years.

Presentation of the Distinguished Career Award to John T. Hack

Citation by M. Gordon Wolman

The session on continents and the cycle of erosion at the 27th International Geological Congress in Moscow in 1984 was dominated by Russians presenting papers in Russian. To my surprise and relief, however, the stream of Russian was punctuated with one English word - ...Hack...Hack. I don't know if those Russian geomorphologists admired or detested John Hack's conceptualization of dynamic equilibrium in landscape evolution, but clearly they were required to address it. Johnny Hack may be best known to many here through his development and framing of a modern concept of dynamic equilibrium. I will return to that concept and to the remarkable work that supported it in a moment. First, I should like to touch upon the range of John Hack's contributions to the broad field of geomorphology. Throughout his career, he has contributed not only to geology and geomorphology but to the relation of these to archaeology, geography, and ecology in ways much talked about today, but rarely achieved.

John's early field work as a graduate student of Kirk Bryan's at Harvard was in the Southwestern United States. Bryan lured many, including Charlie Denny, Herb Wright, Claude Albritton, and H.T.U. Smith, to his home ground, the Rio Grande basin and nearby areas. Hack's papers from that era, the late thirties, are classics. I mention two.

In "Desert Dunes in the Western Navajo Country", published in the *Geographical Review* in 1941, he classified a range of dune forms from transverse to longitudinal, related these to current wind patterns, and potential sources of sand, and in turn, analyzed the evidence for and against current dune activity. In this analysis, evaluation of the role of vegetation played a key part. In his study of "The Changing Physical Environment of the Hopi Indians of Arizona", published in the archaeology and ethnology series of the Peabody Museum, Hack described the modern environment and conditions of farming including the floodwater irrigation practiced by the Hopi. Identifying sand dune behavior and epicycles of arroyo erosion Hack related the Hopi economy to variations in the climate and physical environment. Conditions for floodwater farming waxed and waned as deposition and incision occurred in the dry washes. This comprehensive research combining the natural scene and human activities is a distinctive contribution to worldwide studies of floodwater farming in the Negev and elsewhere in the Middle East, Latin America, and North Africa. These studies illustrate the relationship between environment and society including similarities in human adaptation to similar environments as well as the variety of social structures which can accompany such adaptive solutions - a central issue in the debate about environmental determinism and diffusion versus independent cultural evolution. Hack also described in detail prehistoric coal mines, perhaps among the earliest on this continent, as well as the large quantities of coal mined in antiquity.

While John Hack carried out these studies in the southwest as a member of the faculty of Hofstra College in New York, his productive career thereafter has been entirely with the U.S. Geological Survey. A member of one or another regional division of the Survey, during World War II, he was also a member of a polyglot crew in Military Geology bringing geologic information to bear on military decisions and operations. Full-time government service has not prevented John from being a teacher. He has taught in or out of the academy in his work with colleagues in the field, in his writing, field trips, talks, and conversation. For a couple of years he and Charlie Denny were adjunct faculty in the Department of Geography at Johns Hopkins, an administrative step in the University complete with curriculum vitae. Neither ever heard about the university process because I was afraid of the hilarity which it would have provoked, nor would the jokes have been forgotten.

Johnny's studies of landforms (and vegetation) in the Appalachians are a model of conception, design, and execution. Equally remarkable, while John has sought out and used tools from mathematics and statistics to pedology and pebble counts, his work is based upon that bulwark of geology and geography--mapping. That the extension of Gilbert's idea of dynamic equilibrium could be revealed in the composition of the rocks and their spatial distribution is one of those simple notions which is, of course, readily revealed to all of us--in hindsight.

John Hack began work in the Shenandoah Valley around 1952. The region itself is the site of classic work in geomorphology for over a hundred years. It is full of peneplains, antecedent and subsequent rivers, incised meanders, and climax forests. Some of these may still be there, depending upon the definitions one uses. John simply asked, must they be? By choosing a setting containing distinctive rock types, he was able to suggest that

much of that landscape could be more easily explained by the composition, structural, and stratigraphic relationships of the geologic formations underlying the region.

During the course of this work, which has extended over three decades, Johnny counted thousands of pebbles, measured countless profiles of rivers and hillslopes, described them mathematically, and mapped the geology and landforms over a large area characterizing the formations in terms of their susceptibility to weathering and wear. He chose to count and measure pebbles after a lunch-time race against a colleague who suggested that counting would be faster than sieving sediments of a river bar. John, never a man to accept a statement without a proper test, lost the race (he was still sieving furiously when the median size was announced) and concluded that counting might do for his purpose.

For a while he became a spelunker mapping the elevations and configuration of famous cave systems in the Valley and relating these to the broad landscape. In addition, his recognition that clean limestones producing little residuum resulted in nearly bald areas in some valley bottoms required rethinking historical views of the presumed evidence for the impact of farming and accelerated erosion in these Appalachian regions.

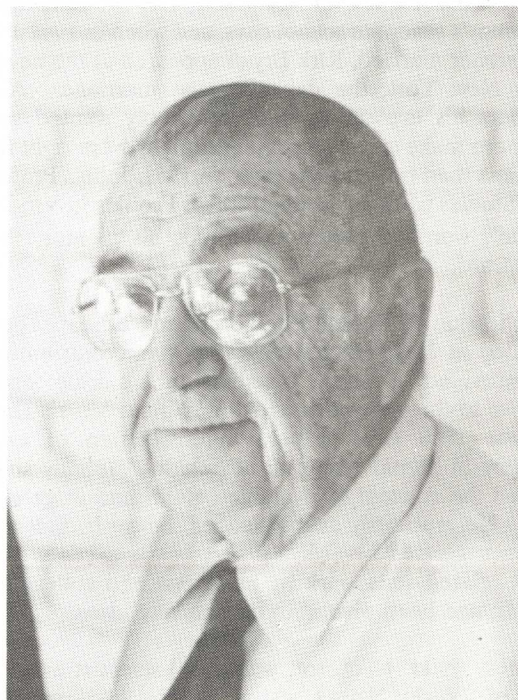
The work in the Appalachians resulted in the classic papers on "Interpretation of Erosional Topography in Humid Temperate of Regions" (1960) and "Dynamic Equilibrium and Landscape Evolution" (1975) along with the galaxy of studies of river and hillslope profiles [the relationship between profile form, particle size and drainage area], a concept of energy expenditure, the stream gradient index, reflected in gradient and distance, the relationship of the evolution of landforms to ore deposits, the control of entrenched meanders by rock type, with Young 1959, (at the site of famous meanders of the North Fork of the Shenandoah River), and the association of plant distributions, landform, and hydrology. The work on landforms and vegetation with John Goodlett has also had a profound influence both on methods of mapping vegetation and on the study of the influence of events of large magnitude on the spatial distribution and temporal sequence of vegetation on the landscape. Collectively, these studies of the Central Appalachians represent a truly rare combination of analyses of processes linked to the evolution of large scale landforms.

John's work extended from the Appalachian Plateau to the Coastal Plain. In addition, his study of Ontonogan drainage in the upper peninsula of Michigan contributed ideas and evidence for generalization about drainage evolution. Near Washington, Hack's work on the Brandywine formation, including field cooperation with soil scientist Nikiforoff, forced a reinterpretation of the formation of Coastal Plain terraces and a new look at the soils themselves.

John Hack while a serious scholar is not always a serious man. After Luna Leopold presented the notion that rivers flow more rapidly downstream as they increase in discharge to a critical and disbelieving audience at the Geological Society of Washington, Johnny presented Luna with a children's book about a tugboat. In it the little tugboat "went faster and faster as the river got bigger and bigger"! An admirer of the finer things in life, John believed that a dry martini before dinner was a proper way to complete a day of field work. Then too, on a gorgeous summer day sitting beside the Tye River near its head in the National Forest above the Shenandoah Valley, as

we opened our bag lunches, John remarked to me, "That's what I like about geology--picnics!"

A remarkable contributor to geology and geomorphology, John T. Hack more than warrants the Distinguished Career Award which this Division bestows upon him for a lifetime of contributions to the field of geomorphology. Because I am much in debt to him for guidance and friendship, it is a special pleasure for me to be able to participate this evening. Waite Osterkamp will not only accept the Award in John's absence, but will, I think, help you get an even better feel for this gentleman and scholar.



JOHN T. HACK

**Acceptance for John Hack
by Waite R. Osterkamp**

Johnny does not travel as much these days as when he was roaming the Shenandoah Valley. In his absence from the QG&G awards ceremony last November, therefore, I accepted the Distinguished Career Award in his name, and with Cliff Hupp and Bob Sigafoos, presented the award to him at his home in Washington, D.C., later that month. Having worked closely with Johnny during the latter part of his career and having come to know him well, I compiled a tribute to him that was presented in the Binghamton Symposium proceedings of 1989. That tribute is the basis for much of this response.

In his citation, Reds Wolman mentioned various events or periods of Johnny's extraordinary career. Among these was his wise decision to study under Kirk Bryan at Harvard, a decision that led to his receiving his doctorate in geology in 1940. Johnny's preference for soft-rock geology, and later geomorphology, was firmly established during his undergraduate years at Cambridge. An emphasis then on mineral exploration meant that field problems for many students entailed the collection, labelling, and carrying of numerous heavy rock

samples back to campus for petrographic scrutiny and classification. On several occasions Johnny mentioned to me that it took him only a couple of times in the field carrying a bag of rocks to a car that there must be a better way to obtain an education. This negative response to economic geology, and probably more importantly, the positive influence that Kirk Bryan began to provide, combined to steer Johnny toward geomorphology.

Kirk Bryan had worked for the U.S. Geological Survey in the 1920s and later took the position vacated by William Morris Davis at Harvard. Throughout graduate school, Kirk Bryan was a friend and mentor and principal advisor whom Johnny remembers best for his caring nature. The two remained close after Johnny's graduate school days, and when in 1942 John and Clare Ferriter married, Kirk Bryan appeared at the newlyweds' door in New York the day after the marriage. As Clare remembers his explaining later, he simply wanted to check Clare out to make sure that she and Johnny were right for each other. Less than two decades later, in 1961, John's Professional Paper, "Studies of Longitudinal Stream Profiles in Virginia and Maryland", won the honor named for his mentor, the Kirk Bryan Award.

The application of dynamic equilibrium to landscapes generally is regarded as John Hack's most important contribution, one which provided a much needed and quickly embraced alternative to the cycle-of-erosion of William Morris Davis. In his classic 1960 GSA paper, "Interpretation of erosional topography in humid temperature regions," Johnny singularly developed the concept of dynamic equilibrium in geomorphic systems. He graciously acknowledged, however, that the idea had been suggested by G.K. Gilbert nearly a century earlier, and that related soils work by his friend and colleague, C.C. Nikiforoff, had been pivotal in his evolving ideas.

Constantine "Niki" Nikiforoff was a soil scientist and Russian refugee of World War I whom Johnny had met through colleagues of the Soil Survey. Nikiforoff had developed principles of soil equilibrium, and these principles by analogy, were later applied by Johnny to Appalachian landscapes; combined with the previous suggestions of Gilbert, they became the basis of Johnny's concept of dynamic equilibrium. In this post-war period, Johnny, with Nikiforoff and Charlie Hunt and John Cady, joined in renewed friendships with other companions, especially former graduate students from Harvard--Luna Leopold, Charlie Denny, Reds Wolman, John Goodlett, and others--to form a group with, as Johnny has implied, a rare rapport. This group was the source of many classic papers, and much of the work was centered in the Appalachian Ridge and Valley Province. As is generally known, Johnny's interests and contributions were mainly concerned with the great Valley of Virginia, the Shenandoah Valley--work that began late in 1951 and has never really ended.

One of the group members, also from Harvard, was a botanist. John Goodlett and Johnny shared interest in each other's discipline, and each recognized early in his career how closely intertwined are geomorphology and botany. This recognition and overlap of interests led to the agreement to cooperate in a study of the "Geomorphology and forest ecology of a mountain region in the central Appalachians." Published as a USGS Professional Paper in 1960, this benchmark study of Hack and Goodlett remains a definitive treatise combining the two

disciplines. The area of their study was the Little River basin on the west flank of the Shenandoah Valley. A high-intensity storm had occurred in the basin in June, 1949, and runoff from the storm had caused numerous mass movements and severe damage to the bottomlands. Six years after the storm and flood, Hack and Goodlett began their detailed study of the geomorphic changes and damage to vegetation that resulted. The study also identified general variations in soils and vegetation relative to geometric form and position within first-order drainage basins.

Although Johnny's health did not permit him to travel to Dallas last November to receive our Division's Distinguished Career Award, he nevertheless took a special delight in the honor. Later in November, after Cliff, Bob, and I had scheduled a visit with the Hacks, we presented the plaque to Johnny. To commemorate the occasion, Johnny, Clare, and a close friend were armed upon our arrival with snacks and champagne which we quickly downed. A photo of Johnny (shown here), taken that afternoon in the Hacks' home, reinforces, I feel, our observations that he remains a lively personality who continues to delight in his profession. An endearing facet of this personality was described to me several years ago by Stan Schumm. Not long after Johnny's concept of dynamic equilibrium had gained popularity at the expense of Davisian thought, Stan asked Johnny to review a paper for him. The paper reflected, in relatively strong terms, Stan's agreement at that time with John's questioning of Davis' closed-system approach to geomorphology. Rather than endorse Stan's comments on Davis, he warned in the margin: "Don't belittle your predecessors." John has never refrained from disagreeing with others, but always has done so in a cordial, respectful manner. It seems appropriate therefore, that he too has been shown the honor and respect that he so richly deserves by receiving the Distinguished Career Award.

NOMINATIONS FOR 1991 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, 1991. Nominations should be sent to the Division Secretary, Deborah Harden, 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 resumé 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 Chairman 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.

**1991 GSA ANNUAL MEETING
Call for papers for theme session**

The QG&G Division-sponsored symposium for the annual meeting of the Geological Society of America in San Diego, October 21-24, 1991, is entitled "Geologic evidence of late Quaternary aridification in Western North America: Great Plains, Desert Southwest, and Great Basin." The symposium will focus on modern surficial geologic processes and the paleoclimates of semiarid and arid North America. In addition to the Division symposium, a theme session entitled "Global warming and geologic evidence of aridification during late Quaternary time" has been proposed to the Program Committee. The theme session will complement the Division-sponsored symposium, but will be broader in scope. Although the theme session will emphasize paleoclimatic change to or from drier climate, it may include biotic and abiotic evidence from humid and arid regions, as well as all terrestrial environments and processes (e.g., eolian, fluvial, glacial, lacustrine, and mass movement). Presentations should be based chiefly on new data or interpretations, and should attempt to develop linkages with global circulation models or patterns of climatic change within and between regions.

The proposed theme session has been accepted by the GSA Program Committee and will be announced in the April issue of GSA Today. Members interested in submitting abstracts to the theme session are urged to be on the lookout for the April announcement because there will be little additional information forthcoming prior to the deadline for submitting abstracts. The abstracts deadline for the San Diego meeting is July 3, 1991. Forms may be obtained by writing or calling the Abstracts Coordinator, GSA Headquarters (303) 447-2020.

**FRIENDS OF THE PLEISTOCENE
1991 FIELD TRIPS**

Midwest Cell: May 10-12, 1991

Ed Hajic, Leon Follmer, and Hilton Johnson will lead a trip on the Quaternary deposits and landforms of the confluence region of the Mississippi, Missouri, and Illinois Rivers, Missouri and Illinois. The trip will visit sections along the Mississippi Valley in the vicinity north of St. Louis, MO, and address problems of terrace stratigraphy, landform-sediment assemblages, chronology, Wisconsinan and Wisconsinan loess and paleosol stratigraphy, and regional implications. Problems with earlier attempts at terrace definition and interpretation will be discussed at several sites where terraces were defined in the first half of this century. For additional information contact Ed Hajic, 165 Huckleberry Dr., Jackson, WY 83001 (307-733-0282), or Hilton Johnson, Department of Geology, University of Illinois, Urbana, IL 61801.

South-Central Cell: May 17-19, 1991

A 2½-day trip originating each day from Woodward, Oklahoma, will highlight Pleistocene and Tertiary volcanic-ash deposits and associated terraces, hillslope landforms, and soils. Richard Zakrzewski will lead a trip to the Borchers Badland, Meade County, KS, to review ash deposits, soils, geology, and paleontology of the High Plains. The second day will deal with these subjects in the "Low" (Rolling Red) Plains, in addition to

a visit to the Burnham archeological site presented by Don Wyckoff and colleagues. The third day will include bentonite clay deposits and a review of prehistory of people in northwest Oklahoma by Jack Hoffman and Don Wyckoff. To receive the second notice for the field trip contact Brian Carter, FOP, Department of Agronomy, Oklahoma State University, Stillwater, OK 74078 (405) 547-2065.

Northeast Cell: May 17-19, 1991

The 54th annual meeting of the Friends of the Pleistocene (which we outsiders refer to as the Northeast Cell of the FOP) will be led by J.C. Ridge and D.A. Franzi and will investigate late Wisconsinan glaciation of the western Mohawk Valley region north of Utica, NY. The region, and in particular the West Canada Creek valley, has a complex glacial stratigraphy that records glacial readvances and deep glacial lake impoundment which occurred during recession of the Ontario and Mohawk lobes. Special topics that will be discussed include: 1) the genesis of till and other diamictons in a deep glaciolacustrine trough; 2) the use of paleomagnetic declination measurements from laminated lacustrine deposits as a glacial chronostratigraphic tool; and 3) the causes of glacial readvances which occurred in central New York during late Wisconsinan ice recession. For more information, due out this Spring, contact: Jack Ridge, Department of Geology, Tufts University, Medford, MA 02155 (617) 381-3494.

Pacific Cell: May 31-June 2, 1991

Marith Reheis, Chief Banjoist and Social Chair of the Pacific, Rocky Mountain, and occasionally other cells of the Friends of the Pleistocene, is organizing a trip to Fish Lake Valley, California and Nevada. The trip will focus on Pliocene and Quaternary stratigraphy (including an early Pleistocene pluvial lake), alluvial-fan genesis, tephrochronology, late Cenozoic history of the northern Furnace Creek fault zone, Holocene paleoseismicity, and soil genesis in a well-dated chronosequence. Announcements will be mailed in late February. If you are interested and think you are not on the mailing list, write to Marith at U.S. Geological Survey, MS-913, Federal Center, Box 25046, Lakewood, CO 80225.

Rocky Mountain Cell: October 11-13, 1991

Lake Bonneville field trip: Stratigraphy, sedimentation, fossils, soils, and tephra near Delta, Utah. Contact Richard Van Horn, U.S. Geological Survey, Box 25046, MS 966, Denver, CO 80225.

**JONATHAN O. DAVIS
1948-1990**

Jonathan O. Davis died on December 15, 1990, from injuries suffered in an auto accident caused by an intoxicated driver who had swerved head-on into Jonathan's car. Jonathan's premature, tragic, and senseless death is a great loss to all of us who have known him, and to geologists, archeologists, and other earth scientists who have worked in the Great Basin. The ramifications of Jonathan's work go far beyond the boundaries of this region.

Jonathan was a Research Professor at the Quaternary Sciences Center of the Desert Research Institute in Reno, Nevada, and

a member of the Graduate Faculty of the University of Nevada-Reno. Jonathan was both an archeologist and geologist, and has made important contributions to both fields. His most significant contribution, in my mind, was to the chronostratigraphy of the Great Basin, and in particular to that of the Lahontan Basin. By means of careful, methodical, and insightful field and laboratory research conducted over about the last 15 years, Jonathan developed a tephrochronologic space-time framework for late Quaternary deposits of this region that precisely correlates and dates processes and events such as the timing of pluvial lake expansion and contraction, of early human occupation in this region, and of the climatic changes that were in large measure responsible for these phenomena. His work is, and will remain, an invaluable reference to earth scientists studying the natural history of this region.

Because of his talents, abilities, and knowledge, there was much demand on Jonathan's expertise and time. I think that one of Jonathan's secret ambitions, and one that he at times realized, however, was to be a scholarly desert vagabond. He loved the beauty, solitude, and cleanness of the desert country where he worked, and loved to wander in the secret places of the Great Basin.

--A.M. Sarna-Wojcicki

MAINE COAST - ADVANCED FIELD SEMINAR

Harold W. Borns, Jr., University of Maine, will lead a field seminar, **The Late Glacial History of the Eastern Maine Coast--A Microcosm of Global Environmental Change**. For more information please write or call: Eagle Hill Wildlife Research Station, Steuben, Maine 04680, (207) 546-2821 (after April 1) or (718) 622-0452 (before April 1).

FORMER ENSO PHENOMENA IN WESTERN SOUTH AMERICA Records of El Niño events

This symposium will be held 10-13 July 1991 in Lima, Peru, is being planned by numerous Peruvian and French organizations, under the auspices of several INQUA commissions and IGCP projects. Co-convenors are Luc Ortlieb, Institut Français de Recherche Scientifique pour le Développement en Coopération, and José Machare, Instituto Geofísico del Perú. The symposium will offer an opportunity to gather and confront recent information obtained on former occurrences of ENSO events by scientists working at sea, onshore, or on Andean glaciers, on varied proxy archives. An optional field trip will be held 5-8 July, **Impacts of the 1982-83 El Niño event and records of former ENSO phenomena on the coast of Northern Peru**. For more information contact: ENSO 1991 International Symposium, ORSTOM, Apartado 18-1209, Lima 18, Peru, FAX 51.14.40.87.73.

QUATERNARY SCIENCE REVIEWS Special rates for QG&G members

Members of the QG&G Division can receive Quaternary Science Reviews for \$48.00 per year. Please note that the journal is increasing in frequency from quarterly to bimonthly during 1991. Subscriptions can be obtained from Pergamon

Press Inc., Maxwell House, Fairview Park, Elmsford, NY 10523, USA. A free sample copy is available on request.

BINGHAMPTON GEOMORPHOLOGY SYMPOSIA

The twenty-second symposium, **Periglacial Geomorphology**, will be held 21-22 September 1991 at the State University of New York at Buffalo. The symposium will focus on recent advances in periglacial geomorphic research with particular emphasis on research in North America. Oral presentations and posters will focus on geomorphic processes in both arctic and alpine periglacial environments. Future directions of periglacial geomorphic research in North America will be identified. The speakers have been selected, but posters are solicited. Abstracts for posters are due August 1, 1991. Earlier notification of intent to contribute a poster is appreciated. For information, contact organizers: John C. Dixon, Department of Geography, University of Arkansas, Fayetteville, AR 72701, (501) 575-5808; and Athol D. Abrahams, Department of Geography, SUNY-Buffalo, Amherst, NY 14260, (716) 636-2722.

The twenty-third symposium, **Geomorphic Systems**, will be held 25-27 September 1992 at Miami University, Oxford, OH. The symposium will explore the structure, function, and behavior of both generalized earth surface systems and specific geomorphic systems such as drainage basins, catenas, hillslopes, and shore zones. Recent developments in the analysis of earth surface processes and landforms as complex and nonlinear dynamical systems will be discussed. These contemporary topics will be linked to an historical overview of systems analysis in geomorphology since the publication 30 years ago of U.S. Geological Survey Professional Papers 500 A-D, "Theoretical Papers in the Hydrologic and Geomorphic Sciences." Contact organizers for information about serving as a speaker or requirements to present a poster: Jonathan D. Phillips, Department of Geography and Planning, East Carolina University, Greenville, NC 27858-4353, (919) 757-6082, and William H. Renwick, Department of Geography, Miami University, Oxford, OH 45056, (512) 529-1362.

THIRD INTERNATIONAL CONFERENCE ON GEOMORPHOLOGY International Association of Geomorphologists 23-29 August 1993, McMaster University

The first circular has been mailed and a second circular with registration details will be sent in October 1991 to those responding to the first. Papers or posters may be submitted on any geomorphic topic, but the organizers wish to emphasize the following themes: cold regions geomorphology, the sediment cascade, extreme events, new techniques, applied geomorphology, geomorphic theory, implications of global climate change, pre-Quaternary surfaces and paleosols, tectonic geomorphology, and steep lands. If you would like to propose and organize a specialist symposium, please contact Vic Baker (University of Arizona) or Olav Slaymaker (University of British Columbia). In addition to the conference, there will be numerous pre- and post-conference field trips in Canada and the United States. For more information contact 3rd International Conference on Geomorphology, McMaster University, Hamilton, Ontario, Canada L8S 4K1, (416) 525-9140 Ext. 4535, FAX (416) 546-0463.

BIOGRAPHIES OF THE CANDIDATES QUATERNARY GEOLOGY AND GEOMORPHOLOGY DIVISION

- CALKIN, PARKER E.**, b Syracuse, NY, April 33; m 55; c 2. QUATERNARY GEOLOGY, GEOMORPHOLOGY. Educ: Tufts, BS, 55; Univ Brit Columbia, MSc, 59; Ohio State Univ. PhD (geol), 63. Prof Exp: Asst Prof SUNY Coll at Buffalo, 63-65; Asst Prof 65-68 to Assoc Prof 68-75 to Prof SUNY at Buffalo 75-; Concurrent Pos: Vis scholar Univ Cambridge, 70-71, 86; Vis scholar Univ Colo, 79. Mem: Geol Soc Am (fel), Quaternary Geology & Geomorph (panel 86-88), Am Quat Assn (councilor 85-88), Int Glaciol Soc, Sigma Xi (pres. Buf. Ch. 74), NYSGA (pres. -82). Res: glacial - Quaternary geology and geomorphology Alaska, Antarctica, Great Lakes - eastern North America; environmental geology of Great Lakes shorelines in New York. Mailing add: Dept. Geol, State Univ of New York at Buffalo, Buffalo, NY 14260.
- DAVIS, P. THOMPSON**, b Exeter, NH, Nov 8, 49; QUATERNARY GEOLOGY/GEOMORPHOLOGY. Educ: Univ New Hampshire, BA, 72; Univ Maine, MS, 76; Univ Colorado, PhD, 80. Prof Exp: Vis Asst Prof, Idaho State Univ, 78-79; Res Assoc, Quat Res Ctr, Univ Washington, 80-81; Asst Prof, Mount Holyoke Coll, 81-87; Assoc Prof, Bentley Coll, 87-; Concurr Pos: Res Affil, INSTAAR, Univ Colorado, 86-; Geol, US Geol Surv, 79. Hon/Awards: J Hoover Mackin, GSA, 75; Exc Res, Bentley Coll, 89. Mem: AAAP, AAAS, AGU, AINA, AMQUA, CANQUA, GSA, IGS, NAGT, SEPM. Res: Holocene glacier fluctuations, Quat strat Baffin Island, Quat hist New England area, Cascades tephrochronology, palynology. Mailing add: Dept Nat Sci, Bentley Coll, Waltham, MA 02154-4705.
- DIETRICH, WILLIAM E.**, b San Francisco, CA, Oct 29, 50, m 83; GEOMORPHOLOGY. Educ: Occidental, BS, 68, Univ Washington, M.S. 75, Ph.D. 82. Prof. Exp: Asst-ASSOC PROF, UC BERKELEY, DEPT OF GEOL AND GEOPHYS., Mem: Geol Soc Am, AGU, AAAS, Japanese Geomorph Union, BGRG., Res: hillslope and fluvial geomorphology. Mailing Add: Dept Geology and Geophysics, Univ of Californian, Berkeley, CA 94720.
- GARDNER, THOMAS W.**, b East Stroudsburg, PA, Jan. 19, 1949; m 73; C 2. QUATERNARY GEOLOGY, GEOMORPHOLOGY, NEOTECTONICS. Educ: Franklin and Marshall College, BA, 1971; Colorado State Univ., 1973; Univ. Cincinnati, PhD, 78. Prof. Exp: Geologist, Exxon Minerals Co., 77-79; Asst. Prof., Penn State, 79-85; ASSOC PROF, PENN STATE 85-. Mem: Geol Soc Am (Fel), AGU, AMQUA. Res: Tectonic geomorphology of active and passive plate margins (Costa Rica and US Atlantic margin), hydrology and geomorphology of disturbed lands with emph. on eastern US coal mined basins, geographic information systems and remotely sensed data for parameterization of surface hydrology models. Mailing Add: Dept. of Geosciences, Pennsylvania State Univ., Univ. Park, PA 16802.
- GIARDINO, JOHN R.**, b Pueblo, CO, October 21, 46; m 69; c 1. QUATERNARY GEOLOGY GEOMORPHOLOGY. Educ: Univ of Southern Colorado, BS, 69; Arizona State Univ, MS, 71; Univ of Nebraska, Ph.D., 79. Prof Exp: Lecturer, Univ Zambia, 72-74; Asst. Prof., Texas Tech Univ, 78-84; Assoc. Prof., Texas A&M Univ, 84-88; Prof. and Head, Texas A&M Univ, 89-present. Mem: Geol Soc Am; Am Quat Assn; Int'n'l Permafrost Assoc, NAGT, Sigma Xi. Res: Quat., geomorphology, engineering geology, periglacial, rock glaciers, coastal. Mailing Add: Dept. of Geology, Texas A&M University, College Station, TX 77843-3147.
- KELLER, Edward A.**, GEOMORPHOLOGY, ENVIRONMENTAL GEOLOGY. Educ: Calif State Univ Fresno, BS Math, 65; Univ of Calif Davis, MS, Geol, 69; Purdue Univ, PhD, Geol, 73. Prof Exp: Asst Prof, Univ of NC, 73-76; Prof, Univ of Calif, Santa Barbara, 76-present. Mem: Geol Soc Am (Fel); AGU; NAGT; Sigma Xi. Res: fluvial processes; tectonic geomorphology; environmental geology. Mailing Add: Dept Geol Sci, Univ of Calif, Santa Barbara, Santa Barbara, CA 93106.
- MAYER, LARRY**, b Brooklyn, NY, May 18, 1951, c 2. TECTONIC & CLIMATIC GEOMORPHOLOGY. Educ: Queens College, CUNY, BA, 1974; Univ Arizona, MS, 1979; Univ Arizona, PhD, 1982. Prof Exp: Geologist, US Geol Surv, 75-77; Res/Teach Asst Univ Arizona, 77-82; Visit Schol/Assoc. Prof, Univ Arizona, 88; Asst Prof 82-87 to ASSOC PROF, GEOL DEPT, MIAMI UNIVERSITY 87-. Res: Geomorphic response to climatic and tectonic forcing; Tectonic geomorphology; Paleohydrology; Fractal analysis of landforms and time series; Environmental geology in S. Ohio; Evolution of calcic soil horizons; Computer simulation of landform erosion; Multivariate morphometric discriminant analysis of segmented mtn ranges; Scarp morphology; Basin analysis in rifted and compressional settings. Mailing Add: Geology Department, Miami University, Oxford, Ohio 45056.
- MICKELSON, DAVID M.**, b Worcester, MA, August 22, 1944; m 69; f, 79; QUATERNARY GEOLOGY, GLACIAL GEOLOGY. Educ: Clark Univ, AB, 66; Univ Maine, MS, 68; Ohio State Univ, Ph.D. (Geol), 71. Prof exp: Asst Prof 71-75 to Assoc Prof 75-80 to Prof 80- Geology and Geophysics Univ Wisconsin-Madison. Mem: Geol Soc Am (div panel 84-86), AMQUA (mgt council 84-88), Int Glaciol Soc, Sigma Xi, INQUA Comm on Genesis and Lithol of glacial depos (sec 78-84). Res: modern glacier process se AK, deglaciation New England, stratig midwest US, shore erosion, slope stability. Mailing Add: Geology and Geophysics, 1215 W Dayton, Univ Wisconsin, Madison, WI 53706.
- WAYNE, WILLIAM J.**, b Cass Co, Mi, April 23, 1922; m 46, c 3. QUATERNARY GEOLOGY, GEOMORPHOLOGY, URBAN GEOLOGY. Educ: Indiana University, AB 43, AM 50, PhD 52. Prof Exp: Head Glacial Geologist, Indiana Geological Survey 52-68; Vis Prof, University of Wisconsin 66-67; Assoc. Prof, University of Nebraska 68-71, to PROF, UNIVERSITY OF NEBRASKA 71-. Mem: Geol Soc Amer (Fel), AMQUA (Councilor 86-90), DEUQUA, Asoc Geol Argentina, Assoc Eng Geol, NAGT, Sigma Xi, AAAS (Fel). Res: Quaternary Geology and geomorphology Indiana, Nebraska, Nevada, Argentina, emphasis on paleoenvironment. Mailing Add: Dept of Geology, University of Nebraska, Lincoln, NE 68588-0340.
- WELLS, STEPHEN G.**, b Linton, IN, March 4, 49; m 74 c 2. GEOMORPHOLOGY, QUATERNARY GEOLOGY, ENVIRONMENTAL GEOLOGY. Educ: Indiana Univ., BS, 71. Univ. Cincinnati, MS, 1973; Univ. Cincinnati, PhD, 76. Prof. Exp: Asst Prof, Univ. New Mex., 76-82; Assoc. Prof., Univ. New Mex., 82-89; PROF and CHAIRMAN, DEPT. OF GEOLOGY, UNIV. OF NEW MEX., 89-. Concurrent po Faculty research assoc., US Air Force/Am. Soc. Eng. Educ., 77; AAAS Dese & Arid Zones Research Panel, 79; USGS Faculty appt., 82-85; Quat. Geol. Geom. Panel 83-85; Edit. Board, GSA Geology, 84-90; Edit. Boar Geomorphology, 85-; Visiting Affiliate, Los Alamos Nat. Lab, 89. Hon Awards: Presidential Lecturer, Univ. of New Mex., 88-90. Mem: Geol. Soc Am.; AGU; Int. Assoc. Sed.; AMQUA; NM Geol. Soc. Res: desert geomorphologic and Quaternary landscape evolution; surficial processes and land management in semiarid watersheds; Quaternary climate change and hydrologic response tectonic and volcanic geomorphology. Mailing Add: Dept. of Geology, Univ. of New Mexico, Albuquerque, NM 87131.

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