



Quaternary Geologist and Geomorphologist

NEWSLETTER OF THE QUATERNARY GEOLOGY AND GEOMORPHOLOGY DIVISION

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February 1988

RESULTS OF 1987 DIVISION ELECTION

A total of 1020 ballots were mailed to QG&G voting affiliates for the election of officers and Panel members: 343 valid ballots (31%) were returned. Division officers and Panel members elected for 1988 are:

OFFICERS:

Chairman	James C. Knox
First Vice-Chairman	Dale F. Ritter
Second Vice-Chairman	Kenneth L. Pierce
Secretary (continuing)	Richard F. Madole

PANEL MEMBERS (1987-89):

Jon C. Boothroyd
John. J. Clague
W. Hilton Johnson

MEMBERSHIP

Membership for the Division increased slightly in 1987, from 1393 to 1435. The number of both student and regular members increased, whereas the number of fellows declined. The QG&G Division is the third largest of the ten Divisions of the Society. The Structural Geology and Tectonics Division is the largest having 2081 affiliates (down 156) and the Hydrogeology Division is the second largest having 1661 affiliates (up 66).

	Oct. 18, 1985	Oct. 2, 1986	Oct. 2, 1987
Members	785	771	805
Fellows	231	226	213
Honorary Fellows	2	1	1
Students	365	288	305
Exempt Members	7	9	9
Exempt Fellows	98	98	102
TOTAL MEMBERS	1488	1393	1435

Exempt Members and Fellows include persons who have reached the age of 70 years and have paid dues for 30 years or who have reached the age of 65 years and have paid dues for 25 years, and specifically request exemption from payment of further dues.

MANAGEMENT BOARD MEETING PHOENIX, OCTOBER 1987

The annual meeting of the Division Management Board was held October 26, 1987, 10:00 am-1:00 pm, at the Hyatt Hotel in Phoenix, Arizona. Victor R. Baker chaired the meeting, and attending were Gail M. Ashley, Jon C. Boothroyd, Robert J. Fulton, William L. Graf, James C. Knox, Richard F. Madole, and, for part of the meeting, Parker E. Calkin and E-an Zen. The meeting agenda contained the following items: (1) minutes of the 1986 meeting, (2) verification of 1987-88 election results, (3) a proposal to raise Division dues, (4) progress report on the statistics of funding of research in Quaternary geology and geomorphology, (5) report on the International Geomorphology Organization and the Second International Conference on Geomorphology, (6) response to an inquiry about reorganizing American geomorphologists, (7) review of the planning process for the 1987 annual meeting (mainly the role of the Division JTPC (Joint Technical Program Committee) representative; abstracts--review, rejection rate, organization into technical sessions; and response to the proposal to replace the traditional Division-sponsored symposium with theme sessions, (8) plans for Division activities at the 1988 meeting in Denver, (9) comments on the 1988 review article of "Geomorphology and Quaternary Geology" for *Geotimes*, (10) review of the schedule of events for the Division luncheon, and (11) new business. Actions taken on some of these items are reported in this newsletter, or, in the case of inquiries still in progress, will be reported in future newsletters.

PROPOSAL TO RAISE DIVISION DUES

Division officers and members of the Panel present at the annual meeting of the Management Board in Phoenix, October 26, unanimously concluded that a raise in Division dues could no longer be avoided. Pride in having the lowest dues of any Division, \$2 per year, should give way to practicality. Division activities have been expanded in some way each year for the past several years, and, during this time, other costs have been increasing steadily. For the past few years, the increased revenue resulting from a growth in membership partly offset rising operating costs. Nevertheless, the Division Fund balance (treasury) at the end of each calendar year has been decreasing steadily. Unfortunately, the Division simply cannot continue to operate at the present income level without seriously reducing the Mackin Grant Fund, or reducing the number of Mackin Grants awarded, or eliminating one of the two Newsletters published each year.

At the end of each calendar year, half of the Division Fund balance is transferred to the Mackin Grant Fund. As operating costs have increased, the amount transferred to Mackin Grant Fund each year has declined. In 1986, the amount transferred (\$291.61) plus the interest earned by the Fund was less than the amount awarded (\$1000). For the first time, the Mackin Grant Fund decreased from one year to the next.

The financial condition of the Division is published in the Newsletter at least once each year, generally in the September edition because the March Newsletter is assembled in January prior to when the financial reports for the year just-ended become available. The Division financial report for the period January 1 to September 30, 1987, is reproduced herein and shows how dues income is expended. The largest expenditures are for the Newsletter. Division bylaws require that at least one Newsletter be mailed each year, and also that an election ballot be prepared and mailed each year. As the Division activities expanded, a single Newsletter per year proved to be inadequate for dissemination of news in a timely manner, and because the mailing of ballots required the printing of member labels, postage, handling, and envelopes, the decision was made to include a second Newsletter with the ballot, or vice versa. The rationale for two Newsletters per year has been examined on at least two occasions in recent years, including brief discussions at the annual luncheon. Opinions expressed by the membership, as well as other evidence, indicate that it is in the best interest of the Division to continue the policy of two Newsletters per year.

**QUATERNARY GEOLOGY & GEOMORPHOLOGY DIVISION
STATEMENT OF FINANCIAL CONDITION
September 30, 1987**

Division Fund Balance 12/31/86	\$ 291.61	
1987 Division Dues Income	<u>2652.00</u>	
		\$2943.61
Division Expenses:		
Composition & Printing		
Newsletters	1039.61	
Member Labels	135.00	
Printing Ballot & Biodata	137.03	
Postage, Handling & Envelopes	461.48	
Parish Photography--prints	10.00	
Kevin O'Dea--(1) Division Luncheon ticket (Mackin Grant Award Winner)	15.00	
R. Waitt--Kirk Bryan Award	<u>500.00</u>	
Total Division Expenses		<u>2298.12</u>
Division Fund Balance 9/30/87		\$645.49

Operating expenses are actually higher than the above financial report indicates, because hidden costs in the form of secretarial help, long-distance telephone calls, postage, and photocopying are absorbed by the organizations of the members of the Management Board (especially that of the Secretary), the Panel, and the Mackin Grant Committee. The hidden costs are estimated to be on the order of \$1000 per year. The majority of these costs involve deciding the Kirk Bryan Award, Distinguished Career Award, Cole Award, Mackin Grants, and planning for the Division-sponsored events and technical sessions at the Annual Meeting.

After much discussion at the Management Board meeting in Phoenix, it was decided that it would be more prudent and efficient to have a single large dues increase rather than a series of smaller stepped increases. Hence, it was proposed that QG&G Division dues for members and fellows be raised to \$5 per year, thereby matching the dues of four other Divisions (Coal Geology, Engineering Geology, Hydrogeology, and Sedimentary Geology), but that dues for students be retained at \$2 per year. The proposed dues increase and the reasons for the increase

were explained at the Annual Division business meeting (Division luncheon). Members present at the luncheon indicated unanimous approval for the proposed increase in dues to begin in 1989.

WHERE 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 continuing Division Secretary:

Rich Madole
U.S. Geological Survey
Box 25046, MS 966, DFC
Denver, CO 80225

Or you may write directly to the Division Chairperson (who changes each year). The present Chairperson is:

James C. Knox
Department of Geography
Science Hall
University of Wisconsin
Madison, WI 53706

Newsletters are mailed in March and September of each year. Members are encouraged to use their Division newsletter to communicate with other members. Deadline for the March Newsletter is January 15th and July 15th for the September Newsletter. Please send information to the Newsletter Editor at the following address:

Michael Machette
QG&G Newsletter Editor
U.S. Geological Survey
Box 25046, MS 966, DFC
Denver, CO 80225

QG&G DIVISION AWARDS, 1987

**Presentation of the Kirk Bryan Award to
Richard B. Waitt**

Citation by Victor R. Baker

The flooding that emanated from glacial Lake Missoula during the Pleistocene was perhaps the most spectacular geomorphological process ever to have occurred on planet Earth. Studies of cataclysmic flood phenomena in the Northwestern United States have produced some of the most lively and controversial contributions to the allied sciences of Quaternary geology and geomorphology. The scabland, loess hills, and diverse flood sediments of eastern Washington have proven to be fertile ground for the most precious of all scientific commodities, innovative hypotheses.

In this 13th year since its first presentation in 1958, the Kirk Bryan Award is granted for a study of Lake Missoula flooding by Richard B. Waitt of the United States Geological Survey. Entitled "Case for Periodic, Colossal Jokulhlaups from Pleistocene Glacial Lake Missoula," the paper cited for the honor was published in the October 1985 issue of The Geological Society of America Bulletin.

How did Richard achieve the concept argued in his paper that the late Wisconsin glacial Lake Missoula drained periodically over a period of about 2,000-2,500 years as scores of stupendous glacier-outburst floods? He entered this field with a solid background in geology. After beginning his higher education in Massachusetts, he moved on to the stimulating environment at the University of Texas at Austin. There in 1968,

Richard produced his first scientific publication based on a M.S. study of the spectacular ignimbrites of the Sierra Madre Occidental, Mexico. The abstract of that study was coauthored with J. Hoover Mackin. Richard then moved to the Quaternary program at the University of Washington where he worked with Steve Porter and received his Ph.D. in 1972. In the course of his dissertation work on the glacial history of the northeastern Cascade Mountains, he became intrigued with the spectacular effects of late Wisconsin flooding down the Columbia River Valley between Grand Coulee Dam and Wenatchee, Wash. It was at this time that Richard's interests in the cataclysmic floods of glacial Lake Missoula converged with my own.

In 1971, I completed a dissertation at the University of Colorado entitled "Paleohydrology and Sedimentology of Lake Missoula Flowing in Eastern Washington." Shortly after I presented this work at the 1971 annual meeting of the Geological Society of America in Washington, D.C., Richard informed me of his own flood studies then in progress, and we initiated a lively correspondence, exchanging hypotheses with which to explain our field observations. Initially, Richard was impressed that much of the evidence he was finding on the Columbia was consistent with the passage of a single great outburst of Lake Missoula. I argued from studies in the Channeled Scabland further east that multiple floods had occurred through the Pleistocene, but that the discrete stratigraphic evidence then known would only allow a small number of most prodigious floods to perform major geomorphological work in the Channeled Scabland.

In 1975, Richard began his extensive work in the Northwest as a geologist with the U.S. Geological Survey. In 1977, he combined his talents in sedimentology, Quaternary geology, and geomorphology by investigating the flood-laid, sand-to-silt graded rhythmites that accumulated in the back-flooded valleys of southern Washington. He reasoned from associations of many units with subaerially emplaced volcanic tephra that discrete flood events were indicated. Moreover, as elaborated in a 1980 paper published in the *Journal of Geology*, the stratigraphic correlation of the flood rhythmites to bottom sediments of glacial Lake Missoula implied a genetic link among the deposits. Thus, the 1985 paper for which Richard is being honored today really derived from a long chain of insights that began early in the 1970s. In the paper, Richard persuasively argues the internally consistent and regionally significant concept of last-glacial flood succession that he first proposed in 1980. In addition, the 1985 paper presents an elegant quantitative model for periodic releases from Lake Missoula that fully accords with the well-described field evidence.

Richard's work has tremendous implications for late Wisconsin stratigraphic correlations from Montana to the Pacific Ocean. His original hypothesis has become a model with great predictive power, implying the sequence, timing, and magnitudes of floods that can be tested as many investigators now work in the great geomorphological laboratory provided by cataclysmic flood landscapes.

As we present his award, let us reflect on two other scientists who worked in that same laboratory 6 decades ago. Thirty years prior to the initiation of the Kirk Bryan Award, a University of Chicago professor named J Harlen Bretz was invited to address a meeting of the Washington Academy of Sciences held at the Cosmos Club in the nation's capitol. In his presentation, Bretz argued the case for his hypothesis of a cataclysmic flood origin of the Channeled Scabland, and he even offered a jokulhlaup hypothesis for flood genesis, although he did not make the connection to glacial Lake Missoula until 1930. In presenting the Penrose Medal to Bretz in 1979, M. King Hubbert described the reception given Bretz by the 1927 audience: "... the might and majesty of the United States Geological Survey were marshalled in opposition to the flood hypothesis." Although not speaking on that occasion, among the members of that decidedly hostile audience was Kirk Bryan.



"Doc" Bretz was always mystified by Kirk Bryan's reluctance to recognize the cataclysmic flood origin of the Channeled Scabland. As I was preparing my paper and books on this topic, Bretz wrote me many letters, and we discussed the matter at length at his home. He vividly recalled one particular meeting with Bryan, who had traveled extensively in Bretz's field areas during the 1920s, studying the Palouse Soil as well as investigating a proposed aqueduct route from Lake Pend Oreille to the Quincy Basin. Bretz described their meeting to me as follows: "... Bryan came to a lecture that I gave at Cheney Normal and afterward I quizzed him about his reaction to my flood theory. He was cagey and admitted that he had seen considerable channeling by glacial streams, but was not accepting my flood theory. Nor did he succumb to any urge to see more of the scabland. He had his conventional explanation."

Unconventional explanations are greeted with great suspicion by the scientific community. There is a need to see our science as orderly, with appropriately organized chains of connection and correlations among causes and effects. Richard's paper, which we will now associate with Kirk Bryan's exemplary scientific excellence, preserves that sense of order for the phenomenon of Missoula flooding. Its abstract concludes, "J Harlen Bretz's 'Spokane flood' outraged geologists six decades ago, partly because it seemed to flaunt catastrophism. The concept that Lake Missoula discharged regularly as jokulhlaups now accords Bretz's catastrophe with uniformitarian principles."

If I read the long history of scabland studies properly, I think Kirk Bryan would be pleased with this result, but I am not so certain that Bretz would. I believe Bretz's Spokane Flood Hypothesis always was in accord with uniformitarian principles. The only validity for uniformitarianism is not in its relationship to catastrophism, but rather in the selection from among many competing hypotheses the one that most efficiently accords with all the available data. I know this was Bretz's approach because of a careful reading of his papers and because of what he wrote to me in 1978, as I was preparing his Penrose Medal nomination on behalf of the Quaternary Geology and Geomorphology Division. In his letter, Bretz stated "I have always used Chamberlin's method of multiple-working hypotheses. I applied Occam's razor to select the most appropriate hypothesis, but always with due regard for possible dull places in the tool."

We are talking about giants today. The names Kirk Bryan and J Harlen Bretz, plus the best scientific traditions of the U.S. Geological Survey have again converged after 60 years. Am I going to say that one is right and another wrong? I believe that answering such a question would be counterproductive. The important issues in science do not involve classifications of evidence into categories that favor one idea or another, as though the abundance of such evidence could serve to define the truth. Indeed, some philosophers of science argue that it is evidence inconsistent with hypotheses which we should seek. As my old petrology professor Brian Bayly lectured us during one of those tedious undergraduate microscope laboratories, "Science is not the accumulation of facts. It is the accumulation of rejected hypotheses."

Must then the scientific process inevitably involve mere conflict among ideas associated with individuals, with hypothesis testing eventually determining winners and losers? Anyone who knows of the scientific work by both Bretz and Bryan will realize that this is a foolish question. It is the quality of thinking and the creativity of hypothesizing that is critical in our enterprise.

If there is a resolution for the dilemma posed by the conflicting views of Missoula flood processes and history represented by Bretz and Bryan, it is one given by the nuclear physicist Niels Bohr. Bohr described two kinds of scientific truth: "... trivialities, where opposites are obviously absurd, and profound truths, recognized by the fact that the opposite is also a profound truth."

Quaternary geology and geomorphology needs more than mere quantification of methodologies or sophistication of analytical apparatus to achieve equivalent status to Bohr's theoretical physics. These tools must be applied creatively to the fundamental problems of profound intellectual significance unique to our science. The Missoula flooding problem raises critical issues of magnitudes and frequencies of geomorphological processes versus resistances and responses of landscapes and the sedimentary record. Richard B. Waitt has produced a paper of great intellectual quality appropriate to the long tradition of competing hypotheses inspired by the cataclysmic flood landscapes of the northwestern United States.

Richard, on behalf of the Quaternary Geology and Geomorphology Division of the Geological Society of America, my most hearty congratulations on receiving the Kirk Bryan Award for 1987.

**Kirk Bryan Award
Acceptance Speech by
Richard B. Waitt**

Mr. Chairman, Mr. Secretary, Colleagues of the Quaternary Geology and Geomorphology Division:

Unlike several early recipients of this award, my generation knows Kirk Bryan indirectly. During Bryan's last years at Harvard, I was growing up on the side of a drumlin 20 miles to the north. Helping my father excavate a basement by hand, I got early experience with a material that was in that circumstance less than endearing, but which I later came to appreciate as lodgement till. It was as a student of geomorphology that I met Bryan, through his innovative reports on pediments not far south of our meeting place here at Phoenix. Years ago, while struggling with teaching at Pennsylvania, I had confirmation of Bryan's consummate skills in teaching: Friends of the Pleistocene trips included many of his former students and their students, who also populated eastern geology faculties. Needless to say, I am deeply honored by the 1987 Kirk Bryan Award and to be associated even indirectly with is amiable giant of geology.

I wish to pay tribute to some of my "Kirk Bryans" mentors and colleagues who significantly influenced my studies on the

great Missoula floods and other subjects. At the University of Texas, Hoover Mackin instilled principles of mainly qualitative geomorphology, dispensing regular doses of G.K. Gilbert and Bryan; he ingrained methods of multiple-working hypotheses championed by T.C. Chamberlin and Douglas Johnson; and he insisted that in geologic writing one strive to achieve not only correct grammar and accurate syntax but also interesting composition. Bob Folk instilled countless useful sedimentologic field techniques, such as the art (some say "Folk"-lore) of estimating both average grain size and standard deviation of a sediment population while using only a hand lens. Speaking of Mackin and Folk in practically the same breath affirms that I have always viewed the marriage of geomorphology and sedimentology as natural, happy, and productive.

At the University of Washington and Quaternary Research Center, Steve Porter and Link Washburn provided a modern postglacial climate for scholarship and research in glacial and Quaternary geology. On his Friends-of-the-Pleistocene trip in 1969, Porter introduced, almost incidentally, some enigmatic apparently flood-related deposits in a Columbia River tributary, and here was the germ of any produce from my later studies.

Correspondence and field trips with Victor Baker and, later, Brian Atwater improved my grasp of relations in different parts of flood-swept regions too vast for any one researcher to know it all well. Discussions with Bernard Hallet and Derek Booth about seminal papers on subglacial hydrology by Ron Shreve, Helgi Bjornsson, and John Nye gave insight for analyzing how the Cordilleran ice dam might have controlled discharge from glacial Lake Missoula.

All recent workers in the Columbia drainage and Channeled Scabland are of course indebted to the prescient field observations of J Harlen Bretz, encrypted by his crisp and eloquent pen in a monumental series of reports between 1923 and 1956. The fact that Gilbert, Bretz, Mackin, and Porter have affected the present study is a statement of my belief that careful field observations will always be the trusted currency of surficial geology, no matter how many high-tech instruments may become routine tools of our research. And perhaps present students of surficial geology may find, as I have, that to sharpen skills in writing one can do worse than to study the scientific narratives crafted by Chamberlin, Gilbert, Bretz, and Mackin—all of an era when even high-school students were grounded in classic languages and thus in English.

Support by administrators was never the strongest suit in my floods game. Much of the fieldwork was of necessity done on the sly, and I here express due thanks for the inadvertent support of field expenses for my nonproject. I do specially recognize Patrick Muffler, whose understanding as Branch Chief during the last of my field research and writing allowed completion of the presently recognized report. The main USGS encouragement for my study of vanished glaciers and water was thus from a Branch named "Igneous and Geothermal Processes". The logic may not be evident. Yet in November 1985, some 25,000 casualties at Nevado de Ruiz volcano in Colombia resulted from water catastrophically released from snowpack and glacier ice—albeit by interaction with hot erupted pyroclasts. The several ways in which volcanoes are thought to interact with ground water and with surficial water, snow, and ice place physical volcanology closer than it may seem to surficial geology as traditionally embodied by this Division.

The 1985 GSA Bulletin report arguing a case for dozens of Lake Missoula flood culminated an off-and-on topical study along the Columbia River and its tributaries. From 1970 to 1974 it was but a sideline to my research on glacial geology in the Eastern Cascade Range. From 1976 to 1979, a USGS project gave opportunity to map a strategic segment of the Columbia. Within that map area a very few deposits suggested a highly complex history of flooding, but only a fragment of the whole

history could be unraveled there. By ignoring only 1 percent of available field evidence, one could readily interpret the other 99 percent as the effect of just one or two or three giant floods down the Columbia and their waning flows. I argued just so on a field trip co-led with Vic Baker exactly 10 years ago during the 90th Annual Meeting of this society.

It was only a week or so later while examining possible fault scarps in southern Washington that Don Swanson and I encountered the manmade "Burlingame Canyon became a rosetta stone for deciphering Missoula-flood slackwater deposits scattered all over the region.

There ensued an intermittent stratigraphic investigation of flood and glaciolacustrine deposits broadly across eastern Washington to northwestern Montana. The method of multiple-working hypotheses tested each piece of new evidence at each new exposure. Thus, at a major grain-size break: Could variations in flow during one flood have produced it? Were two separate floods required? What other explanation is possible? Through repeated testing, the evidence and deductive logic accumulated for repeated, separate events. From numerous widely dispersed sections evidence also grew that the time interval between successive floods was regular and measured in decades. In [98], varved glaciolacustrine deposits interleaved with Missoula-flood deposits in northern Idaho and Washington began to provide nearly continuous stratigraphic records of parts of Missoula-flood history; the newfound varves between flood beds at last allowed precise counting of time between some successive floods. Some regular physical principle must have controlled a periodic release of the enormous glacial Lake Missoula. After testing competing hypotheses, Icelandic subglacial jokulhlaups--of behavior first deduced by the imaginative Icelander Sigurdur Thorarinsson--seemed the most promising explanation.

My first report in 1980 hypothesizing dozens of successive Lake Missoula debacles provoked a controversy, which in time spawned the present report. Controversy being the midwife of new data, criticism of my tens-of-floods idea was instrumental in hastening a search for more and different data and in new areas. The interbedded varve and flood beds in northern Washington and Idaho probably would not have been so soon sought out and studied had there been no argument. Brian Atwater's recent independent work on compositing the most complete single record of the floods was also egged on by the controversy.

Administration within a large research institution can and sometimes does discourage research it does not understand; a new approach is particularly vulnerable to being misunderstood. The tall exposures of rhythmic strata widely scattered about the flooded region were clearly the most promising path for deciphering the history and behavior of stupendous floods whose effects dominated a huge region, including the area I was mapping in the late 1970s. Yet the mapping project that paid the field expenses was loathe to support work outside the map boundaries that was deemed irrelevant to the map itself. Most of the work celebrated by this year's Kirk Bryan Award consequently was bootlegged. Everyone here understands, I should think, what is meant in football by "bootlegging." It is a maneuver by which your opposition is deceived into thinking you are doing something else. The object is not to get caught until you are a few yards nearer your goal than could be gained by direct means. This behavior of course engendered political strife over most of the life of my nonproject. Yet the research had to continue if a root stratigraphic affliction for the whole Columbia River system was to be cured. I like to imagine that if Kirk Bryan were here, he would not be displeased that in his honor the Division this year is rewarding behavior that some have viewed as errant and outrageous.

Sooner or later we all become at least incipient administrators of science. One's review of an NSF proposal often decides for or against a colleague's funding for prospective research in which he or she thoroughly believes. But it is as

positioned administrators in a research organization, particularly a large integrated one, that we gain enormous powers over others' research, especially of younger scientists. We can encourage or thwart others' pursuits and, whether or not we understand them, we may hold this sway for many years.

It is easy to see that we are good administrators of mainstream science by mainstream researchers. But sometimes I wonder if we are as effective as we might be with truly innovative research. An idea "ahead of its time," so to speak, will almost surely not be understood by all who must pass judgment on it. A thoroughly new approach may be understood by but one person alone. In the case of the classic work on the Missoula floods, suppose the participants of that celebrated 1927 meeting in Washington to which Victor referred were the deciding reviewers of Bretz's next proposal for work in the Channeled Scabland? Could Bretz have carried on his provocative field research had he been an employee of the USGS 1920s Branch of Pleistocene Geology? An what about J.T. Pardee's reticence all those years before publication of his "unusual currents" paper in 1942 that confirmed glacial Lake Missoula as the source of Bretz's floods--was that governed by USGS politics?

I cannot end without noting that innovation and entrepreneurship within our community of Quaternary geology and geomorphology seem decidedly alive and vibrant today. Having in recent years spent my meeting funds on conferences related to explosive volcanism, I have attended AMQUA and GSA meetings only infrequently. And so, it is enlightening and gratifying at this 100th Annual Meeting of the Geological Society to see many new concepts and research techniques for surficial geology that have been developed in the last few years. This current pace of innovation shows that in Quaternary research there never has been a golden age, unless it is now. And probably it lies in the future, in the hands of those who will populate this gathering when 15 dollars for lunch will seem cheap.

The Kirk Bryan Award acknowledges a past piece of research and pays due tribute to mentors and colleagues who influenced it. But the current health of surficial geology is determined by the conduct of our current research. It will decline or improve according to the imaginations and energies of current and future generations of students. Thank you all very much.



**Presentation of the Distinguished Career Award to
Aleksis Dreimanis**

Citation by S.R. Hicock and P.F. Karrow

Ladies and gentlemen, it gives me great pleasure to deliver this citation for the second recipient of the Division's Distinguished Career Award, Professor Emeritus Aleksis Dreimanis.

The 1987 recipient completed his doctoral dissertation in Riga, Latvia, in 1941, after which he taught at Riga, and Hamburg, and since 1948 at the University of Western Ontario, at London, Canada. Professor Dreimanis has 200 publications spanning six decades, has received numerous awards (including two honorary degrees and two teaching awards), and has held executive positions in international scientific organizations (including President of AMQUA).

From late glacial lake levels to mastodon extinctions, to iron ore dispersal trains, to thermoluminescence dating problems, Aleksis' papers cover a wide range of topics. Together with the inaugural recipient of this award, Professor Emeritus



Richard P. Goldthwait, and coworkers, he developed the eastern Great Lakes Quaternary stratigraphic record which has formed a standard for worldwide comparisons for decades. His development of a simple and rapid method of analysis of the carbonate content of sediment, and his early ideas on glacial transport and comminution of debris are still widely used and quoted today. Aleksis was one of the first glacial geologists to describe and interpret glaciotectionic structures. He was a pioneer in the development and application of multiple methods of till investigation. Recently, he has spearheaded the surge of new ideas on the genesis and classification of till through his presidency of the INQUA Commission on Lithology and Genesis of Glacial Deposits.

Now officially retired, Aleksis Dreimanis is one of the most accomplished and widely recognized glacial and Quaternary geologists in the world. He is still active in field work, supervises graduate students, teaches graduate courses, travels, and corresponds with colleagues all over the globe. He is a quiet man, an honest man, and a true scholar. He is well known for his active participation in stimulating discussion at scientific meetings. Aleksis will leave a rich legacy for future generations of Quaternary geologists and geomorphologists and he is assured a place in the history of Quaternary science. Such tireless energy devoted to a life-long passion for studying and promoting Quaternary and glacial geology to the world is hereby appropriately recognized with the Division's Distinguished Career Award.

**Distinguished Career Award
Acceptance Speech
by Aleksis Dreimanis**

My sincere thanks for the Distinguished Career Award. It has special meaning for me for various reasons. First, it comes from this group with whom I share common interests in the deciphering of the secrets of the Quaternary, the most fascinating episode of the Earth's history. Secondly, the symbol of the award, the dolomite from Valdres, bears genuine handwriting of the Laurentide ice sheet, a main subject of my studies of several decades. A desire to decipher such handwritings, the natural curiosity of a young student, started my career. However, to accomplish something, to keep satisfying this curiosity throughout my life--that could not be done alone, by myself, without the right surroundings and the right people around me.

I grew up and continued to travel and work in favorable surroundings, in a landscape formed by the last Pleistocene glaciation, first in Northern Europe and later in North America where every landform, every stream cut, every sea or lake bluff appeared to me like a page from an ancient book, telling something new and interesting. Till, in particular, with its variability in composition and structure was, and still is to me, like an ancient script, a challenge to read and to understand. I learned from the very beginning that deciphering the strange writings in the glacial deposits cannot be done by a sudden idea that appears in one's mind, or by a model that has been developed somewhere else. Instead, a site-specific and area-specific systematic study is required, day by day, year after year, and eventually decade after decade, by testing the conclusions of the past with new approaches.

Two components are essential in a scientific career: a continuing contact with the subject to be investigated, and a congenial human environment. I was fortunate to acquire both of these ingredients. The most important has been the understanding and support of my entire family, particularly my wife Anita, to whom I am very, very grateful. Without her patience and care, I could not have given priority to geology throughout my entire professional life of nearly five decades.

I am also very grateful to my parents, my teachers, and my professors, who developed the right background for my career and stimulated an open-minded and idealistic approach in my thinking. Equally grateful am I to my students, whose questions tested the clarity of my thoughts, and to all those coworkers and scientists of similar interests in more than thirty countries, with whom I had the opportunity to exchange ideas personally, at geologic sections, or by lengthy letters, or just by reading their publications.

In the development of my ideas, not only on Quaternary matters, but also throughout my personal life and social activities, I have tried to keep an open mind and to respect the opinions of others, but under one condition: these opinions had to be based upon facts and tested by multiple objective criteria.

The first recipient of this Distinguished Career Award was my old friend and colleague, Dick Goldthwait. We share a very similar philosophy of life and of scientific work, and I am honored to follow him.

**FRIENDS OF THE PLEISTOCENE
1988 FIELD TRIPS**

All of the U.S. Cells (including the new SE FOP Cell) are active and prospering. Although some fall field trips are still in the planning stage, here is the current schedule for some of America's cheapest and best field excursions. The editor requests that notices of future (1989) FOP field trips be sent to him before January 15th of the calendar year. The QG&G newsletter would welcome notes concerning the outcome of FOP trips. In addition, this newsletter may be the appropriate place for discussions concerning the history of the FOP, methods for selecting field trip sites and leaders, the leaders potential for liability (insurance, tax, and financial), and the legal question of FOP as a nonentity.

South-Central Cell: March 25-27, 1988

Late Quaternary geology of southwestern Louisiana and southeastern Texas. Topics include the Holocene Chenier Plain and tidal mudflats at Cameron, Ingleside strandplain-barrier system, Pleistocene coastal terraces, Deweyville terraces, Hackberry dome inlier, pimple mounds, C.W. Cooke's shoreline-like ridge, and neotectonic features. Trip starts (and ends) at Lake Charles, LA, Thurs. pm (3/24), and includes a Cajin crawfish boil on 3/25, and annual banquet in Beaumont, TX on 3/26. For more information, contact Richard Birdseye, Department of Geology, Box 44530, University of Southwestern Louisiana, Lafayette, LA 70504 (318) 231-5352.

Midwest Cell: May 21-22, 1988

This year's Midwest Cell trip will be to Southwestern Michigan. Early interest generated from a mailing list of 150 persons and a 2 bus-load limit (about 90 persons), suggests that the trip is already oversubscribed. The trip will be lead by Professor Graham Larson, Michigan State University, East Lansing Michigan. (Editor's note: this statement is being published for information only: according to Larson, several members of last year's trip voiced opposition to advertising FOP trips.)

Northeastern Cell: May 28-29, 1988

Quaternary geology of the Genesee Valley, New York. Trip will start at Genesee, NY. Day 1 will concentrate on the Genesee Valley from Genesee to the Angelica moraine. We will discuss the origin and postglacial history of Letchworth Gorge, examine a deep cross section through the Valley Heads moraine, which contains an intriguing sequence of rhythmites and diamictites, and finally see another cross section through the Angelica moraine, which may be correlative with the Kent moraine. Day 2 will follow the Genesee Valley from Genesee northward to Lake Ontario and will focus on moraines, lake sediments, and the buried valley of the preglacial Genesee River near Rochester. For more information, contact W.J. Brennan, Geosciences Department, N.Y. State University College at Genesee, NY, 14454; (716) 245-5291

Pacific Cell: September 8-10, 1988

Three Sisters-Mount Bachelor-Bend, Oregon area. Main topics will include the eruptive history of the late- and post-glacial Mount Bachelor volcanic chain, late Quaternary glaciation of the central High Cascades, Holocene rhyolite eruptions near South Sister, and middle Pleistocene tephra-fall and pyroclastic-flow deposits near Bend and their correlation with tephra deposits in southern Oregon and northern California. Those not on the Pacific Cell mailing list (flyer goes out in late spring) should contact W.E. Scott, USGS, D.A. Johnston Cascades Volcano Observatory, 5400 MacArthur Blvd., Vancouver, WA 98661, for information.

Rocky Mountain Cell: October 14-16, 1988

Quaternary geology and neotectonics of the Tonto Basin, Arizona. The Tonto Basin lies in the Transition Zone of central Arizona, about 85 km northeast of Phoenix. We will examine geomorphic surfaces and deposits that provide a nearly continuous record of late Cenozoic basin filling and subsequent dissection. The impacts of Basin and Range faulting, drainage integration, regional uplift, Quaternary climatic change, and soil development will be discussed. Additional topics may include archaeology of the basin (Salado culture), paleoflood studies on the Salt River, and engineering geology of Theodore Roosevelt Dam. For more information, contact Larry Anderson or Lucy Piety, Bureau of Reclamation, Box 25007, D-1632, Federal Center, Denver, CO 80225; (303) 236-4195.

Southeast Cell: Fall, 1988

The SE FOP trip will examine the Cenozoic of the New Jersey Coastal Plain. Topics of interest will include a diverse array of geology such as periglacial landscapes, a series of high marine transgressions, a world class Miocene delta, and the effects of prolonged weathering and formation of a deep regolith. Leaders: Wayne Newell (USGS), John Farnsworth (NJGS), John Wyckoff (USGS), Jim Owens (USGS), and Chris Smith (SCS). For more information, contact Wayne Newell, USGS, National Center MS 926, Reston, VA 22092 (713)

SE FOP NEWS

Additional guidebooks or the companion volume from the 1987 SE FOP trip are available as open-file reports through the West Virginia Geological Survey. Each publication will cost about \$13.75. The 1987 guidebook is publication OF-88-2 and the

companion volume (Research on the late Cenozoic of the Potomac Highlands) is OF-88-2. Send your request to the following address:

Publications Department
West Virginia Geological and Economic
Survey
P.O. Box 879
Morgantown, WV 26507
Phone: (304) 594-2331

1989 SE FOP: Art Schultz (USGS-Reston) and Hugh Mills (Tennessee Tech) have agreed to host the 1989 SE FOP field trip in the New River Valley of Virginia. The general theme of their trip will be slope evolution in the Ridge and Valley of the Southern Appalachians, with emphasis on Hugh's work on slope morphology and surficial deposits and on Art's work on giant landslides. More information on other co-leaders, time, place, cost, etc. will be released at a later date.

1990 SE FOP: Jim Quinlan (Uplands Research Lab) has agreed to run the 1990 SE FOP field trip at Mammoth Cave, Kentucky. Jim as promised an inexpensive trip that will include both above-ground and underground sites. Jim's previous trips have received great praise, so the only problem envisioned for this trip is that we will have to wait three years.

Item submitted by Steve Kite
West Virginia University

NOMINATIONS FOR DISTINGUISHED CAREER AWARD DEADLINE APRIL 15, 1988

The Distinguished Career Award was established in 1985 to recognize Quaternary geologists and geomorphologists who have demonstrated excellence in their contributions to science. This award complements the Kirk Bryan Award, which is for a single paper, by recognizing many years of distinguished contributions. The award is called the Distinguished Career Award because the Geological Society of America bylaws allow for only one "named" award per Division, and the Kirk Bryan award is our Division's named award.

The Distinguished Career Award is open to all 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 QGG&G Division. This is the third year for the DCA; former recipients are Richard P. Goldthwait (1986) and Aleksis Dreimanis (1987).

Nominations for the award will be accepted at any time during the year, but the deadline for this year (ONLY) will be **April 15, 1988**. Nominations should be submitted to the Division Secretary. The nominator should assemble the following for the candidate: (1) a brief biographical sketch, which may be photocopied from American Men and Women of Science, (2) a statement of no more than 200 words describing the candidate's scientific contributions to Quaternary geology and geomorphology, (3) a selected bibliography of no more than 20 titles, and (4) three letters of support from colleagues. The names of unsuccessful candidates proposed for this award will remain open to consideration without renomination for the three following years. Further consideration after this period will require renomination.

DIRECTIONS IN PALEOSEISMOLOGY

The proceedings of the 1987 USGS-sponsored workshop on Directions in Paleoseismology (see description in last QGG newsletter) is being published as USGS Open-File Report 87-673 and will be available in mid-March. The 456-page volume was edited by Anthony J. Crone and Eleanor M. Omdahl and contains 46 papers that cover a wide range of topics related to paleoseismic studies. The papers are grouped into the following

major categories: 1) Quaternary dating techniques, 2) Recognition of paleoseismic events in the geologic record, 3) Quaternary slip-rates and coseismic deformation, 4) Modeling fault-scarp degradation--Knowns, unknowns, and perspectives on the problems, 5) The behavior of seismogenic faults, 6) Aspects of seismic-hazard analysis, and 7) The future of paleoseismology--Viewpoints of practitioners and program managers. For information about availability and cost, contact Anthony Crone at U.S. Geological Survey, MS 966, Box 25046 DFC, Denver, CO 80225 (303) 236-1595.

U.S. DELEGATE APPOINTED TO THE INTERNATIONAL GEOMORPHOLOGY ORGANIZATION

James C. Knox, University of Wisconsin, Madison, has been appointed the first U.S. Delegate, (officially called Corresponding Member) to the International Geomorphology Organization, and will serve a four-year term from 1987 to 1991. As announced in the March 1987 Newsletter, preliminary plans were made at the 1986 Management Board meeting in San Antonio for establishing a procedure for selecting the U.S. Delegate in cooperation with the Geomorphology Specialty Group (GSG) of the Association of American Geographers. The selection procedure was developed in collaboration with the GSG because the International Geomorphology Organization recognizes only one Corresponding Member per country. The Corresponding Member serves a four-year term that begins and ends between International Conferences, which are held every four years, the next to be held in Frankfurt, Federal Republic of Germany, in September 1989. The QG&G Division and the GSG will alternate in selecting the Corresponding Member for the United States. The selection of candidates for Corresponding Member will be made by the management boards of the respective organizations. For a given term, one group will nominate, and the other will approve. The group that does the approving also has veto power, and if the veto is exercised, the process is repeated until a candidate is found that is acceptable to both groups. For the 1987-1991 term, the QG&G Division nominated and the GSG approved.

THE AMQUA 10th BIENNIAL MEETING University of Massachusetts at Amherst June 5 to June 11, 1988

Schedule of Events

3rd - 5th	Premeeting field trips.
5th	Informal icebreaker: 7:30 p.m. Campus Center, Rms 165-174
6th - 8th	10th Biennial Meeting Campus Center Auditorium.
7th	Glacial Lake Hitchcock Beach Party.
9th - 11th	Postmeeting field trips.

The Program

Meeting Theme

Land-Sea-Atmosphere Interactions in the North Atlantic Region Between 14,000 and 2,000 Years Ago

Keynote Speech

Land-Sea-Atmosphere Interactions in the North Atlantic Region Between 14,000 and 2,000 Years Ago--A Comparison Between America and Europe: W.A. Watts

Session I: Physical Parameters

The Record of Sea-Level Changes: A.J. Bloom
Interplay of the Polar-Water Front and the Growth and Decline of Ice Sheets in Europe: B.G. Anderson
Interaction of Marine-Based Glaciers with Sea Levels, Sea-Surface Temperatures, and Ocean Salinity: T.J. Hughes
Ice Core Records of Paleoclimate: R.M. Koerner
High Resolution Paleoclimate Change Record in the North Atlantic Ocean: L.D. Keigwin
The Continental-Maritime Climatic Interface: R.A. Bryson

Climate Changes as a Function of Changing Distribution of Land and Glaciers, Sea Ice, Sea Surface Temperatures, and Insolation: P.J. Bartlein and COHMAP Members

Session II: Physical Impacts

Allerod-Younger Dryas Oscillation--What was It and What was the Cause?: D. Peteet
The Allerod-Younger Dryas Sealevel of Northwestern Europe: J.M. Gray
Coastal Modification Relative to Sea-Level Rise: J. Kelley

Session III: Biological Impacts

Late Glacial Climatic Oscillations in Europe--The Beetle Record: G.R. Coope
Late Glacial Environmental Oscillation in Atlantic Canada: R.J. Mott
Mammals in the Champlain Sea: C.R. Harrington
Ecosystem Changes in the Gulf of Maine During the Late Glacial and Holocene Resulting from Environmental Variations: D.E. Campbell
Rate of Vegetational Change in the Coastal Zone: E.C. Grimm

Session IV: Human Impact

Human Coastal Adaptation in the Late Glacial and Early Holocene of Europe: L. Larrson
Paleo-Indian Reaction to Late Glacial Rapid Changes in Coastal Ice-Marginal Environments: R. Bonnicksen
Human Adaptation in Coastal Labrador During the Mid-Holocene: W.W. Fitzhugh
Human Adaptation to the Coastal Zone of Maine and the Maritime Provinces During the Mid-Holocene: D. Sanger

SUMMARY PAPER

The Use of Multidisciplinary Quaternary Data Sets in Testing Predictive Environmental Models Through the Model's Ability to Simulate Past Environment: D. Rind

FIELD TRIPS

Premeeting Trips

Trip B.1 Glacial Lake Hitchcock, Postglacial Uplift and Post-Lake Archaeology. Leaders: Carl Kotteff, Janet Stone, Gail Ashley, Fred Larsen, Jon Boothroyd, Dena Dincauze

Trip B.2: Lake Albany and Its Successors in the Hudson Valley. Leaders: Robert Dineen, Eric Hansen, David DeSimone; Cameo appearances by Robert Funk, David Steadmen, Margie Farber, Roger Case

Trip B.3 Glacial History, Paleoecology, and Archaeology of the Cape Cod Area. Leaders: Bob Stewart, W. Patterson, Peter Dunwiddie, Robert Oldale, Fred Dunford

Trip B.4 Glacial and Deglacial Deposits of the Amherst Area, Connecticut River Valley. Leader: Julie Brigham-Greene

Postmeeting Trips

Trip A.1 Late Quaternary Glacial and Vegetational History of the White Mountains, New Hampshire. Leaders: P. Thompson Davis, Woodrow B. Thompson, Richard P. Goldthwait, Brian K. Fowler, Robert F. Gerath, Robert Newton, Laura Conkey, Kenneth Kimball, Ray Spear

Trip A.2 Sea-Level Changes in the Late Quaternary Stratigraphic Record of Coastal Maine. Leaders: Dan Belknap, Joe Kelly, David Sanger, Dough Kellog, Mike Retelle, Geoff Smith, Woodrow Thompson

Trip A.3 Glacial Lake Hitchcock in Southeast and East-Central Vermont and Southwest New Hampshire. Leaders: Frederick D. Larsen and Carl Kotteff

For further details about meeting or field trips contact:
AMQUA Local Program Committee
Geology and Geography
University of Massachusetts
Amherst, MA 01003-0026
(413) 545-2286

ABSTRACTS DEADLINE FOR THE 1988 ANNUAL MEETING

The deadline for receipt of abstracts at GSA headquarters for the Annual Meeting in Denver is June 10, 1988. Abstract forms are available from Abstracts Secretary, Geological Society of America, P.O. Box 9140, Boulder, CO 80301. Volunteered abstracts should be mailed to the same address in time to arrive on or before June 10th. Members intending to submit abstracts should obtain the 1988 forms from GSA.

1988 GSA ANNUAL MEETING

Events of particular interest to QG&G Members

Division-Sponsored Symposia

Modern and Ancient Glaciomarine Deposits—Polar versus Temperate Environments. Conveners: Gail M. Ashley and John B. Anderson

Last Interglaciation/Glaciation Transition (122-64 ka) in North America. Conveners: Peter C. Clark and Peter D. Lea

Division-Sponsored Short Courses

Glacial Facies Models: 2 day premeeting short course sponsored by GSA and SEPM. Lecturers: John Shaw, Gail Ashley, Ross Powell, John Anderson, and Bruce Molnia

Field trips: Pre-GSA meeting

Geology and Hydrogeology of the Nebraska Sandhills.

Leaders: James B. Swinehart, Thomas C. Winter, and James Goeke

Archaeological Geology in the Colorado Piedmont and High Plains of Southeastern Wyoming. Leaders: Vance T. Holliday, Adrienne B. Anderson, and George C. Frison

Geomorphology and Quaternary geology of Canyonlands, Utah. Leaders: Deborah Harden and Steven Colman

In the Footsteps of G.K. Gilbert—Lake Bonneville and Neotectonics of the Eastern Basin and Range Province

Leaders: Michael Machette, Don Currey, and a host of coleaders

Field trips: Post-GSA meeting

Glacial-marine sedimentation, Mineral Fork Formation (Proterozoic III), Utah. Leader: Nicholas Christie-Blick

GLACIOTECTONICS

Advance Notification of Field Meeting, Workshop, and Call for Papers: East Anglia, October 1988

The Work Group on Glaciotectonics (WGGT) of the INQUA Commission on the Genesis and Lithology of Glacial Deposits will hold a 5-day meeting based in Norfolk, United Kingdom, October 2-6, 1988.

The meeting will bring together glaciotectonic researchers from all over the world to examine the classic Norfolk coastal sites and present results of their own glaciotectonic research in paper sessions.

Agreement has been reached with AA Balkema to publish papers of acceptable standard which will be presented at this meeting along with those presented at the meeting in October 1986, and some presented in Ottawa in August 1987. This hardbound volume of collected papers, edited by Dr. D. Croot, will be published in advance of the UK field meeting.

Abstracts of papers for the meeting and publication in the volume must have been received before **January 31, 1988**. Abstracts of papers received after this date will be acceptable for the meeting, but they will **not** be eligible for inclusion in the proceedings volume. Further details on the preparation of papers will be sent out to those submitting abstracts as soon as they are received by the editor, at the address below.

Further details of the meeting generally will be circulated shortly.

Dr. D.G. Croot
Department of Geographical Sciences
Plymouth Polytechnic
Drake Circus
PLYMOUTH PL4 8AA
Devon, United Kingdom

Slope-Hazard Investigation Trips: A Celebration

The 10th annual Slope-Hazard Investigation Trip will be led by Catherine Hickson of the Geological Survey of Canada in the Mount St. Helens area of Washington State. This trip will focus on pyroclastic flows and surges, debris torrents and slides which resulted from the 1980 volcanic eruption and its creation of an active and unique sedimentary environment. The trip is tentatively planned for the weekend of September 17 and 18, 1988; details will be provided in an announcement to be mailed soon. In anticipation of the 10th annual trip, a retrospective view of slope-hazard activity is in order.

The first slope-hazards trip was organized in 1979. The continuing quality and informal tone of the trips have been sustained by energetic leadership and attendance by **enthusiasts**. Landslides and snow avalanches are viewed from the varying perspectives of geologists, engineers, geographers, foresters, and planners. Field discussions generate insight into natural processes and complex human and political issues.

The first, third, and fourth trips were held in the dry-land interior of British Columbia and investigated slides and flows in till, glaciolacustrine silts, and complex sequences of glacial drift as well as weathered volcanic rocks. The second trip, and part of the seventh, studied soil failures triggered by natural processes and intensive logging activity in the wet climate of northern Vancouver Island and parts of the southern Coast Range. Debris torrents assumed tragic importance in British Columbia in 1981. The fifth through eighth trips observed the effects of debris torrents and floods and related protective works. The fifth, sixth, ninth, and tenth trips studied snow avalanches as well as very large landslides and rock avalanches in the Hope, Pemberton-Meager Creek, Chilliwack, and Rocky Mountain areas.

The First Cordilleran Slope Hazards Workshop was organized by Prof. Michael Roberts of Simon Fraser University. At this 1-day program of informal papers and energetic subsequent discussions, the group gained its identity, confirmed its acronym, and began the tradition of shanghaiing the next year's trip leader. Members of that workshop must have been especially persuasive because Don Howes led the second slope-hazards trip only 3 months later.

Atmospheric conditions have never restricted attendance. The 1985 trip was held in weather that one participant said "forced him to redefine the word rain." The 1984 event had benign weather while several major landslide and flood events were being triggered by an approaching frontal system in the Coast Ranges about 100 km to the west. Some of the effects of this storm event were viewed in the 1986 field trip. The group invariably recovers from the cold with an ample evening meal, cash bar, and subsequent discussions. Participants may also offer entertaining diversions for family members and open-minded hotel personnel.

A chronology of the Slope-Hazard Investigation Trips and our leadership roster have been compiled to honor the concept and its supporters. We look forward to our second decade. Submitted by Bob Gerath
Thurber Consultants Ltd.
200 - 1445 West Georgia St.
Vancouver, BC CANADA V6E 2T3

HISTORY OF GEOMORPHOLOGY
by John D. Vitek

At the 1988 Binghamton Symposium to be held at Brock University in St. Catharines, Ontario, Canada, I will present a paper on the history of geomorphology over the last 25 years. In addition to a brief statement of trends and directions, I wish to present a visual display via video-tape of the people who have made our science what it is today.

To accomplish this task, I need your help. While I have slides and photographs of some people, I lack many individuals that must be included in this visual display. I am seeking slides of people, either serious or humorous, that I can blend into a history of our science.

Please send me items that you believe I should include. I will have duplicates made and return the original. Use your imagination. If you have any questions, please contact me.

I will greatly appreciate your help. I will return items as rapidly as I can get duplicates made by the university photo service. Also, I will make the final product available at cost to those of you who want to have a copy in your personal library. Contact me at:

Oklahoma State University Graduate College
Stillwater, OK 74078
(405) 624-6368 or

Oklahoma State University
School of Geology
Stillwater, OK 74078
(405) 624-6358 or

1019 W. Osage Dr. (my home)
Stillwater, OK 74075
(405) 624-0892

IN MEMORIAM

Charles B. Alexander
(date unknown)

George H. Crowl
June 10, 1987

Fritiof M. Fryxell
December 19, 1986

Arthur D. Howard
November 22, 1986

Walter S. Newman
May 18, 1986

1987 CONTRIBUTIONS TO THE J. HOOVER MACKIN FUND

Dr. and Mrs. Dwight L. Schmidt \$100

We thank the Schmidts for their continued support of this very beneficial program. Contributions to the J. Hoover Mackin Fund may be made in any amount and sent to the Executive Director, The Geological Society of American, P.O. Box 9140, Boulder, CO 80301.



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WA 98661

BIOGRAPHIES OF THE CANDIDATES
QUATERNARY GEOLOGY AND GEOMORPHOLOGY DIVISION

- BRIGHAM-GRETTE, Julie, b Albion, MI, January 11, 1955; m 83; c 0. QUATERNARY GEOLOGY, SEA LEVEL HISTORY, GEOCHRONOLOGY. Educ: Albion College, BA, 1977; Univ Colorado, MS, 1980; Univ Colorado, Ph.D., 1985. Prof Exp: Norwegian Post-Doc Fellow, Univ Bergen, 84; Post-Doc Fellow, Univ Alberta and Geol Surv Canada, 85-87; ASST PROF, DEPT OF GEOLOGY AND GEOGRAPHY, UNIV MASS 87-. Mem: Geol Soc Am; AMQUA, CANQUA, Int Glaciological Soc, AGU, Arctic Int N Am. Res: Glacial geology and sea level history of Alaska, parts of Arctic Canada, North Sea; paleoclimatic evolution of the Arctic; applications of amino acid geochronology to stratigraphy and paleotemperature estimates. Mailing Add: Dept. Geology and Geography, Univ of Massachusetts, Amherst, MA 01003.
- COSTA, JOHN E, b Ithaca, NY, Aug 14, 47; m 73 c 2. GEOMORPHOLOGY. Educ: St. Univ New York, BS, 69; Johns Hopkins Univ., PhD, 73. Prof Exp: Geologist, Maryland Geol Surv, 70-73; Asst-Assoc prof, Univ Denver, 73-83; RESEARCH HYDROLOGIST, US GEOLOGICAL SURV, 83-. Concurrent pos: Hydrologist, US Geol Surv, 78-83; AGU Front Range Br Exec Comm, 81-83, Quat Geol & Geom Panel 83-85; Adjun. Prof, Colo Sch Mines, 85-86. Hon & Awards: Pub. Award, Assoc Engr Geol, 82. Mem: Geol Soc Am (fel), AGU, Sigma Xi, BGRG, Am Geom Fld Gp. Res: fluvial processes, flood hydrology and hydraulics, paleohydrology, sediment transport, erosion and sedimentation, geomorphology of extreme events, surficial geology. Mailing Add: Cascades Volcano Observ, US Geol Surv, 5400 MacArthur Blvd, Vancouver, WA 98661
- FULTON, ROBERT JOHN, b. Birtle, Man, May 27, 37; m 63; c 3. QUATERNARY GEOLOGY. Educ: Univ. Man., BSc Eng, 59; Northwestern Univ. PhD (geol), 63. Prof Exp: Geologist, 63-67, RESEARCH SCIENTIST 67- and HEAD WESTERN REGION SECTION GEOL. SURV. CANADA, 73-. Mem: Geol. Soc. Am; Geol. Asn. Can.; CANQUA; AMQUA. Res: Quaternary stratigraphy; mapping of Quaternary deposits; delta and lake sedimentation. Mailing Add: Geological Survey of Canada, 601 Booth St., Ottawa, Ontario, Canada, K1A 0E8.
- FYLES, JOHN G., b Vancouver, B.C. February 27, 23; m 50; c 3. QUATERNARY GEOLOGY, GEOMORPHOLOGY. Educ: Univ Brit Columbia, BA Sc, 46; MA Sc, 50; Ohio State Uni, Ph.D., (geol), 56. Prof. Exp: Geologist, Geol Surv Canada 50-67; Div. Chief, Geol Surv Canada 67-73; Envir-Eng Coord, Geol Surv Canada 73-77; Dir. General Northern Pipelines 77-79; Chief Geologist and Dep. Dir. General, Geol Surv Canada 79-87; Emeritus Research Scientist, Geol Surv Canada 1988--; Asst. Dir. Envir-social Program Northern Pipelines 74-75; Chief of Staff Mackenzie Valley Pipeline Inquiry 75-77. Mem: Geol Soc Am, Geol Assoc Canada (Fel), Royal Soc Canada (Fel). Res: Glacial, Quaternary, Late Tertiary stratigraphy, geomorphology, geochronology; environmental geology, permafrost; Canadian Arctic, Vancouver Island. Mailing Add: Geological Survey of Canada, 601 Booth St., Ottawa, Ont., Canada, K1A0E8.
- HOLLIDAY, VANCE T., b San Antonio, TX, September 23, 50; m 86; SOIL GEOMORPHOLOGY, GEOARCHAEOLOGY, QUATERNARY GEOLOGY. Educ: Univ Tex, BA, 72; Tex Tech Univ, MA, 77; Univ Colo, PhD (geol), 82. Prof exp: Field Archaeol, 71-74, Tex Arch Survey; from Field Asst to Field Director, 74-88, Lubbock Lake Proj, Tex Tech Univ; Visiting Asst Prof, Dept Geog, Univ Wisc, Madison, 83-84; Asst Prof, Depts Geog & Anthro, Tex A&M Univ, 84-86; ASST PROF, DEPT GEOGRAPHY, UNIV WISCONSIN, MADISON, 1986-; consulting geoarchaeologist, 1979-. Mem: Geol Soc Am; Assoc Am Geog; Soc Am Archaeol; Am Quat Assoc; Soil Sci Soc Am; Am Assoc Adv Sci. Res: soil geomorphology; geoarchaeology; Quaternary stratigraphy, soils, paleoclimates, Southern High Plains; Paleo-indian archaeology, south central USA.
- MADOLE, RICHARD F., b Kirtland, OH, July 26, 36; m 58; c 3. QUATERNARY GEOLOGY, GEOMORPHOLOGY. Educ: Case-Western Reserve Univ, AB 58; Ohio State Univ MS, 60, PhD, 63. Prof Exp: Expl geol, Standard Oil of TX, 63-65; Photogeol & tectonic geomorph, Texas Instru, 65-67; Chrmn, Dept Earth Sci, Adrian Coll, 67-71; NSF Post-doct fel, Univ of Colo, 71-72; Res geol Univ of Colo, 72-74; GEOLOGIST, BR OF GEOLOGIC RISK ASSESSMENT, US GEOL SURV, DENVER, COLO, 74-. Hon & Awards: Scholar,

- Western Reserve Univ 54-58; Fel, Inst of Polar Studies, Ohio St Univ, 61-62; Outstanding teach award, Adrian Coll, 69; NSF faculty fellowship 71-72. Mem: Geol Soc Am(fel), AMQUA, AIPG. Res: Stratigraphic studies and Quaternary dating techniques applied to determining landslide and seismic recurrence intervals in the western U.S. Mailing Add: US Geol Surv, M.S. 966, Box 25046, Denver, CO 80225.
- MUHS, DANIEL R., b Des Moines, IA, January 14, 1950; m 79; c 1. QUATERNARY GEOLOGY, GEOCHRONOLOGY, AND SOILS. Educ: Univ. Illinois, BA, 72, MS, 75; Univ. Colorado, Ph.D., 80. Prof Exp: Soil Scientist, Soil Cons. Ser. 75-76; Asst. Prof. Univ. Wisc.-Madison 80-85, Assoc. Prof., 85; USGS Post-Doc, 83-84; RESEARCH PHYSICAL SCIENTIST, US GEOL SURV, 85-. Mem: Geol. Soc. Am. (Fel), AMQUA, Int. Soc. Soil Sci. Res: U-series and U-trend dating of Quat. deposits, aminostratigraphy, sea level chronology of N. American east and west coasts, soil genesis in California, Colorado, and Caribbean, paleoclimatology. Mailing Add: U.S. Geological Survey, MS 424, Box 25046, Federal Center, Denver, CO 80225.
- PIERCE, KENNETH L, b Wash DC Oct 21, 37; m 49; c 3. QUATERNARY GEOLOGY, GEOMORPHOLOGY, NEOTECTONICS. Educ: Stanford, BS 59; Yale, PhD (geol) 1964. Prof Exp: Pennsylvania Geol Survey 61-62, RESEARCH GEOLOGIST, US GEOL SURVEY, 63-present. Concurrent Pos: Am Comm on Strat Nomenclature 75-78, Quat Geol & Geom Pannel (GSA) 74-76, 78-80; NRC Pannel on Active Tectonism 83-84; Program Chm. 1986 AMQUA meeting; DNAG Neotectonic Map Committee 85-present. Mem: Geol Soc Amer, Am Quat Assoc, Am Geophys Union, Colo Sci Soc, Friends of Pleist. Hon. and Awards: Best Paper, Colo Sci Soc 74, 76; Kirk Bryan Award (GSA) 82; Bradley lecture series, USGS, 84; Meritorious Service Dept Interior 86. Res: Quaternary stratigraphy and dating techniques, Pleistocene glacial dynamics and processes, climates and geomorphic processes (particularly colluvial activity on scarps), neotectonics of northern Rocky Mountains, Quaternary geology of archeology sites. Mailing add: US Geol Survey, MS 913, Box 25046 Federal Center, Denver, CO, 80225.
- PRESTEGAARD, KAREN L., b Readstown, WI, November 3, 54; GEOMORPHOLOGY, FLUVIAL HYDROLOGY. Educ: Univ. of Wisconsin, BA, 75; Univ. of Calif., Berkeley, MS 79; Univ. of California, Ph.D., 82. Prof Exp: Asst Prof Franklin and Marshall College, 81-86, Univ. of Illinois-Chicago 86-. Mem: Geol Soc Am; AGU; AGFG; BGRG. Res.: Fluvial geomorphology, sediment transport in gravel bedded streams, streamflow and sediment production in watersheds, volcanic sedimentation and erosion. Mailing add: Dept. of Geological Sciences, University of Illinois, P.O. Box 4348, Chicago, IL. 60680
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