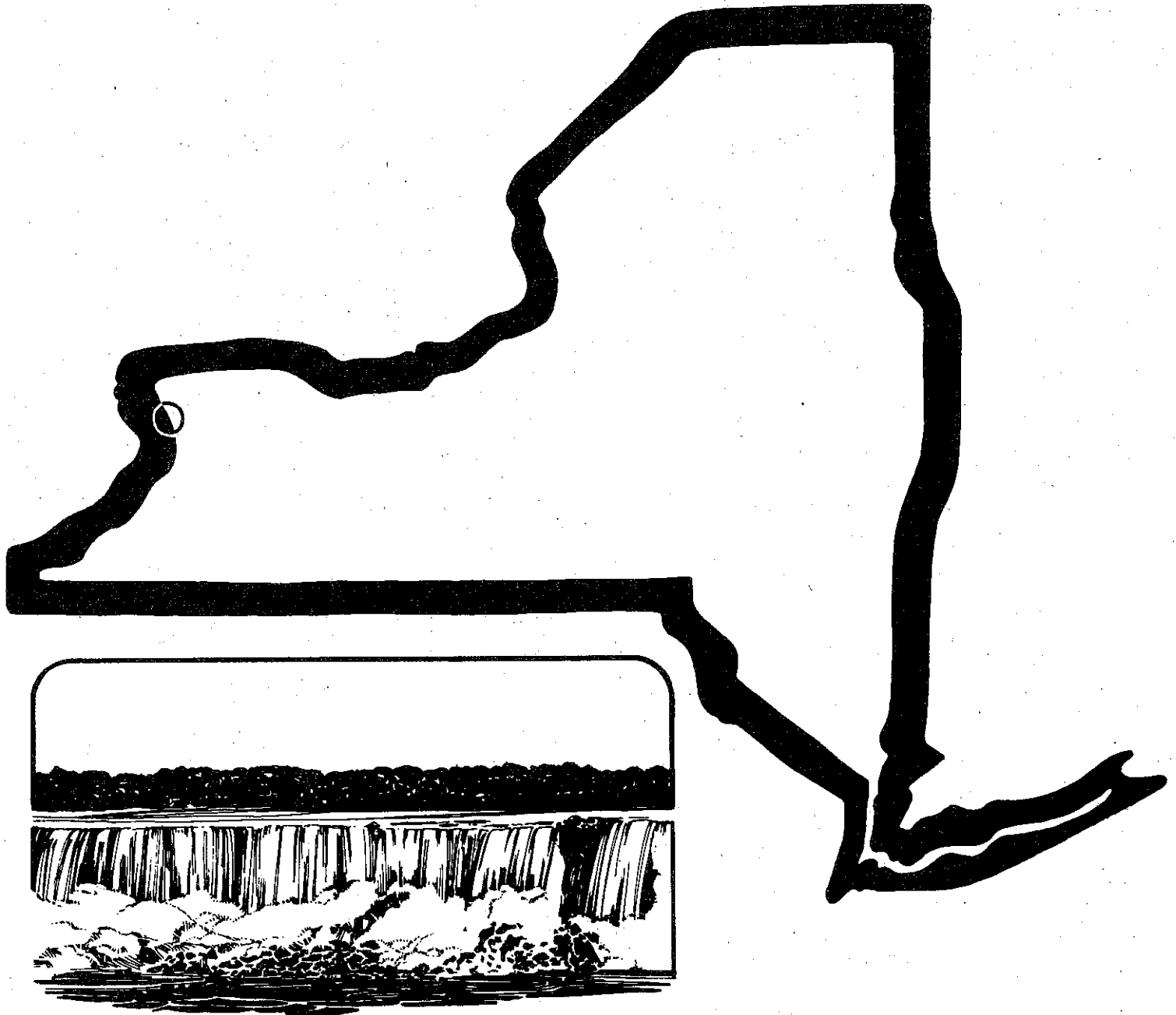


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NEW YORK GLACIOGRAM



DEPARTMENT OF GEOLOGICAL SCIENCES

State University of New York at Buffalo

Buffalo, New York 14226

EDITORIAL POLICY

The GLACIOGRAM is intended to be a collection of informal notes concentrated on Quaternary work relating to New York either directly or indirectly. It is not a formal publication and is not circulated to libraries nor to individuals not engaged in Quaternary research. The information included is often of a preliminary and tentative nature and as such should not be quoted and certainly not without communication with appropriate authors. One of the charter contributors (Muller, v. 6(1)) has suggested that reference to information in the GLACIOGRAM be identified merely as informal communication; I agree with this suggestion.

Parker E. Calkin

Tom Berg - PENNSYLVANIA GEOLOGICAL SURVEY, Harrisburg

I'm reporting for several geologists in the Geologic Mapping Division of the Survey. Our mapping activities in Pennsylvania's Quaternary are on the increase in spite of continued budget limitations, strong emphasis on coal mapping, and special events planned for the Survey's 1986 sesquicentennial.

Bill Sevon completed field work for the glacial mapping project in Potter, Tioga, and Bradford Counties. This is an accelerated mapping job being done in cooperation with the Environmental Geology Division (PGS), the Water Resources Division (USGS), and the Susquehanna River Basin Commission. The map will be used by the groundwater investigators to delineate and evaluate buried valley aquifers in the 3 counties. Bill's mapping goes beyond their needs and shows the distribution of till (>2m), areas of bedrock and thin till (<2m) undifferentiated, ice-contact stratified drift, alluvium/outwash undifferentiated, alluvial fans, peat/swamp deposits undifferentiated, colluvium (outside of the terminal moraine), areas of bedrock lacking surficial deposits, and landslides. Bill has much aerial photo interpretation to do, but he anticipates completing the job by July of 1986. This is the first phase of the North-central/Northeastern PA Late Wisconsinan Mapping Project.

Bill Sevon led the 4th Annual Field Trip of the Harrisburg Area Geological Society in April of this year. The 55-page guidebook was titled, "Pennsylvania's Polygenetic Landscape." Bill presented a poster paper at Orlando GSA titled "Pennsylvania Landscape Development."

With the assistance of 3 geologist interns, Tom Berg is preparing a 1:50,000 geologic base map of Warren Co. for the Water Resources Division (USGS). In addition to bedrock formations, the map will show outwash/alluvium undifferentiated and kames. This project involves only reconnaissance field work, but some modification of Shepps' original glacial mapping is being done. The work is being done in response to growing concerns about potential aquifer damage resulting from oil and gas drilling and production. The map will be submitted to the USGS in 1986.

Jon Inners has begun field work in the Eastern Middle Anthracite Field. Besides working on the bedrock and anthracite, Jon is mapping all Quaternary units and the extensive works of man which are typical of the anthracite fields. He is concentrating on the Conyngham and Hazleton quadrangles, and has already extended the Illinoian border several miles south of the position shown on the 1980 state map.

Dave MacLachlan has begun detailed mapping in the Freeburg quadrangle 35 miles north of Harrisburg. In addition to showing the bedrock units, he will be mapping the distribution of Illinoian till, various colluvial deposits, terraces, alluvium, and Wisconsinan loess.

John Way has started mapping the Lewisburg quadrangle, just north of Freeburg. John will be mapping the same units as in Freeburg. Once Freeburg, Lewisburg, and the two adjacent eastern quadrangles are completed, the geologic mapping of the Susquehanna River corridor from Williamsport to Harrisburg will be finished.

Vic Skema has completed a 1:50,000 geologic base map of Washington Co. for Water Resources Division (USGS). The main emphasis is the coal formations, but the map also shows distribution of the Carmichaels (Illinoian?) gravels and Holocene alluvium.

Ray Bryant - Department of Agronomy, Cornell University.

Jeffrey Kern (M.S. student) has completed fieldwork on a study of soils formed on freshwater lacustrine and Champlain Sea sediments in the St. Lawrence and Champlain Lowlands of N.Y. Jeff's study involves a comparison of the morphology, chemistry and mineralogy of the parent materials. Although varving was found in some of the lacustrine but none of the marine soils, it cannot be considered a distinguishing characteristic, because the literature reports varve-like structures in marine soils. It may, however, be possible to differentiate between marine and lacustrine soils on the basis of their chemistry in the absence of fossils and/or well correlated shoreline features. Results to date suggest that the distribution of percent exchangeable sodium may be indicative of the depositional environment. Total extractable boron is also being examined as a paleosalinity indicator. If the chemistry of the sediment could differentiate marine and lacustrine origin then questions such as the maximum extent of the Champlain Sea and differential isostatic adjustment might be addressed. Mineralogical differences found to date cannot be attributed to depositional environments, but rather they appear related to differences in sediment source areas. The major clay mineral components in all the soils are illite and vermiculite with varying amounts of kaolinite and chlorite. Clay size amphiboles, feldspars and quartz are also common. The occurrence of true smectite and high charge smectite vs interlayer vermiculite and low charge vermiculite is also being examined in these soils.

Donald Cadwell - New York State Geological Survey

There are several things I would like to share with all of the readers of the GLACIOGRAM. First, the progress of the Finger Lakes Sheet. Last summer Gordon Connally and Dick Young agreed to the impossible task of field checking selected areas in 100 quadrangles on the Finger Lakes Sheet. Ernie Muller evaluated all of the suggestions and the final mylar map was prepared. This final map was sent to companies who utilize the SCI-TEX computer generated technique, to determine if they can complete this type of detailed geologic map. I anticipate that the map will be "at the printers" shortly after the first of the year. Hopefully it will be ready for distribution during the spring.

The field mapping on the Hudson-Mohawk Sheet is basically complete. I am hoping that the preliminary compilation of this data onto the 1:250,000 scale sheet will be completed during this winter and spring. In the meantime, we are still looking for the necessary money for publication.

New York State Museum Bulletin 455 (The Wisconsinan Stage of the First Geological District, eastern New York) is at the publishing house. It will be published as soon as all necessary steps are completed. We have been waiting since the last Northeast Section Meeting at Kiameska Lake.....

Finally, I would like to encourage anyone interested in field mapping in the Adirondacks or the Lower Hudson regions to contact me at 518-473-8056. We anticipate some money will be available for field mapping next summer.

Parker E. Calkin - Geology, SUNY at Buffalo

I'm rushing around these days getting ready to leave Buffalo for a sabbatical semester at Scott Polar Institute in Cambridge, England (1 Jan 1986 - 28 May 1986). Two major projects on New York State Quaternary geology have been initiated from UB this past year as follows.

David Froehlich has started work on a Ph.D. study of "The glacial geology of the Black River valley and the adjacent western slope of the Adirondack Mountains". Dave is focusing on the Black River valley south of Carthage and the western slope of the Adirondacks eastward into the Big Moose Quadrangle. His principal objective is to document the style and timing of deglaciation and the formation and drainage of proglacial lakes; however Quaternary Geology maps of at least two full 15 minute quadrangles should also be a product of his work.

Eric Hoose has begun mapping and reconnaissance studies of the southwestern portion of the area described above as part of an M.A. study.

Michael Jensen has started a reexamination of the known locations of the abandoned late Wisconsin strands in Chautauqua County and is searching for yet unknown features below the Whittlesey level. He is also collecting well logs that may give a clue to possible buried wave-cut terraces such as those described by Stan Totten in northeastern Ohio. This is part of his M.A. thesis work on "The Late Wisconsin Strands in Chautauqua County, New York".

As for my own studies, I'm taking a renewed look at the stratigraphy along Cattaraugus Creek. I am hoping that organic lake silts collected last week with Norton Miller (at Bob LaFleur's Lord Hill site - Friends'80) may yield evidence of pre-Kent (Plum Point) interstadial climate.

Note that there are several Quaternary meetings that we should be aware of including two mentioned by others in this issue. The latter include the Ottawa INQUA meeting in 1987 (see Morgan), and the 1986 AMQUA meeting in Champaign-Urbana (see Wendland).

The Northeastern Friends of the Pleistocene will meet in northern Maine during late May and review the dissertation research areas of Tom Lowell (SUNY Buffalo) and Steve Kite (U. West Virginia). They've planned a thought-provoking trip through an area of late Wisconsin ice flow reversal. Their first notice is reproduced below:

20 Sept. 1985

Dear Friend,

Please consider this the first announcement for the 49th annual
Friends of the Pleistocene Meeting

Dates: May 23 - 25, 1986

Place: Fort Kent, Maine - University accommodations

Subject: Late-glacial ice activity of northernmost
New England and adjacent Canada

Details concerning registration and transportation will be forwarded to you in the middle of January. We hope you can join us so that the black flies will be well fed. Additional information can be obtained from: S. Kite, Dept. of Geology & Geography

University of West Virginia

Morgantown, WV 26506

Tel. 304-293-5603

Dick Goldthwait has organized and is leading (with others including Garry McKenzie and Dave Mickelson), an INQUA and OSU Inst. of Polar Studies-sponsored trip through the "classic" Glacier Bay of southeastern Alaska, between 7 and 14 June, 1986. As their trip title "Observed Processes of Glacial Deposition" implies, this is an exciting area not only to observe glacial deposition occurring, but participants will accompany a man who has recorded their occurrence over several decades. Inquiries should be sent immediately to: Dr. Charles L. Matsch, Dept. Geology, U. of Minnesota at Duluth, Duluth, Minnesota 55812 or to Dick Goldthwait at address in back of this issue.

Donald R. Coates - Geological Sciences - SUNY, Binghamton

I am including abstracts from three pieces of graduate work, two MAs and one PhD. My own work continues to be in the realm of diagnosing glacial conditions by the emplacement of observation and monitoring wells at a number of different sites throughout upstate New York. Such projects are specifically aimed towards a greater hydrogeological understanding of the substrate conditions, but the byproducts from such investigations always have important glacial overtones.

I am including elsewhere in this newsletter abstracts from three of my glacial graduate students during the past year.....David Ozsvath, Ph.D., Matt Gubitosa, M.A., and David Terry, M.A.

There are several other students currently doing glacially related M.A. theses. They include:

Doug Chichester on a comparison of terrains of glacial and non glacial area.

Tim Pagano on comparison of different style of glacial deposits in north vs south draining valleys.

Lu Moose on glacial geomorphology of the Tioughnioga Valley.

John Van Wagenen on the hydrogeology and substrate conditions of upland topography in the Vestal, NY area.

My new book GEOLOGY AND SOCIETY has just been published by Chapman and Hall Ltd, London. It contains some glacial items.

GLACIAL GEOLOGY OF THE HANCOCK AREA, WESTERN CATSKILLS, NEW YORK
by Matthew Gubitosa, an M.A. Thesis at SUNY -Binghamton (1984) 102 pages

ABSTRACT

This study comprised an analysis of glacial sediments and erosional features of the western Catskill Mountains in New York State. The study area includes parts of six 7.5-minute quadrangles: Hancock, Fishs Eddy, Horton, Lake Como, Long Eddy, and Callicoon.

Glacial erosion of the study area is lower in magnitude than that of areas to the north such as the Finger Lakes region. The major valleys of the East Branch, West Branch, and Delaware River appear to have been enlarged into trough-like forms. However the uplands are characterized by only a number of notches and cols. The restricted nature of glacial erosion is attributable to two factors: (1) disruption of ice flow by rugged topography; and (2) the typically limited ability of a temperate ice sheet to incorporate debris.

Glacial sediments of the study area are the products of only one glacial episode, and probably range in age from 23,000 to 16,000 yr B.P. Their nature and distribution are controlled largely by topography. The uplands are covered by a veneer of till (0 to 2 m thick) derived from the thin basal debris layer of a temperate ice sheet. Thicker till accumulations occur on the stoss and lee sides of some bedrock ridges transverse to the former ice flow direction. These thicker accumulations resulted from compressional folding of the basal debris layer, associated with localized 'sub-polar' ice sheet behavior induced by the bedrock ridges. The overall scarcity of upland glacial sediments, however, provides little evidence for the mode of deglaciation. Neither ice-marginal positions nor stagnation zones can be inferred from depositional landforms.

The major valleys contain up to 70 m of outwash and alluvium, and kame terraces occur along the north walls of some reaches. The emphasis and bulk of this study was on detailed sedimentologic analysis of exposures in kame terraces. These exposures reveal lateral accretion and channel fill sediments of high energy braided rivers that exhibit ice-contact deformation, sediment gravity flow diamictos, and small glaciolacustrine deltas. These facies associations suggest that large masses of ice stagnated in parts of the major valleys during deglaciation. However the limited number and extent of exposures precluded identification of stagnation zones or morphosequences. In general, such use of detailed facies analysis is an essential tool for reconstructing Pleistocene events. However this method has been traditionally underutilized during studies in New York State.

GLACIAL GEOMORPHOLOGY AND LATE WISCONSINAN DEGLACIATION OF THE WESTERN CATSKILL MOUNTAINS, NEW YORK . by David Ozsvath, A Ph.D. Dissertation at SUNY-BINGHAMTON, (1985) 181 pages

ABSTRACT

This study of glacial geomorphology in the western Catskill Mountains provides new insights into the development of a model for the style of glaciation in rugged terrains. Topographic aspect, drainage orientations, and local relief are dominant factors in determining landscape modifications by Pleistocene ice sheets.

Erosional landforms indicate that the western Catskill region was less affected by glacial erosion than were other sections of the glaciated Appalachian Plateau. This may be due in part to fewer glacial advances across the study area, but the orientation of major topographic features relative to ice flow was probably more important. High local relief and obstructing topography disrupted ice flow and inhibited large-scale alterations of the preglacial landscape.

A major contribution of this work is to demonstrate the relationship between topographic conditions and the style of glacial deposition. The rugged terrain provided a sufficient threshold for basal ice turbulence to allow for the removal and reincorporation of earlier drift. Uplands are blanketed with lodgment till derived from the basal debris layer of a warm-based ice sheet. Major valleys aligned roughly parallel to ice flow were the main pathways for meltwater drainage as is evidenced by the abundance of ice-contact glaciofluvial deposits in these settings. Most tributary valleys contain a

diamicton facies that was resedimented from supraglacial and englacial debris during the disintegration of stagnant ice. Of particular importance are the various diamicton landforms within this valley facies which are shown to be the products of a dead ice environment rather than active ice deposition, as was postulated by previous workers.

Ice-marginal positions identified along upland divides demonstrate that deglaciation was topographically controlled. The thinning of ice over drainage divides caused progressive detachment and stagnation of ice-marginal zones. Therefore, the length of an ice stagnation zone is related to the local topographic conditions.

The results of this investigation allow for correlations of deglacial events in the study area with those in adjacent regions of the State. On the basis of these correlations it is inferred that the withdrawal of Late Wisconsinan ice from the western Catskill Mountains took place between 18,000 and 13,000 years B.P.

LATE WISCONSINAN PROGLACIAL AND ICE-MARGINAL SEDIMENTATION IN THE SUSQUEHANNA VALLEY NEAR WINDSOR, NEW YORK. an M.A. thesis at SUNY-Binghamton (1985) 120 pages by David Terry

ABSTRACT

Proglacial and ice-marginal sediments occupying an 18 km segment of the Susquehanna Valley between Windsor and Afton, New York are examined, and interpreted as products of a single ice sheet that retreated from this area during Late Wisconsinan time (10,000-23,000 yrs. B.P.). Glacial deposition

was controlled largely by the combined effects of temperate basal ice and rugged subglacial topography. Till deposits in the uplands average 18 m in thickness, and reflect deposition from the thin basal debris layer of a temperate ice sheet. Thick accumulations of stratified deposits (up to 85 m thick) in deeply incised valleys document the predominance of meltwater sedimentation during deglaciation.

Sedimentological analysis of exposures in four sand and gravel pits reveal a wide variety of depositional environments extant during deglaciation. Proglacial fluvial deposits are recorded by multistory sequences of coarse-grained alluvium, whose well-organized internal stratification suggests deposition in a low-sinuosity braided river environment. Ice-marginal fluvial sediments exhibit high-angle reverse faults, ice-contact depression deposits, and small sediment gravity flow diamictons. Exposures in a beaded esker complex reveal massive boulder gravel and pebble-gravel foresets, reflecting sedimentation near the mouth of a subglacial tunnel. High-constructive lobate deltas are represented by steeply-dipping fining-upward foreset sequences.

Meltwater sediments along the valley floor comprise parts of four morphosequences, suggesting that deglaciation occurred by stagnation zone retreat. Genetic classification of morphosequence components and identification of retreatal ice margin positions were accomplished by detailed sedimentological analysis of valley-floor deposits. Earlier clas-

sifications of these deposits that relied solely upon interpretation of landform morphology are refuted, emphasizing the importance of sedimentological analysis in reconstructing the deglaciation behavior of former ice sheets.

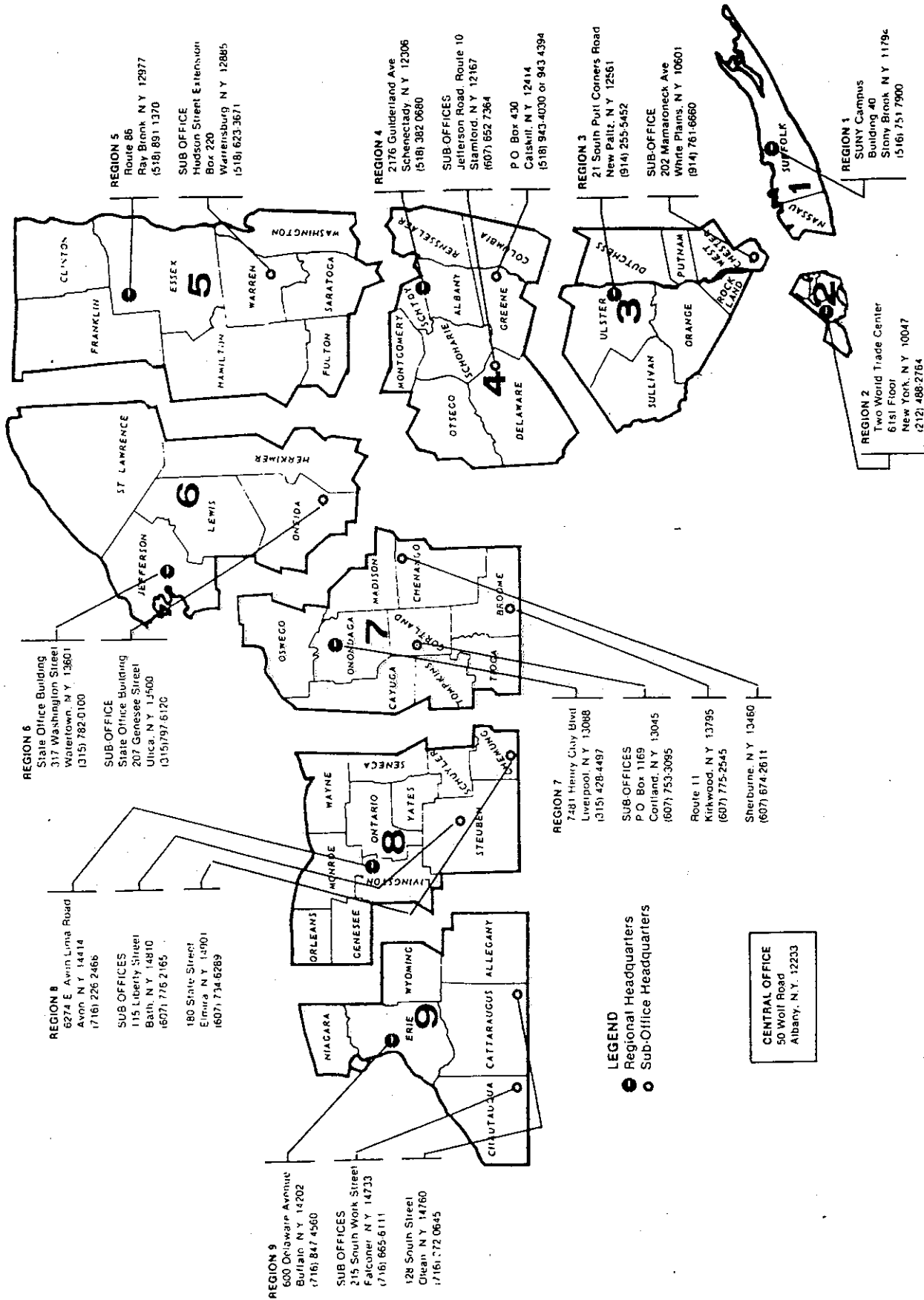
Kernan Davis - NYS Department of Environmental Conservation

The New York State Department of Environmental Conservation now employs about thirty (30) geologists. Twenty (20) years ago, I was the first (1st) and only one (1). Does that mean I used to do the work of thirty (30) (wo) men? I don't know. We're still all over worked and underpaid, or so we complain. And we're still groveling through glacial gravel, looking for leachate or for leads to adequate aquifers.

In the old days, seat-of-the-pants geology meant scooting across the scree, geologizing with almost no data: now it means shooting lots of data into a computer and watching the screen do the work your mind used to do.... but no more bruises.

Seriously, folks, we really appreciate your research into the Quaternary processes and deposits. We are especially glad to hear about it when your work happens to occur near any of our "sites" or "cases". And sometimes our work yields information which may be useful to Academia (for example, eighteen boreholes on a forty acre tract along the Mohawk River). As you gather information in any of your research projects, be sure to inquire at your regional office of our department. Maybe we will have something for you in our files. A map, showing our Regions and offices is provided for your use.

Department of Environmental Conservation Offices



Dave DeSimone - Geology, Williams College

I'd like to express our appreciation for the fine attendance at the recent NYSGA field trip co-led by myself and Bob LaFleur. Special thanks to Jay Fleisher.

This field season has been a slow one. Some of my time was spent getting used to a "real" job here at Williams. Most of my free time was devoted to completing restoration of my old Oldsmobile - a long term project finally coming to an end.

I have begun some recon mapping in the Williamstown area and adjacent VT and NY (Williamstown, Pownal, North Pownal quads) to determine and correlate later Lake Bascomb history to its final lower level of Lake Hoosic. This should link our knowledge of the lower Hoosic valley with the recent work by Paul Bierman in the upper Hoosic valley. Several ice margins, deltas, and a beautiful esker have been delineated.

Next field season I'll be back in the Adirondacks (hopefully with some support from the NYSGS!).

Robert H. Fakundiny - New York State Geological Survey

Field research at the West Valley, New York, Nuclear Service Center's low-level radioactive waste burial ground is now completed. A complete analysis of all the data will take years to accomplish. A paper describing the research goals and major findings is in press in Northeastern Environmental Science. A brief paper on the geology and migration pathways will be submitted in the near future to Environmental Geology.

A project of data review and analysis that remains to be accomplished is the consolidation of all the geomorphology studies to determine whether it will be possible to derive a long-term erosion rate figure for the Cattaraugus Creek basin.

Richard P. Goldthwait - Anna Maria, FL

Still trying to satisfy all glacial geologists and countries on a classification of glacial land forms. Tried it out in Iceland, Helsinki, Tallinn, and Manchester England this summer. Let me know if you are interested in a copy. Got out on some field reviews in NH and ME.

Paul Karrow - Earth Sciences, University of Waterloo

Six weeks in May and June were spent continuing the mapping of the Brampton area for the Ontario Geological Survey. Most of the area is within the Halton Till plain west of Toronto. Shallow lacustrine-till complexes are extensive; one pair of bar features was related to a level of Lake Peel (post-Port Huron and pre-Lake Iroquois).

Galley proofing of the GAC volume on the Great Lakes was carried out through the summer. This phase has now been completed and page proofs are expected for checking any day. We still hope to see this volume published before the end of 1985.

Two manuscripts on valley terraces and lake levels in the Huron basin were completed and submitted. A paper by Schwert, Anderson, Alan and Anne Morgan, and me on plants and insects in a Kitchener marl deposit appeared in Quaternary Research. The record of this site spans roughly 13000 to 7000 years ago.

In late July I went to Marathon on the north shore of Lake Superior to see Andy Bajc and tour his M.Sc. thesis area, after which I collected till samples east of Timmins and Sudbury to assess the distribution of carbonates on the Shield. Other brief excursions were made to Toronto, Innerkip, and the southern Georgian Bay and eastern Lake Huron areas to collect samples for fossil study.

Two more students completed their M.Sc. degrees this fall - Andis Zilans (Mackinaw Basin of Lake Huron) and Leslie Kerr-Lawson (molluscs and plants of the interglacial Don Fm.).

Altogether nine graduate degrees were awarded in the department in Quaternary studies this year. Meanwhile Don Pair is writing up his M.Sc. thesis on St. Lawrence valley water levels (suggesting that some revisions to Peter Clark's correlations are appropriate) and Peter Barnett has completed field work for his Ph.D. on L. Erie bluffs stratigraphy. John Easton has begun his M.Sc. program in which he plans to study bedrock topography using geophysics and drilling into valley fills in an area west of Toronto.

Campaigning by many groups and individuals, lately under the umbrella organization "Friends of the Valley" has been successful in stopping development of the Don Brickyard in Toronto. The Ontario government has stated its intention to expropriate the property as parkland. The shale quarry has already been largely filled in and means of preserving access for study of the north slope stratigraphic section are under study. It can never be the same as it was under active excavation over the past century, but at least it will not be buried by buildings. Meanwhile, exposures at Toronto's other classic section, Scarborough Bluffs, have deteriorated drastically as a result of shore protection over the past decade.

Myrna M. Killey - Illinois State Geological Survey

At the Illinois State Geological Survey, Myrna M. Killey is actively assisting Dr. Herbert D. Glass in reviewing and evaluating 30 years of data on the clay mineral composition of tills and related sediments in Illinois. In western Illinois they have refined the current state of knowledge on variability of clay mineral composition for at least two major till members. They also plan to publish Dr. Glass' methods of clay mineral analysis and principles of application developed as an aid to understanding and use of this data.

Barry B. Miller - Geology, Kent State University

During the Spring, 1986 semester, while on sabbatical leave, I plan on working on fossil molluscan assemblages recovered from sediments deposited in the southern Michigan basin during the last 11,000 years. The purpose of this study will be to determine if: 1) the molluscan assemblages have changed during this time interval; 2) these changes parallel those that have been observed in the Huron basin; and 3) these changes were synchronous in the both basins.

The study will be based on approximately 20 sites that extend from Kenosha, Wisconsin, to Michigan City, Indiana and will utilize materials collected near the turn of the century, that are now housed at the Illinois Geological Survey and the Chicago Academy of Science. New materials will be collected from of the old sites that are still open in the Chicago area. Subcrop samples will also be studied from vibracores collected along the shore of Lake Michigan in Indiana, by Tod Thompson, Indiana Univesity.

If the study proceeds as planned, we may be able to obtain a series of radiocarbon-dated molluscan assemblages that will permit recognition of the advent, nature and timing of faunal changes in the southern Michigan basin.

Alan Morgan - Earth Sciences, University of Waterloo

Some information from Waterloo for the Glaciogram. This can be broken into two categories; research, and the INQUA Congress. The first item covers current research which has been completed and is in various stages of progress toward publication. Most of these items should be of interest to some of your readers. The paper on the Nipissing site in Michigan which some of us visited on a sunny Sunday morning in July after the Michigan Friends meeting should be out this month (title and reference below).

Morgan, A., A.V. Morgan and S.A. Elias. 1985. Holocene insects and paleoecology of the Au Sable River, Michigan. Ecology (in press; December issue).

Another paper which should also be out at the same time is on comparisons of climate using evidence from insects and isotopic data.

Edwards, T.W.D., R.O. Aravena, P. Fritz and A.V. Morgan. 1985. Interpreting paleoclimate from ^{18}O and ^2H in plant cellulose: Comparison with evidence from fossil insects and relict permafrost in southwestern Ontario. C.J.E.S. (in press; December issue).

Papers on fossil insects which appeared this year include the long-awaited Gage Street manuscript, a full-glacial age site on the west coast, and the first of the papers on insect chitin. For interested readers these are;

Schwert, D.P., T.W. Anderson, A. Morgan, A.V. Morgan, and P.F. Karrow. 1985. Changes in Late Quaternary vegetation and insect communities in southwestern Ontario. Quat. Res. 23 (2), 205-226.

Miller, R.F., A.V. Morgan and S.R. Hicock. 1985. Pre-Vashon fossil Coleoptera of Fraser Age from the Fraser lowland, British Columbia. C.J.E.S. 22 (4), 498-505.

Miller, R.F., G.L. Orr, P. Fritz, R.G.H. Downer and A.V. Morgan. 1985. Stable carbon isotope ratios in Periplanata americana L., the American cockroach. C.J.Z. 63. p.584-589.

Other isotope papers on insect chitin, and the relationship of insects and climate (compared with the results of stable isotopes) have been submitted for publication and are at different stages of review. These are:

Miller, R.F., and A.V. Morgan. Carbon isotopes and chitin formation in the flour beetle, Tenebrio molitor L. (Coleoptera: Tenebrionidae). (submitted to C.J.Z.).

Miller, R.F. P. Fritz and A.V. Morgan. Stable carbon and hydrogen isotope ratios in beetle chitin: a paleoclimatic tool (submitted to C.J.E.S.).

Fritz, P., A.V. Morgan, U. Eicher, and J.H. McAndrews. Stable isotope, fossil Coleoptera and pollen stratigraphy in late Quaternary sediments from southern Ontario and New York State. (submitted to Paleo ³).

I am sure that Ed Evenson will be contacting you, but if he doesn't, a vertebrate paper on an Irvingtonian fauna from Pennsylvania has appeared with an author list which is only slightly shorter than the faunal list! I have taken the liberty of producing the reference below:

Guilday, J.E., J.F.P. Cotter, D. Cundall, E.B. Evenson, J.B. Gatewood, A.V. Morgan, A. Morgan, A.D. McCrady, D.M. Peteet, R. Stuckenrath and K. Vanderwal. Paleoeecology of an Early Pleistocene (Irvingtonian) Cenote: Preliminary report on the Hanover Quarry No. 1 Fissure, Adams County, Pennsylvania. p. 119 - 132. In Correlation of Quaternary Chronologies (ed. W.C. Mahaney) Geobooks, Norwich, England.

We completed a section on a supposed Sangamon age site from Manitoba, where the climatic interpretations made from the insects allow expanded detail over that provided by the pollen. This has been part of a multi-authored, multi-disciplinary paper outlined below.

Nielsen, E., A.V. Morgan, A. Morgan, R.J. Mott, N.W. Rutter, and C. Causse. Stratigraphy and Paleoeecology of glacial and non-glacial deposits of the Gillam area, Manitoba. (submitted to C.J.E.S.).

Two manuscripts of importance to Quaternary workers in southern Ontario and the adjacent United States concern Late Wisconsin environments and a new ?Sangamon site (appropriate with the near demise of the Don Valley site) in the Stratford region (west of Kitchener - Waterloo).

Pilny, J., A.V. Morgan and A. Morgan. Paleoclimatic implications of a Late Wisconsin insect assemblage from Rostock, Ontario. (submitted to C.J.E.S.). and,

Pilny, J., A.V. Morgan and A. Morgan. Paleoentomology and Paleoeecology of a possible Sangamon age site near Innerkip, Ontario. (submitted to Quat. Res.).

Finally, in what has been a busy year, we are continuing to publish selected papers on different beetle families to alert modern entomologists to some of the massive geographic shifts which have taken place in the recent geologic past. Some of these (since they comment on paleo-environments) might be of interest to readers of the Glaciogram. The latest submission is:

Morgan, A.V., A. Morgan, R.E. Nelson and J. Pilny. Current status of knowledge on the past and present distribution of the genus Blethisa (Coleoptera : Carabidae) in North America. (submitted to Coleopterists Bulletin).

The other (and perhaps more important topic) is to alert your readers to the status of the forthcoming INQUA Congress, which will be held in Ottawa, July 31 to August 9, 1987. Some of the sections below have been lifted from the May Council meeting held by the INQUA Organising Committee in Fredricton, and other parts were prepared for a report to the U.S. National INQUA Committee held at the Orlando G.S.A. meeting.

APPENDIX 1 TO THE MINUTES OF THE THIRD INQUA COUNCIL MEETING

STATUS OF SYMPOSIA AND SPECIAL SESSIONS FOR INQUA '87

SYMPOSIA

- NAME: Inception, growth and decay of the Laurentide Ice Sheet.
ORGANISERS: R.J. Fulton (Canada); J.T. Andrews (U.S.A.)
- NAME: Glaciomarine environments.
ORGANISERS: R.D. Powell (U.S.A.); and
- NAME: Monsoons and paleomonsoons.
ORGANISERS: R.W. Fairbridge (U.S.A.); and
- NAME: Peopling of the New World.
ORGANISERS: R. Bonischen (U.S.A.); K.R. Fladmark (Canada)
- NAME: Longterm restructure in Late Cenozoic terrestrial ecosystems
ORGANISERS: K. Luchterhand (U.S.A.); and Estella B. Leopold (U.S.A.)
- NAME: Long continental records.
ORGANISERS: D. Adam (U.S.A.); and
- NAME: Applied Quaternary studies.
ORGANISERS: B.P. Hageman (Netherlands); and

SPECIAL SESSIONS

- 1
NAME: Responses of the Global Ocean to changes in insolation ...
ORGANISERS: W.L. Prell (U.S.A)
- 2
NAME: Holocene climatic change (Data/model comparisons).
ORGANISERS: R. Webb III (U.S.A.); F.A. Street-Perrot (U.K.)
- 3
NAME: Paleoclimates of the Southern Hemisphere.
ORGANISERS: J.C. Vogel (S.Africa); C. Heusser (U.S.A.)
- 4
NAME: Villafranchian events and processes.
ORGANISERS: J.A. van Couvering (?)
- 5
NAME: Paleoclimatology of the North Pacific Ocean.
ORGANISERS: L. Heusser (U.S.A.); C. Sancetta (U.S.A.)
- 6
NAME: Development of North-temperate lakes in Late and Postglacial..
ORGANISERS: R.B. Davis (U.S.A.); H. Löffler (Austria).

(continued).....

- 7
 NAME: Paleoseismicity and Neotectonics.
 ORGANISERS: J. Adams (Canada); N.A. Morner (Sweden).
- 8
 NAME: Holocene Glaciation.
 ORGANISERS: P.T. Davis (U.S.A.); G. Osborn (Canada).
- 9
 NAME: The Drumlin Problem.
 ORGANISERS: J. Menzies (Canada); J. Rose (U.K.).
- 10
 NAME: Genetic classification of glacial deposits and landforms.
 ORGANISERS: A. Dreimanis (Canada); A. Raukas (U.S.S.R.)
- 11
 NAME: Problems of Loesses
 ORGANISERS: M. Pésci (Hungary); I. Smalley (Canada).
- 12
 NAME: Shorelevel change and its impact on coastal development.
 ORGANISERS: D.R. Grant (Canada); P.A. Pirazzoli (France).
- 13
 NAME: Late Quaternary paleohydrology of North America.
 ORGANISERS: M. Church (Canada); J. Ritchie (Canada); L. Starkel (Poland).
- 14
 NAME: Climatic and lithostratigraphic significance of paleosols.
 ORGANISERS: K. Valentine (Canada); J.A. Catt (U.K.).
- 15
 NAME: Quaternary of South America.
 ORGANISERS: K. Suguio (Brazil); J. Rabassa (Argentina).
- 16
 NAME: Paleoenvironments of Early and Middle Pleistocene European Man
 ORGANISERS: M.F. Bonifay (France); J.P. Suc (France).
- 17
 NAME: Reconstruction of the environmental setting for Archeol. sites
 ORGANISERS: J. Donahue (U.S.A.); D. Harris (U.K.); P. Goldberg (Israel).
- 18
 NAME: Comparative studies of actual and fossil periglacial phenomena
 ORGANISERS: H.M. French (Canada); E.A. Koster (Netherlands).
- 19
 NAME: Quaternary dating methods.
 ORGANISERS: N.W. Rutter (Canada); J.D. Obradovitch (U.S.A).
- 20
 NAME: Systems - Dynamic Approach to Natural Hazards.
 ORGANISERS: A.E. Scheidegger (Austria). (continued)...

- 21
NAME: Paleoenvironmental reconstructions from arid lands.
ORGANISERS: O.K. Davis (U.S.A.); L. Scott (S. Africa).
- 22
NAME: Atlas of the Northern Hemisphere 20,000 - 18,000 yr B.P.
ORGANISERS: A.A. Velichko (U.S.S.R.)
- 23
NAME: Global carbon cycle - paleoclimatic perspectives.
ORGANISERS: A.D. Hecht (U.S.A.)
- 24
NAME: The Late-glacial transition in North America.
ORGANISERS: L.H. Maher (U.S.A.); W.A. Watts (Eire).
- 25
NAME: The early prehistory of Africa.
ORGANISERS: R.L. Carlson (Canada).
- 26
NAME: High resolution Quaternary deep-sea biostratigraphy....
ORGANISERS: L.H. Burckle (U.S.A.)
- 27
NAME: Rates of change in Holocene Mediterranean landscape evolution.
ORGANISERS: S. Bottema (Netherlands).

A.V.M. (Wordstar File MAYAPP1.MIN) 6/6/85.

Some of the titles above have been modified to fit format.

Note that 6 of the 7 Symposia are being convened or co-chaired by American scientists, and a minimum of 11 of the 27 Special Sessions so far designated also have American leaders.

The breakdown of proposed presentations is given below.

As of:	May 15 1985	September 27	October 28
Oral presentations	323	627	707
Poster presentations	108	240	253
Undesignated	53	21	1

The scenario for the respective sessions at the meeting was outlined by the Programme Committee and is reproduced below.

DATE	TIME SLOT	ACTIVITY
30 July (Thurs.)	AFTERNOON	(Field Trips return)
30 July (Thurs.)	LATE AFTERNOON AND EVENING	(Registration)

	TIME SLOT	TIME SLOT
31 July (Friday)	0830 - 1150	1350 - 1650
ACTIVITIES:	Symposium A; Spec. Sess.1+2; Gen. Sess.1.	Symposium A; Spec. Sess.3+4; Gen. Sess.2; put up posters

1 Aug. (Saturday)

ACTIVITIES: Symposium B; Spec. Sess.5+6; Symposium B; Poster Sess.1.
Gen. Sess.2. (Internat. Council. 13.30.)
SPEC. ACTIVITY GENERAL ASSEMBLY + RECEPTION
ON SATURDAY EVENING

2 Aug. (Sunday)

ACTIVITIES: Spec. Sess.7+8. Plenary Sess. Change posters
Gen. Sess.3. IGCP Meetings (evening)

3 Aug. (Monday)

ACTIVITIES: Symposium C; Spec. Sess.9+10; Symposium C; Poster Sess.2.
Gen. Sess.5. (Internat. Council. 13.30.)

4 Aug. (Tuesday)

ACTIVITIES: Symposium D; Spec. Sess.11+12; Symposium D; Spec. Sess.13+14;
Gen. Sess.6. Gen. Sess.7. (Change posters).

5 Aug. (Wednesday)

ACTIVITIES: **** ** (FREE DAY; FIELD TRIPS/SOCIAL EVENTS) **** **

6 Aug. (Thursday)

ACTIVITIES: Symposium E; Spec. Sess.15+16; Symposium E; Poster Sess.3.
Gen. Sess.8. (Internat. Council. 13.30.)

7 Aug. (Friday)

ACTIVITIES: Symposium F; Spec. Sess.17+18; Symposium F; Spec. Sess.19+20;
Gen. Sess.9. Gen. Sess.10. (Change posters)
EVENING BANQUET

8 Aug. (Saturday)

ACTIVITIES: Symposium G; Spec. Sess.21+22; Symposium G; Poster Sess.4.
Gen. Sess.11. (Internat. Council. 13.30.)

9 Aug. (Sunday)

Spec. Sess.23+24. PRESIDENTIAL ADDRESS AND
Gen. Sess.12. CLOSING CEREMONY

10 Aug. (Monday) POST-CONGRESS FIELD TRIPS DEPART

Please note that the designation of Symposia A, B, C, etc. has not yet been decided. I have reproduced the tentative schedule of presentation times for Special and General Sessions.

(If Keynote speaker is present)

0830 - 0900 KEYNOTE PAPER
0900 - 0920 Paper # 2.
0920 - 0940 Paper # 3.
0940 - 1000 Paper # 4.
1000 - 1030 COFFEE BREAK
1030 - 1050 Paper # 5.
1050 - 1110 Paper # 6.
1110 - 1130 Paper # 7.
1130 - 1150 Paper # 8.

(If no Keynote speaker present)

0840 - 0900 Paper # 1.
0900 - 0920 Paper # 2.
0920 - 0940 Paper # 3.
0940 - 1000 Paper # 4.
1000 - 1030 COFFEE BREAK
1030 - 1050 Paper # 5.
1050 - 1110 Paper # 6.
1110 - 1130 Paper # 7.
1130 - 1150 Paper # 8.

1150 - 1350 LUNCH BREAK

1350 - 1420 KEYNOTE PAPER

1420 - 1440 Paper # 2.

1440 - 1500 Paper # 3.

1500 - 1520 Paper # 4.

1520 - 1550 COFFEE BREAK

1550 - 1610 Paper # 5.

1610 - 1630 Paper # 6.

1630 - 1650 Paper # 7.

1150 - 1350 LUNCH BREAK

1400 - 1420 Paper # 1.

1420 - 1440 Paper # 2.

1440 - 1500 Paper # 3.

1500 - 1520 Paper # 4.

1520 - 1550 COFFEE BREAK

1550 - 1610 Paper # 5.

1610 - 1630 Paper # 6.

1630 - 1650 Paper # 7.

The Programme Committee has ensured that Commission and Sub-commission meetings will not conflict with sessions.

Excursions

EXCURSION

NUMBER OF REQUESTS

April 30, 1985

September 27, 1985

Pre-Congress excursions	216	345
Post-Congress excursions	212	370

The following list outlines requests made for specific excursions, up to September 27, 1985.

PRE-CONGRESS (A) AND POST-CONGRESS (C) FIELD TRIPS

NUMBER	APPROXIMATE GEOGRAPHICAL ROUTE	COST	NUMBER OF REQUESTS	
	C1 Bylot Island	\$4,800	19	
	C2 Southern Baffin Island	\$3,000	40	
A3 /	C3 Atlantic Provinces	\$1,000	55 / 35	
	C4 Gaspé	\$ 725	41	
	C5 St. Lawrence Valley, S. Appalachians	\$ 450	32	
	C6 Montreal and Anticosti (Karst)	\$ 850	12	STATUS?
A7 /	C7 Glaciation, deglaciation in S. Quebec	\$ 450	34 / 13	STATUS?
A8 /	C8 Glaciomarine strat. Ottawa - Montreal	\$ >450	41 / 25	
A9 /	C9 Mineral industry N.E. Ontario	\$ 600	8 / 6	***
	C10 S.E. Hudson Bay	\$1,500	37	
A11/	C11 S. Ontario	\$ 600	35 / 26	
A12/	C12 N. shore of Superior	\$ 600	14 / 10	STATUS?
	C13 Transect, Winnipeg - Calgary	\$1,600	27	
A14	Central Canada	\$ 900	27	STATUS?
A15	Ottawa - Saskatoon - Lethbridge	\$1,500	12	STATUS?
A16/	C16 S-C Rocky Mtns. and Foothills	\$1,600	23 / 27	
	C17 Ottawa - Medicine Hat - Calgary	\$1,600	12	STATUS?
A18	S.W. Cordillera	\$ 800	26	
	C19 Coastal S.W. British Columbia	\$1,050	21	STATUS?
A20	Quaternary Research in the Yukon	\$1,800	27	
A20b	Yukon including Old Crow	\$2,500	18	
A21	N.W. Arctic Canada	\$3,000	41	
A22	Coppermine River	\$2,800	21	
A23/	C23 Loess of the Mississippi Valley	\$ 725	25 / 17	

(Field trips which might not run are indicated with ***).

New numbers received since May might change the status from a cancelled field trip to one which could run. These are marked by STATUS?

Put in a different way, and with many vociferous complaints about costs (to which I can feel partially sympathetic) the field trips are filling very rapidly. Interestingly, the ones which are most heavily subscribed are also the most expensive. A breakdown is provided below. 100% means that the trip is full. 200% means twice as many people have applied than there are spaces, and 50% means that half the places are still open.

PRE-CONGRESS FIELD TRIP	POST-CONGRESS FIELD TRIP
A 3 110%	C 1 76%
	C 2 200%
	C 3 70%
	C 4 98%
	C 5 80%
A 7 136%	C 6 80%
A 8 120%	C 7 52%
A 9 20%	C 8 63%
	C 9 15%
A 11 88%	C 10 154%
A 12 35%	C 11 65%
	C 12 25%
	C 13 68%
A 14 60%	
A 15 16%	
A 16 25%	C 16 30%
	C 17 32%
A 18 60%	
	C 19 53%
A 20 68%	
A 20b 45%	
A 21 186%	
A 22 105%	
A 23 83%	C 23 57%

Reproduced below is a list of field trips which will be run as one day excursions during the INQUA Congress. These all originate and end at Ottawa, and do not include any social excursions.

ONE DAY FIELD TRIPS TO BE CONDUCTED DURING THE INQUA CONGRESS

1. Ecology and paleoecology of the Ottawa region (Anderson and Tornacai).
2. Deglaciation, marine inundation and archaeology of the Renfrew - Pembroke area (Barnett and Kennedy).
3. Hopetown indicator train and late-glacial features of the highland southwest of Ottawa (Dilabio).
4. Landslides in marine clays of the Ottawa Valley (Fletcher).
5. Deglacial and Champlain Sea deposits and features of the Ottawa - Gatineau Valley region (Gadd).

6. Vertebrate paleontology of the Champlain Sea sediments (includes a visit to displays and collections in the National Museum) (Harington).
7. Glacial deposits of the area northwest of Ottawa (Kettles and Fulton).
8. Subaqueous outwash of the Ottawa area (Rust).
9. Invertebrate paleontology and paleoecology of the Champlain Sea (Rodrigues).
10. Ice marginal fans at the northern limit of the Champlain Sea basin (Sharpe).
11. Glacio-fluvial deposits and related features south of Ottawa (Shilts).
12. Drumlins, 'outwash' and glacial erosion features, Kingston area (Shaw).

Two additional or alternative excursions might be examined along geotechnical grounds. These might be to AECL, to examine the role of surficial deposits in nuclear waste management, and to look at the geotechnical problems of mass-movement in Champlain Sea sediments.

This concludes the summary of major items for the Congress. The next phase of planning involves the preparation of the Second Circular. A tentative timetable will see the following.

May 20, 1986: Council Meeting; discussion and final details confirmed.
 June: Compilation of hard copy.
 July: Printing.
 August: Distribution of Second Circular and Abstract.
 December: Return of Abstracts and initial Pre-registration.

One thing that I would appreciate from members reading this copy of the Glaciogram is some feedback on numbers of students that they feel might attend the Congress. Ottawa is within 24 hours driving time of places as far away as North Dakota, Iowa, southern Illinois, and South Carolina. I have a feeling that as many as 400 might attend, providing the costs are reasonable (and we will have a student rate for the Congress). We will attempt to solicit student registration by communicating with professors and Departmental heads closer to the Congress dates.

The number of persons hoping to attend has gone from 458 (May) to 1077 (September) to 1267 (October). 1194 are Full Participating, 36 are Students, and 26 are Associating Members.

If there are any major points which members would like to raise, I shall attempt to respond to them by telephone or by letter. Please note that I shall be away from Waterloo from December 15 to early June, following beetles to New Zealand and Tasmania. During this period Nat Rutter (Department of Geology, University of Alberta, EDMONTON, Alberta) will be looking after Congress affairs.

I apologise for a lengthy report, but there is a lot to cover! I'll end by wishing you all the compliments of the season, and by saying that I hope to meet you all in person at the XII INQUA Congress in Ottawa in the summer of 1987.

Ernest H. Muller - Geology, Syracuse University

My limited research time this term is dedicated to revision of a manuscript on the glacial geology of the Genesee Valley.

Graduate student research in the West Canada Creek basin is winding down. Greg Flick is in late stages of M.S. thesis preparation on the Quaternary geology of the Herkimer Quad. Jack Ridge's Ph.D dissertation, due for defense in December, will wrap up the drift stratigraphy and paleomagnetism of the southern portion of the basin.

Closely related geohydrology studies under the supervision of Don Siegel include Brenda Lint's groundwater resource survey of Oneida County and Ann Veegers study of the Tug Hill aquifer.

Thesis research under the supervision of Henry Mullins includes a seismic survey of part of Seneca Lake by David Stephens and of Otisco Lake by Ed Hinchey. Mullins hopes to extend the seismic survey during the coming field season.

Peter Plumley, who joined the Syracuse University faculty this past September, is in the process of establishing a field-free paleomagnetism facility in Heroy Geology Laboratory. Among other applications, we anticipate that the facility will see use in Quaternary studies this coming year.

Henry T. Mullins - Geology, Syracuse University

Ed Hinchey has completed his M.S. degree at SUNY-ESF on geophysics and sedimentation of Otisco Lake. Dave Stephens is continuing his study of the seismic stratigraphy of northern Seneca Lake including 15 6 m piston cores. More seismic reflection work is planned for the summer of 1986.

Richard R. Pardi - Dept. of Chemistry, Physics and Environmental Sciences, William Paterson College of New Jersey

E. Muller's note in Volume 20, #1 on trace fossils in lake sediments prompts me to comment on the occurrence of trace fossils in concretions in general. My interest in concretions is primarily in their geochemistry, but I did note that many concretions found in varved Pleistocene clays

exhibit trace fossils in abundance and apparently of two basic types - one sinuous and the other irregular. While the sinuous tracks sound like those Muller was commenting on, the irregular tracks look very similar to those illustrated in Ashley's 1975 paper. The sinuous tracks cross varve boundaries; the irregular ones do not. For anyone who is interested, locations where concretions contain trace fossils are listed below:

Rutherford, N.J.	(Lake Hackensack)	40 51'N, 74 05'W
Ossining, N.Y.	(Lake Hudson)	41 12'N, 73 54'W
N. Haven, Conn.	Bruce's Ice Pond	41 22'N, 72 52'W
Amherst, Mass.	(Lake Hitchcock)	42 23'N, 72 31'W
Montague, Mass.	(Lake Hitchcock)	42 30'N, 72 33'W
Putney, Vt.	(Lake Hitchcock)	42 58'N, 72 32'W
Barre, Vt.	(Lake Winooski, Williamstown)	44 01'N, 72 33'W

Concretions completely covered with trace fossils occur in the lowermost varves of Lake Hitchcock at Montague, Mass., which compares to Muller's similar observation in New York. These lakes appear to have been far from barren from day one!.

Dr. Donald Siegel, Dept. Geology, Syracuse University

Now that I've been here at Syracuse for a few years, I've been able to focus part of my hydrogeological research on problems related to the Pleistocene geology of New York State. Two of my MS students, Ms. Brenda Lint and Ms. Anne Veeger, are completing theses on aspects of the hydrogeology of glacial deposits in Oneida County. Lint is compiling and synthesizing data from over 1500 well logs to prepare a hydrogeologic atlas for the county. The thesis will include maps of potentiometric surfaces, drift thickness, and transmissivity; hydrogeologic cross sections, and theoretical calculations on probable aquifer yields. Lint's work will fill a major gap in hydrogeologic information in central New York where Mohawk Valley and Oneida ice lobes converged.

Veeger's more detailed studies, on the other hand, have centered on the confined Tug Hill aquifer. Her work includes geophysical exploration, glacial mapping, and numerical modeling of the groundwater flow system to evaluate the potential for long-term development of the aquifer. The Oneida County work has been supported by the U.S. Geological Survey and by the county EMC. Similar studies will be started in Onondaga County in the near future.

On a more theoretical bent, MS student Mr. Gerry Gould and I have been working to evaluate probable paleo-hydrogeological flow systems that would have existed in southern New York during Pleistocene glaciation. The Petroleum Research Fund is supporting the construction of a large, 3-D numerical model of the bedrock groundwater flow system in southern New York and northern

Pennsylvania to test the hypothesis that hydrocarbons may have been displaced southward from New York to Pennsylvania during times of elevated potentiometric head generated by the ice sheets. We will also be trying to determine, independent of the modeling effort, the extent of possible meltwater recharge to New York bedrock aquifers by isotopic and geochemical analyses of formation waters. If successful, the combined efforts of the modeling and geochemistry will provide a significant field test of Hubbard's theory of multiphase flow in porous media.

Dovetailing with the above paleohydrogeologic work is the completed first phase of a geochemical project done by Dr. Steve Chamberlain and I on the paragenesis of metal carbonates in Devonian septarian concretions near Syracuse. Methanogenically produced CaCO_3 , SrCO_3 , and BaCO_3 are found in the septarian cracks, and isotopic analysis of the oxygen in CO_3 suggests that the strontianite and witherite precipitated from meteoric water with a "cold" isotopic signature. We believe this may reflect the meltwater emplacement for which we are more directly searching in the PRF project.

In cooperation with Dr. Hank Mullins of our Department, the "hydrogeology group" will shortly begin investigating the extent of groundwater discharge to the Finger Lakes by a combination of geochemical methods, mathematical modeling, instrumentation and and geophysical work. Other students of mine are working on the geochemistry of organic contamination of shallow drift groundwater systems, solute transport at the regional scale, experimental evaluation of NaHCO_3 treatment of acidified lakes (in cooperation with Dr. Charles Driscoll) and the hydrogeology of peatlands. Field work on these projects is not in New York State persay, although the results will be applicable to New York State problems in the future.

One additional exciting development needs to be mentioned. We anticipate that a formal Degree program in Hydrogeology will be established at Syracuse University within a year or so. Research in the program, administered jointly by the Departments of Geology and Civil Engineering, will no doubt address the hydrogeology of aquifers in glacial deposits, and New York State will logically be our field laboratory--and an excellent laboratory it is!!

Jaan Terasmae - Geology, Brock University

This year I have the good fortune of being on sabbatical leave which has allowed me to visit some old (and new) friends and learn about their research activities at their home base. I have spent some time in Norway, Finland, western Canada, and the southwestern U.S. In many ways this change of scenery has been like a breath of fresh, cool and crisp arctic air - a most delightful experience, indeed.

At home, the main objective of work has been completion of research reports - many of which have been overdue for a rather unreasonably long period of time. However, now the prospects look much more encouraging.

Last summer's field work in the Great Lakes region was carried out mainly in two areas. North of Lake Ontario, palynology and radiocarbon dating have been used to get a firmer chronological grip on the process of deglaciation and the so far somewhat elusive sequence of glacial lake phases. In the Niagara area, the stratigraphic sequence of sediments (containing plant detritus) exposed in lakeshore bluffs provides evidence of a low water phase predating Lake Iroquois according to radiocarbon dates and the sediment sequence and characteristics. A report is being completed on this study.

Stanley M. Totten - Geology, Hanover College

Centennial Special Volume 1 of the GSA Geologists and Ideas: A History of North American Geology has recently been published. Anyone wishing a reprint of my (with George White) paper Glacial geology and the North American craton in that volume should notify me.

I mapped Marion County, Ohio this past summer for the Ohio Geological Survey. The glacial mapping is nearly complete for north-central Ohio, with northwestern Ohio scheduled next. The presence of four full-time glacial mappers on the staff means that five counties can be mapped each year. It is anticipated that publication of the county glacial maps and reports by the Survey also will be accelerated. Columbiana County (by White and Totten) will be published late 1985.

Wayne M. Wendland - Illinois State Water Survey

The American Quaternary Association will hold its 9th biennial meeting on the University of Illinois-Champaign campus, 2-4 June 1986, entitled: Environments at Glacier Margins--Past and Present. Field trips to nearby type sections and archeological sites will be held both before and after the meetings. For information, contact Wayne M. Wendland, AMQUA Local Arrangements Committee, Illinois State Water Survey, 2204 Griffith Dr., Champaign Il 61820 (217-333-0729).

Registration Cost - about \$65
(includes entertainment,
reception, banquet, abstracts)

amqua 86



UNIVERSITY of ILLINOIS

American Quaternary Association
Ninth Biennial Meeting
University of Illinois
2-4 June 1986

FIRST ANNOUNCEMENT FOR THE NINTH BIENNIAL AMQUA MEETING, 2-4 JUNE 1986

1986 AMQUA MEETING: The focus of the meeting is "GLACIER MARGINS: PROCESSES AND ENVIRONMENTS," and will be held on the campus of the University of Illinois, Champaign-Urbana. The meeting will examine processes and environments from a variety of present and past glacier margins. Coastal glaciers, the southern margin of the Laurentide Ice Sheet, and montane glaciers will be examined from the point of glacial dynamics, sedimentation, ecology, and archaeology. Presentations will emphasize new findings, techniques, and syntheses. The program committee consists of Raymond Bradley, Thomas Hamilton, Richard Morlan and Kenneth Pierce (chair).

DEADLINES: To indicate your interest in the 1986 AMQUA meeting activities, return the tear-off form by 15 December 1985. Abstracts (form enclosed) must be submitted by 1 February 1986 for inclusion in the abstract publication. You will receive the second mailing with the complete program and registration and field trip material in early January 1986.

PROGRAM

The preliminary program (as of 1 October) follows. The complete program will be given in the second mailing. Poster presentations will be held in a room adjacent to the meeting room.

KEYNOTE SPEECH: Present and past glacier margins: character and contrasts of glacial dynamics, sedimentation, and climate-Geoffrey Boulton

COASTAL GLACIERS

Dynamics of grounded and floating glaciers-Mark Meier

Glacial-marine sedimentation-John Anderson

Ecology and paleoecology-Constance Sancetta (marine), and Thomas Ager and Dot Peteet (terrestrial)

Alaskan coastal glaciers-Bruce Molina (setting) and Ross Powell (fjord sedimentation)

High latitude Canadian islands, Pleistocene and present-John England
The Puget Lobe-

Glacial geology and glaciology-Robert Thorson
and Derek Booth

Vegetation during glacial advance and retreat-
Cathy Barnosky

SOUTHERN MARGIN OF THE LAURENTIDE ICE SHEET

Contrasts in landforms and deposits from high plains to the Atlantic-
David Mickelson and others

Glaciology of some mid-continent glacial lobes-tba

Glaciotectonic origin and environment of some moraines-tba

Northern margin of the Laurentide Ice Sheet-tba

Problems of till genesis-tba

Wisconsinan permafrost features in Illinois-Hilton Johnson

Paleoecology of vegetation and vertebrates-James King and Russell Graham

Paleoecology of fossil beetles-Allan Ashworth and Donald Schwert

The habitability of the margins of the Laurentide Ice Sheet

Overview and the Munsungun Lake, Maine sites-Robson Bonnichsen

Great Lakes beach sites-Peter Storck

Meadowcroft Rock Shelter-James Adovasio

Northern Yukon-Jacques Cinq-Mars and Richard Morlan

MONTANE GLACIER MARGINS

Overview and timing of deglaciation-Stephen Porter

Sedimentary environments, Matanuska Glacier-Daniel Lawson

Temperature-snowfall interrelations, mass balance models-William McCoy

Pleistocene permafrost in Wyoming-Brainerd Mears

Importance of water in debris transport within and at glacier margins-
Ed Evenson

High altitude archaeological sites, Colorado Rockies-James Benedict

CONCLUDING SESSION

Special presentation-tba

Paleoclimate-tba

Problems with the use of analogs in estimating Pleistocene conditions-
John Andrews

INSTRUCTIONS FOR ABSTRACT PREPARATION

The 1986 AMQUA abstracts volume will contain both invited and submitted abstracts. The AMQUA membership is invited to contribute abstracts for poster session presentation, or publication only. Participation in the poster session requires submission of an acceptable abstract. Only abstracts from AMQUA members will be accepted.

Camera-ready abstracts should be typed (no computer copy please) on the form enclosed in this Announcement, using the following format:

**HOLOCENE DEFORMATION IN THE SKAGIT AREA, NORTH CASCADES,
WASHINGTON**

ANDERSON, Larry W., Fugro, Inc., 3777 Long Beach Blvd.,
Long Beach CA 90807; and KNITTER, Clifford C., and
FREEMAN, Kevin J., Fugro Northwest, Inc., 444 NE
Ravenna Blvd., Seattle WA 98115

Numerous linear trenches and uphill facing scarps have
been identified during recent geological studies.....

Use full width of the abstract box. Single space all lines; leave no blank lines. Use capitals for the title and for author surnames. Do not indent first paragraph, but indent following paragraphs in the usual manner. Diagrams may be included, but must be readable after 50% reduction.

Submitted abstracts are limited to 1 page; invited abstracts may be up to 3 pages in length. Please submit 1 original (unfolded) and 4 copies to arrive before 1 February 86 to:

Illinois State Water Survey-AMQUA
2204 Griffith Dr.
Champaign IL 61820

If abstracts must be retyped due to poor quality, a charge of \$20 per 250 words will be assessed. The Abstract volume will be mailed to AMQUA members in early May 1986.

FIELD TRIPS

Five field trips will be offered, 3 before and 2 after the conference to investigate the Quaternary of Illinois. Transportation, meals and guidebook are included in cost estimates below.

Pre-Conference Field Trips

TRIP 1: Two day trip (31 May & 1 Jun) to central and northern Illinois with stops at Athens Quarry (type locality exposure of Sangamon Soil), Dickson Mounds (Mississippian archaeological site), Farm Creek Section (type section of mid-Wisconsinan units), exposures near Rockford showing pre-Sangamonian and Wisconsinan periglacial features in an area formerly interpreted to be Altonian (early Wisconsinan), Wedron Quarry (type section of the Wedron formation, Woodfordian portion of the late-Wisconsinan), and Chatsworth Bog (late-glacial and Holocene pollen site). Trip leaders: Leon Follmer, Dennis McKenna & Jim King. Approx. cost: \$95.

TRIP 2: One day trip (1 Jun) emphasizing stratigraphy, geomorphology, and archaeology in central Illinois from Tazewell County along the Illinois River valley to the Illinoian till plain of Sangamon County. The trip will visit classic type sections with stops at the Farm Creek Section (type section for the mid-Wisconsinan Farmdalian Substage and the Robein Silt, featuring paleosols, peat, loesses, and tills of Wisconsinan, Sangamonian, and Illinoian age), Athens Quarry (type locality of Sangamon Soil and Sangamonian Stage, featuring loesses, peat, paleosols, accretion gley or gumbotil, and Illinoian), and Dickson Mounds archaeological site and museum, a Mississippian town and mortuary complex. Trip leaders: Don McKay. Approx. cost: \$40.

TRIP 3: A 1/2 day trip (1 Jun) to visit the laboratories, collections and exhibits of the Illinois State Museum, Springfield. Arrangements can be made to have staff on hand for those wishing to consult with specific curators or collections. Busses will leave from UI Residence Halls about 11 am for the 75 mile trip, and return by 5 pm. Lunch included. Approx. cost: \$15.

Post-Conference Field Trips

TRIP 4: Two day trip (5 & 6 Jun) emphasizing Quaternary stratigraphy, geomorphology, paleontology, and archaeology of southwestern Illinois and eastern Missouri. Stops include Hopwood Farm (Illinoian-Sangamonian stratigraphy with associated pollen, molluscan, and vertebrate (Geochelone) assemblages); loess sections at Maryville (Wisconsinan) and Powder Mill Creek (Illinoian); Modoc Rock Shelter (deeply stratified archaeological site with relatively complete

Holocene stratigraphy preserving significant cultural and paleobiological sequences); Barnhart (taphonomy of vertebrate faunal sequences from late Pleistocene "backwater lake" and colluvium and Holocene colluvium); Kimmswick (stratigraphy, paleontology, and archaeology of a Clovis-mastodont site); Cahokia Mounds (a World Heritage Mississippian ceremonial center archaeological site); McAdams Peak (overview of the physiography of the Illinois and Mississippi valleys, Cap au Gres fault zone, and old Calhoun erosion surface); Sievers South Quarry (Illinois valley mouth, late Woodfordian Deer Plain terrace-valley mouth sediment dam section, lower Illinois valley cores of related thick lacustrine deposits, late Wisconsinan valley history, glaciofluvial sedimentation); Pancake Hollow (Mississippi valley; thick sequence of pre-Wisconsinan loess with multiple paleosols); Kamp Mound Group (Middle Woodland mounds in Illinois valley bottomlands); Carlin Rest Stop (Illinois valley archaeological site; Holocene alluvial and colluvial fan sedimentation, relationships to lower Illinois River alluvium and archaeological sequences; cores from Koster, Napoleon Hollow and Titus deeply stratified archeological sites). Trip leaders: Don McKay, Russ Graham, Bonnie Styles, and Jeff Saunders, Mike Wiant, Tom Styles and Ed Hajic. Approx. cost: \$90.

TRIP 5: Two day trip (5 & 6 Jun) to northeastern Illinois focusing on the late Wisconsinan and Holocene geomorphic and stratigraphic records. Stops include Foosland (ice-wedge cast site), Chatsworth Bog (postglacial pollen site), Kankakee Valley area (glaciofluvial sedimentation and drainage history, dune fields, archaeological site), and in the Indiana Dunes area--Browns Sand Pit (late Wisconsinan spruce forest buried by dune sand), Mt. Baldy (Nipissing marsh and nearshore sediments, Holocene dunes, paleosols, plant and gastropod fossils), Kemil Road (transect of dune vegetational succession, "ghost forest" exposed in blowout), Cowles Bog (late Pleistocene lacustrine succession, pollen and heavy metal distribution record), Chicago outlet area (glacial Lake Chicago and Lake Nipissing drainage history), Land and Lakes Landfill (Holocene sequence in the Chicago Outlet, glacial succession in Valparaiso Moraine-Lemont Drift, beta soil horizons, Wadsworth Till), gravel pits in the West Chicago Moraine (ice margin glacial and proglacial sediments, ice shove blocks, Lemont-Haeger correlation), and a Lake Michigan bluff exposure (Lake Border Moraine, Wadsworth Till, glacial and proglacial sediments). Trip will stop at O'Hare Airport at about 4 pm on the 6th, and arrive at Urbana at 8 pm. Trip leaders: Arditt Hansel, Hilton Johnson, Ken Cole, Todd Thompson, and Gordon Fraser. Approx. cost: \$90.

ADDITIONAL INFORMATION

Baby-sitting service will be available from 8am to 8pm on 2 to 4 June. On 2 June, a tour group will drive to Springfield to visit the Illinois State Museum and Lincoln sites. On the 3rd, a trip will proceed by AMTRAK to Chicago to visit museums, art centers, and the Magnificent Mile. Campus museums and art centers will be open during the meeting.

Registration for Univ. of Illinois residence halls room and board packages, and motel or camping information will be included in the 2nd Announcement. If you are not an AMQUA member, you must return the form below to receive the 2nd Announcement.

"GLACIAL SEDIMENTARY ENVIRONMENTS"

A Society of Economic Paleontologists and Mineralogists Course

This 1 day course will be offered on 30 May (the day before pre-AMQUA field trips begin) in Champaign-Urbana. The course is designed to be an up-to-date review of the physical processes and deposits of glacial sedimentary environments. The complex processes of erosion, transportation and deposition by ice will be described from present-day glaciers and by interpretation of modern and Pleistocene sediments. In particular, the role of meltwater in the immediate glacial environment will be discussed. Lecturers: Gail Ashley, John Shaw & Norman Smith. Cost: \$150 (\$40 student) including set of notes. For further information call Joni Merkle, SEPM Continuing Education Coordinator, P. O. Box 4756, Tulsa OK 74159 (918-743-9765).

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Please complete the following form (for local planning) and return by 15 December 1985. For additional information, call Wayne Wendland at 217-333-0729.

Name _____

Address _____

I plan to attend the Ninth Biennial AMQUA meeting, and am interested in joining the following field trips:

Pre-Conference trips: Trip 1 Central & northern Illinois (31 May-1 Jun)
 Trip 2 Central Illinois (1 Jun)
 Trip 3 Illinois State Museum (1 Jun)
 Post-Conference trips: Trip 4 Southwest Illinois (5-6 Jun)
 Trip 5 Northeastern Illinois (5-6 Jun)

I may be interested in using baby sitting services.

My spouse or I may participate in the 1 day trip to visit Chicago and/or Springfield.

I plan to submit an abstract.

I am interested in preparing a poster presentation.

I am not an AMQUA member.

I would like to join AMQUA and enclose a separate check for \$US8 payable to AMQUA.

Mail this form by 15 December 1985 to:

Illinois State Water Survey-AMQUA
2204 Griffith Dr.
Champaign IL 61820

Mike Wilson - Geology, SUNY at Fredonia

I worked with undergrad Mike Stone to reassess lineaments from LANDSAT MSS imagery observable through glacial cover in Chautauqua County. Although scarce, there are more than indicated by the state lineament map. The results caused me to obtain Thematic Mapper imagery, which shows many lineaments in SW New York. I am now concerned with the field expression of these lineaments, and their Pleistocene and Holocene movements, if any.

M.S. student Tom Jordan has collected most of his gravity data in the Cassadaga area (Northern extent of Jamestown Aquifer). Now he's "processing". The next "subsurface geomorph" thesis I would like to supervise will tackle the Ancestral Allegheny at the juncture area of the Conewango-Allegheny valleys (Steamburg, Randolph, etc.)...please mention this to your Bachelor's students.

For my summer vacation I spent time at Catskill and in the Rockies teaching summer field courses in May and August. Parts of June and July were spent consulting at a hazardous waste site in Pleistocene deposits...unfortunately, one of the thousand in NY.

Richard A. Young - Geology, SUNY College at Geneseo

Under the direction of Don Cadwell during the past summer I completed a field "check" of the northern half of the Finger Lakes sheet of the N.Y. State Quaternary map (approximately 100 quadrangles north of 42°45'). It was very interesting to see all of the geomorphological details of the extensive data set E. Muller has compiled. There is a wealth of little-known Quaternary geology for fieldtrips and interesting areal studies. I hope that this effort means we are a little closer to a publication date.

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