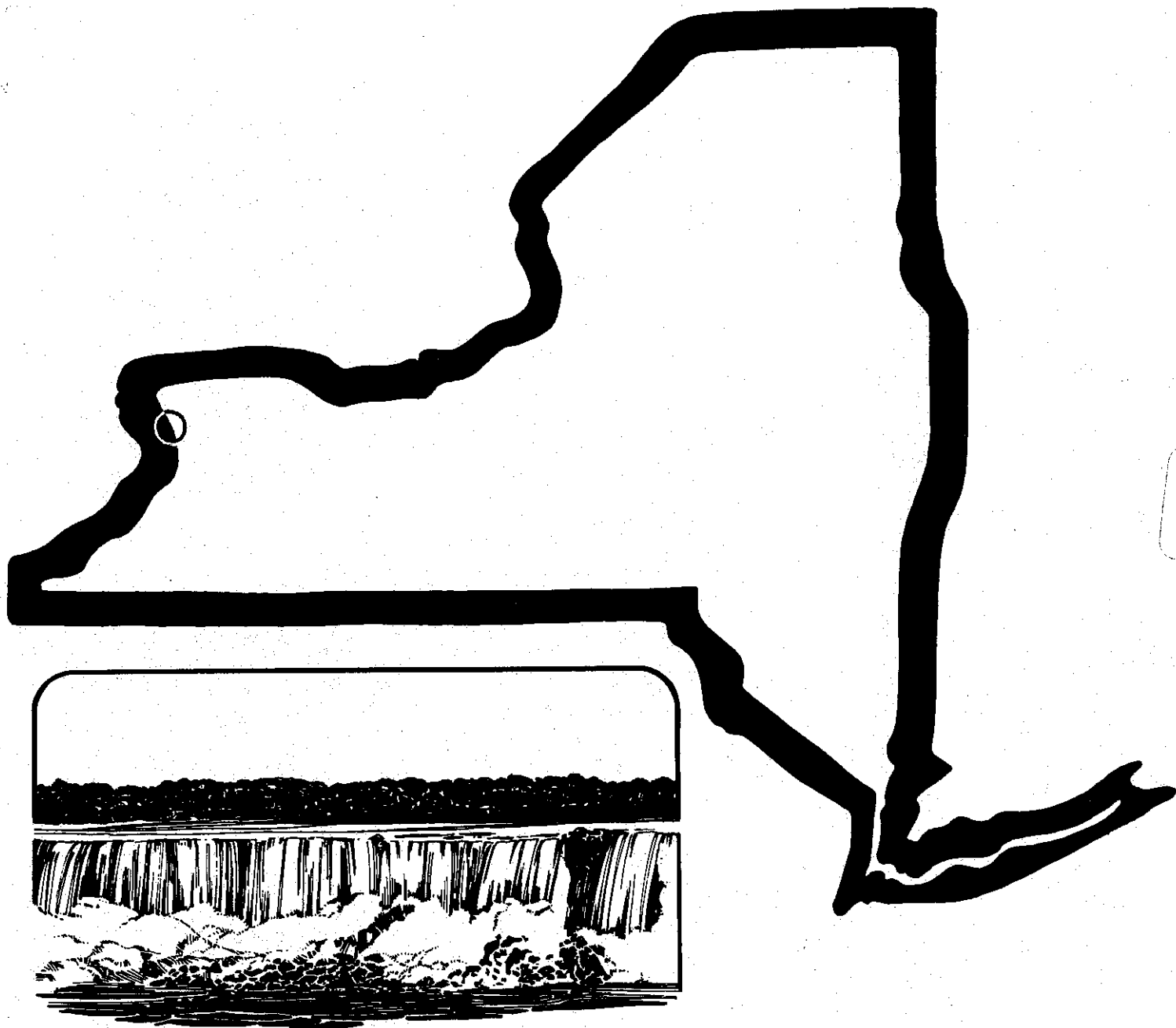


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E. F. KARROW

# NEW YORK GLACIOGRAM



DEPARTMENT OF GEOLOGY

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. It is suggested that reference to information in the GLACIOGRAM be identified merely as informal communication.

Parker E. Calkin

Donald H. Cadwell - New York State Geological Survey

I want to take a few minutes to give you my contribution to the Glaciogram. This has been a very busy winter and the following is a status report:

1. The Surficial Geologic Map of New York, Niagara Sheet is at the printers. We have just completed proofing the scribe copy and look forward to seeing the first color proof. We still expect completion and publication by September 1988.
2. The reconnaissance review and field revision of the Lower Hudson Sheet will be completed this summer. We are in the process of organizing the crew to undertake this part of the project.
3. Surficial mapping is still proceeding on the vast Adirondack Sheet. Bob Dineen would like assistance from any interested people.
4. In an attempt to understand some of the processes associated with stagnant ice sedimentation in western NY, Jay Fleisher, Ernie Muller and I are going to Alaska for 3 weeks this summer to examine stagnant glacier ice and dead-ice cleats.

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Parker Calkin - Geology, SUNY at Buffalo

Norton Miller (N.Y.S. Biological Survey) and I have put together an abstract for the Amherst, MA AMQUA on "The Age and Palynology of a Middle Wisconsin, Non-glacial Interval in the Erie-Ontario Lobe Area, Western New York". This concerns the Lord Hill Site (La Fleur's FOP 80) and the paleobotany of non-glacial lake silts below possible Kent till that have a preliminary age of 27,650 B.P. The date may be too young (influenced by some older organics). While the deposit appears similar in age to those of the Plum Point Interstade of the eastern Great Lakes area, pollen assemblages from these latter and from sediments of comparable age on Long Island described by Les Sirkin contain much lower percentages of deciduous tree pollen. We are presently obtaining more dates.

Graduate student Lynne Baumgras has just completed her M.A. thesis on "Liquefaction Potential Evaluation of Surficial Deposits in the City of Buffalo, New York". Fortunately there is little potential of liquefaction during an earthquake, even if we had a quake as strong as any on record in western New York. However, the thesis gave us a chance to put together lots of boring records. These emphasize the sparsity of till on the lake plain here, except in the Buffalo Moraine.

Graduate student Ali Rahbari is beginning a masters thesis study of the buried valley through Springville using geophysical techniques. This will allow us to make use of deep boring data at West Valley and also USGS data compiled for a recent aquifer study by various workers at the Ithaca office.

Farther to the south in the mid-Conewango Valley (buried course of the pre-glacial Allegheny River), masters student Eric Pefley is working with deep borings to put together whatever possible story he can from the drift fills there. Good wash samples and geophysical logs will also be supplemented with gravity studies to further clarify the valley characteristics begun by former Buffalo students and Mike Wilson and his students at SUNY, Fredonia.

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Peter U. Clark - Geological Sciences, University of Illinois at Chicago

Allen Melcer defended his M.S. thesis on the "Sedimentology of four late Pleistocene glacial lacustrine deltas, St. Lawrence Lowland, New York" (see attached abstract). Cliff Brady, who had been mapping in the northwestern Adirondack Mountains, decided a M.B.A. program offered a better future.

At the recent NE GSA meeting in Portland, ME, the glacial history of the Adirondack Mountains and St. Lawrence Lowland was discussed in papers by Clark and Davis, Pair, Muller, and Anderson, and Gurrieri and Musiker. The results from this work indicate a regionally consistent picture of the history of deglaciation of the mountains and subsequent incursion of proglacial lakes into the Lowland. Radiocarbon dates previously discussed in the Glaciogram by Tom Davis, Don Pair, and me, and reported at GSA, provide minimum ages for deglaciation. Don Pair, Cyril Rodrigues, Tom Davis, Jim Street, and I will be running a one-day field trip as part of the NYSGA this October examining the history of Adirondack Mountain deglaciation and post-glacial water bodies in the St. Lawrence Lowland.

Peter Lea and I have organized a special symposium on the "Last Interglaciation/Glaciation Transition (122-64 ka) in North America" for the Centennial meeting of the GSA this Fall in Denver, CO. Seventeen speakers will review deep-sea, sea level, and North American continental records for glaciation following the last interglaciation until isotope stage 4 (early Wisconsin).

Other activities outside of New York include glacial and post-glacial history of Labrador, amino acid analyses of terrestrial gastropods from Pleistocene loess in the Mississippi Valley, and reconstructions of the Laurentide Ice Sheet from Illinois to Montana based on moraine elevations and ice flow indicators (values of  $\tau < 2$  kPa!).

Abstract from: Melcer, A.M., 1988, Sedimentology of four late Pleistocene glacial lacustrine deltas, St. Lawrence Lowland, New York: University of Illinois at Chicago, Masters Thesis, 127 p.

#### SUMMARY

Topsets of four Late Pleistocene deltas in the St. Lawrence Lowland, New York, are composed primarily of sand with little gravel, silt, or clay. Sedimentary structures include thick sequences of parallel, low-angle, and high-angle cross-bedding representing migration of in-channel bars and dunes. Clay drapes along with vertical variations in sedimentary structures suggest rapidly

Donald R. Coates - Department of Geological Sciences, SUNY- Binghamton

It was good to attend the Northeastern Section- Geological Society of America meeting at Portland, Maine and discover that by the number of papers and authors that glacial geology is very healthy throughout the Northeast, and of course New York.

For at least the next two years we will mount an intensive study of the "Valley Heads Moraine". I place this in quotes because of the controversial nature of the subject and features. I would appreciate hearing from those of you who; (1) have studied any part of the "moraine", (2) who think they will be working on any of the materials, (3) who are interested in discussing the matter with us, (4) who have any knowledge, biases, prejudices pertaining to the topic. etc. We solicit all possible information, references, papers, theses, undergraduate papers etc. We hope to cover the waterfront, or should I say glacierrönt? We are taking the position there are numerous unsolved questions about the "moraine", and that it is about time the feature (s) was/were studied in detail with some type of integrative and systems approach methodology.

The DNAG volume on Engineering Geology is due any day, and will contain my chapter on glacial deposits and their engineering applications. I use several New York case histories to illustrate my viewpoints.

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David J. De Simone - Geology, Williams College

Recent Work : D.P. Dethier and I have just about completed a 1:24,000 surficial map, depth to bedrock map, cross-sections, and report for the Pownal and North Pownal quads in Vermont along the New York border. Our open file report addresses the pre-Woodsfordian topography, Lake Bascom history and deglaciation of the area, and environmental geology (Hoosic Valley aquifer, landfill siting, etc.). The report should be in Chuck Ratte's hands at the Vermont Geological Survey by the time everyone reads this. I hope to show the maps and discuss our findings on the upcoming AMQUA '88 pre-meeting trip with Bob Dinsen and Eric Hanson.

1988 Projects: Two consulting projects will occupy most of this field season. The first consists of 1000 ft/inch surficial mapping in the town of Stephentown, NY to aid in land use planning, zoning, and delineation of aquifer recharge areas. The second and larger project involves mapping the town of Williamstown in westernmost MA with the same goals in mind. The mapping scale here will be 1:24,000 but the final maps will be drafted at 1000 ft/inch. Other workers on this project will be collecting and plotting well information toward a goal of deciphering the glacial sediment stratigraphy and identifying potential aquifers. Development in the town, largely for Williams College faculty housing has raised many concerns about Hoosic Valley aquifer recharge areas.

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Bob Dineen - New York Geological Survey

This entry to the Glaciogram is an up-date of last year's progress on the Adirondack Sheet of the State Surficial Map and a call for help on this year's mapping program.

We were able to complete reconnaissance mapping on forty-one 7-1/2 minute quads last year. We had five people actively mapping on the sheet. Our Star was Donald Pair (Syracuse University), who completed 17 (!) quads in the Ontario and St. Lawrence basins. He presented a progress report on his mapping area at the NE GSA meeting in Portland this Spring. Jonathan Wingerath (Yale) completed five quads in the St. Lawrence Lowlands. This was his first glacial recon effort. He did quite well! Joseph Gurrieri and Laurie Musiker (Geraghty and Miller, Inc.) completed four quads, and worked on four others in the Lake Belt region. They presented an excellent summary of their work at the NE GSA. I was only able to finish road recon on fifteen quads this past year because I broke my leg while delivering a diatribe on the Spring NAGT field trip. My work was in the southern High Peaks area. I've summarized the work-to-date at 1:250,000. Note that most of these quads were completed via road recon and airphoto interpretation. They are not detailed maps! Lots of detailed work remains to be done.

We need help to finish the Adirondack Sheet by 1990!! Large areas remained untouched, including much of the High Peaks, the northern Champlain Lowlands, the St. Lawrence Lowland-High Peaks border, and the eastern St. Lawrence Lowlands. As usual, our budget is somewhat less than princely. We can offer beginning mappers \$500/15-minute quad., experienced mappers can receive up to \$800/15-minute quad. We might be able to provide a State car for field work. Contact me at (518) 486-2013 if you are interested in earning Big Bucks!!

I will be co-leading two field trips this year. Dave DeSimone (Williams College) and Eric Hanson (Environmental Hydrology Corp), and I will run a trip entitled " Lake Albany and its successors in the Hudson Valley" for AMQUA in June. Dave Franzi (SUNY @ Plattsburgh), John Diemer (Franklin and Marshall), and I will run a trip into the eastern High Peaks for the Fall NYSGA.

My theme in the eastern High Peaks is that Glacial Lake Warrensburg did not exist. Lake levels can be mapped south of the Village of Warrensburg, but terraces north of the Village are fluvial. The extent of glacial lakes in the Schroon and upper Hudson River valleys has an impact on the use of lake terraces to determine post-glacial uplift.

Carol Treadwell (SUNY @ Binghamton) presented an interesting paper at the NE GSA using stream terraces as a indicator of post-glacial uplift. Someday, I would like to apply her techniques to the Schroon and Hudson Valleys.

I was involved in the State's study of the April 5, 1987 Thruway Bridge collapse at the Schoharie Creek crossing. I examined some fascinating constructional and destructional microlandforms on the stream's floodplain in the vicinity of the bridge. I was also quite surprised to see the extensive damage by flowing water in the upstream reaches between the Villages of Middleburg and Schoharie, particularly on terraces that I had earlier mapped as "inactive!" I was told that extensive mass-wasting and scour damage occurred further upstream, but broke my leg before I could investigate. Apparently, some of the historical floods were real humdingers, according to local archeologists, historians, and farmers. This stream valley looks like a good place to send an eager geomorphology student!

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Aleksis Dreimanis - Geology, University of Western Ontario

Though I wrote in my last year's letter that the report on 'Genetic classification of till' would be published in the Balkema volume on 'Genetic classification of glacial deposits' last winter, there were several unexpected delays. Finally, all the papers, camera-ready, were sent by the technical editor Charles L. Matsch to Balkema before the Easter, and the volume, containing 22 papers and notes, should be printed soon. The delays were also beneficial, permitting me and the editors to make some improvements in my 66-page long paper. Also, while thinking more about the criteria on the identification of different genetic varieties of till, I wrote an alternative paper, entitled 'Formation and deposition of subglacial and supraglacial tills', on the request of Raimo Kujansuu and Matti Saarnisto, editors for another Balkema volume 'Handbook of glacial indicator tracing' that is planned to be published still in 1988 as a delayed project of the Work Group 9 or 2-I (Glacial deposits as indicators of glacial movements) of INQUA Commission on genesis and lithology of glacial Quaternary deposits.

Now I am re-writing several papers of the previous years, before the weather improves sufficiently to resume field work. On a recent field trip with students to Lake Erie cliffs we noted several new fresh exposures that revealed interesting sedimentologic and glacial tectonic structures that were hiding under slump cover before.

Brian Hart is completing writing his M.Sc. thesis "Genesis of intra-till sorted layers, Catfish Creek till at Bratville, Ontario."

My summer will be divided between writing several postponed reports, and checking field sections that are pertinent to two papers planned to be presented at the meetings of S.E.P.M. in Columbus in August, and the GSA Centennial meeting at Boulder on October 30, this year. Both of them deal with stratigraphic and sedimentologic problems of the Wisconsin Glaciation in the Lake Erie basin.

Ed Evenson - Lehigh University

I am happy to report in this issue of the Glaciogram that our group is again working in New York. Readers may remember that most of our recent work has been concentrated in remote areas such as Alaska, Spitsbergen, Canada and South America where we have been investigating debris transport processes. We have been drawn back to the local area by an old love - drumlin genesis. Last fall Ernie Muller, Dan Lawson, Hilton Johnson, John Menzies and Doug Stahman (M.S. candidate, Lehigh) and myself, spent two enjoyable days in the Weedsport drumlin/flute fields designing Doug's thesis which will attempt to relate drumlin morphology to the geotechnical/compositional properties of drumlins and megaflutes which are superbly developed in this area. Our recent work in the Connecticut Valley is also relevant to the deglaciation of New York. There, Pat O'Toole (M.S. Lehigh via Syracuse) has clearly demonstrated the inwash origin of ice-contact heads-of-outwash and deltas built into glacial Lake Hitchcock. Pat's work will be reported at the Portland G.S.A.

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Paul F. Karrow - Earth Sciences, University of Waterloo

Logging of the 153-foot hole to rock at the Woodbridge cut revealed deep deposits of sand and gravel below the York Till (Illinoian) which are probably associated with a buried valley in the local Ordovician shale. Analysis of samples is now underway. This work will be brought together with previous work by myself and several others in a manuscript.

Work on sea levels in Florida occupied several weeks for identification of molluscan fossils at Waterloo and several weeks in Florida adding new sites in March. While there I had to undergo emergency surgery for a detached retina and recovery is now underway.

A manuscript was prepared with Barry Warner reviewing late-glacial paleogeography and floral development for a volume on the archeology of southern Ontario.

In January I participated in a symposium in Ottawa on the last interglacial in Canada sponsored by the Canadian Climate Committee at the National Museum. Papers will be gathered together in a special issue of *Geographie physique et Quaternaire*. I also gave a talk at the G.S.C. on interstadials in southern Ontario. While on that theme, a ms. by Barry Warner, Alan Morgan, and I is in press with *Paleo* on the Clarksburg site, our northernmost interstadial site in southern Ontario, up near Georgian Bay.

Leslie Kerr-Lawson, my part-time technician, has nearly completed a ms. on fossil molluscs from the Don Fm. at Toronto. Meanwhile, Phyllis Diebold has joined the Quaternary Laboratory as a full-time technician whose main task will be to carry out fossil processing, identification, and organization of collections.



The first short course offered by the Quaternary Sciences Institute will be held this May on the theme of new techniques in exploration geophysics. This will be offered by John Greenhouse and David Nobes of the Earth Sciences Department. The first annual report of Q.S.I. has been assembled by Barry Warner and covers the first year's activities. Anyone interested in receiving a copy can contact me or Barry Warner.

Tom Edwards, a recent Ph.D. in stable isotope geochemistry has joined the Earth Sciences Department, filling the opening left by Peter Fritz, Tom Edwards' Ph.D. supervisor. Tom will continue his work on paleoclimates through geochemistry. Last year we added Dr. Sherry Schiff through the Women's Scholar Program; Sherry specializes in studies of lake chemistry.

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Peter Martini - Land Resource Sciences, University of Guelph

For several years I have received and read with great interest the New York Glaciogram. I have not contributed to it because much of my work was not focused on terrains of New York or adjacent areas. I am writing now for two reasons:

1. To suggest perhaps that a short statement on "who is doing what" could be added to the Glaciogram for people located in this central north part of the continent, within relatively easy reach to each other, and working on Quaternary or related terrains of other areas.

2. My personal experience has brought to the above suggestion. Although my Quaternary direct work in Southern Ontario is at the moment small, those terrains constitute a powerful analog for my studies on other parts of Canada and in Gondwana. In Southern Ontario I am mainly interested in glacio-fluvial and glacio-lacustrine deposits (mainly for teaching and projects for undergraduate and graduate students), modern coastal and nearshore sediments and the study of the clastic Ordovician and Silurian rocks. For several years M. Brookfield and I have on the backburner considerable information on the Pleistocene sequences of the Bowmanville Bluffs (east of Toronto) with good examples of glacio-lacustrine and subaqueous outwash deposits. One of these days we will get around to publishing it.

In the last few years my main research interest has been in the study of cold climate sedimentation along the coasts and lower fluvial reaches of the subarctic Hudson Bay Lowland (Ontario). Such work has been extended in the last year to the low arctic areas of Churchill (Manitoba) and the high

arctic coasts of Hall Beach and Igloolik (Foxe Basin). From the northern tip of Foxe Basin to the southern most one of Ontario we have thus a good cross-section spanning strong climatic variations and various geological terrains, the whole area being affected by the Pleistocene Ice Sheet. From Churchill to the southern most parts of Ontario we have a climatic gradient which leads to development of strongly different types of wetlands and peatlands. These various peat-bearing sequences (both interglacial and post-glacial) constitute Quaternary analogs which can be used to better explain some features of the Permo-Carboniferous coal measures of Gondwana, such as those of Eastern and Southern Australia and those of Parana' Basin in Brazil. In the last four years I have just done that, visited and worked on those Gondwana coal measures and compared and contrasted them with our Quaternary models. Some similarities have been found; differences are mainly related to different tectonic settings of some of the ancient coal measures and to the different vegetation associations.

Concluding, this distant work is conceptually not that much removed from New York or proximal areas. The emphasis is just a bit different and the idea is to synthesize local knowledge into sedimentary models which can then be used in working with deposits of other areas and ages. I found indeed that the concept "the present is the key of the past...and vice versa" is a great "working tool", although great care must be exercised in deriving generalized conclusions from comparative analyses between systems where differences may outnumber similarities.

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Alan V. Morgan - Quaternary Sciences Institute, University of Waterloo

I have just completed the Compte Rendu for the Ottawa INQUA Congress, and since I have been keeping Glaciogram readers informed about events, thought I could provide a personal wrap-up to affairs on this side of the border.

By now, all of you should realise that the twelfth INQUA was held at the Congress Centre in Ottawa from July 31 to August 9, 1987. It was a relatively large meeting of Quaternarists (not as large as I would have expected given the 900 plus members of AMQUA), but it was attended by almost 1,000 Quaternary researchers, and the total registration was 1,075, including accompanying guests. This compares with 1,002 at the Birmingham, U.K. Congress in 1977, and with 1,200 at Moscow in 1982.

North Americans accounted for 650 participants with 372 registrants from Canada, 278 from the United States, and one from Mexico. West Europeans accounted for a further 263, with 68 from Asia (Middle to Far East), 41 from the USSR and eastern Europe, 26 from New Zealand, Australia and the Pacific, 15 from South America, and 11 from Africa. Forty-six countries were represented at the Congress. During the nine working days of the Congress 932 papers were presented in 7 Symposia, 34 Special Sessions, 15 General Sessions and 4 Poster Sessions. A further 5 papers were presented at the Plenary Session.

We had some major problems with persons sending in abstracts, having them accepted, being notified of times, and then seemingly vanishing from the face of the Earth. At least 180 abstracts (about 20%) printed in the Programme and Abstracts Volume were not presented at the Congress! Perhaps the Committee could be faulted for the acceptance of some of these papers, (we were aware of potential problems with some foreign delegates) but there was little excuse for authors who were at the Congress for not presenting expected papers in the designated sessions. We wondered whether this is symptomatic of pressures to get additional references cited on bibliographic lists for academia, or whether it is for other factors. Whatever the reason it created problems with our budgets (we assumed that those who did not contact us, would register on site, but they never turned up), and it played havoc with the programme. We were not entirely naïve in that we had assumed that some papers would not be presented, and we had arranged for about 40 additional presentations as potential "fillers". In fact 45 additional papers were presented, but these still did not fill the many gaps created in the programme. I have commented on this matter in the next AMQUA Newsletter, and in the INQUA Compte Rendu, and I hope it serves to alert Congress organisers to what could be a growing and dangerous problem of "no-shows". I realise that this is not a problem confined to Quaternary workers (similar problems surfaced at the Geological Association of Canada / Mineralogical Association of Canada meeting at Saskatoon in May of 1987), but it should concern all of us, since it has the potential of decimating scientific meetings.

Field trips pre- and post-dated the Congress and there were thirteen one-day mid-Congress local field trips. Pre-Congress field trips ran to the Atlantic Provinces, Southern Québec, Southern Ontario, Southwestern British Columbia, the Yukon Territory (and the Old Crow Basin), and the Coppermine River in the Northwest Territories. Topics covered on the mid-Congress one-day excursions ranged from the glacial geology of the Ottawa region to the sediments and biology of the Champlain Sea, through the archaeology of the area south of Ottawa, to soils and drift prospecting. Post-Congress excursions were run to Baffin Island, the Atlantic Provinces, Gaspé, Southeastern Ontario, Southeastern Hudson Bay, from Churchill to the Rocky Mountains, and in Alberta and southern British Columbia. Field excursion guidebooks for these trips (and some which were cancelled) are available from:

Publication Sales and Distribution, National Research Council of Canada, OTTAWA, Ontario, Canada K1A 0R6.

These contain the most up-to-date regional syntheses of many different parts of Canada (in some cases the only Quaternary publications) and should be present in all university libraries on both sides of the border. The Programme and Abstracts Volume is also available from the same source.

There were three major social events; the Icebreaker (the quantities of beer drunk rivalled most jökulhlaups); the Mammoth barbecue (the official unveiling of three full-size fibreglass mammoths at the National Museum of Natural Sciences); and the INQUA Banquet. The Mammoth barbecue saw long line-ups for North American delicacies such as Bison-burgers and corn (and beer). INQUA participants were joined by an industrious few who had obviously been attracted by alcohol fumes and the sounds of scientific debates drifting across the downtown streets.

The formal INQUA Banquet was held in the Dicrostonyx room (no explanation provided for Quaternary geologists). The Royal Canadian Mounted Police band entertained with some "Big Band" (loud) sounds. Perhaps the highlight of the evening was the award of the CANQUA Johnston Medal to Dr. V. (Vic) Prest, recently of the Geological Survey of Canada, dubbed "father of Canadian Quaternary Geology" (and best known for the Glacial Map of Canada, and the map illustrating the retreat of the Laurentide Ice Sheet).

Despite the problems alluded to above, the National Committee was sorry to see INQUA finish. I believe I speak for all of the Committee in saying it was a pleasure inter-acting with our international colleagues, not only our friends from the United States, but from further afield. The Congress provided a chance for our younger members to meet the older members of the discipline; "Is that really Dr. so and so?" or "I didn't know that Professor X was still alive!". It allowed them to exchange research ideas, and to look forward to the XIIIth INQUA (arranged for Beijing in 1991).

Full details of the Congress will be released in the *Compte Rendu*, expected to be published by Pergamon in July of this year. Copies will be sent to all Congress participants, with the exception of accompanying guests.

On a different topic, some of you might have been wondering about CANQUA. The Association is alive and well. As some of you are aware, I assumed Presidency of the Association last August with the dying gasp of INQUA. Over the last eight months the Council has been working on internal adjustments within the Association. We have been computerising our mailing lists and dues notices, preparing bi-lingual membership and registration forms, and trying to find out where some of the members vanished to! The first CANQUA Newsletter for 1988 was released at the end of March, and we are in the process of planning meetings in Edmonton (late summer, 1989) with a theme of "Aspects of the Quaternary of Montane Environments"; a joint meeting with AMQUA at Waterloo, Ontario, in 1990 (theme to be decided after the next AMQUA Meeting at Amhurst in June). A third meeting will be held early in 1991, with a proposed theme on Quaternary Soils, and at a location yet to be decided.

CANQUA members voted at the last CANQUA Meeting (in conjunction with INQUA in August) to formally incorporate the Association. I am pleased to announce that the incorporation papers (as a Federally registered, non-profit, charitable organisation) were signed in Toronto on March 11, and Council is waiting to hear from the Government on the status of the application. If any of the readers wish to join CANQUA the dues are \$20.00 annually (Canadian funds). For this you will receive three copies of *Géographie physique et Quaternaire* (don't let the title frighten you, quite a few of the papers are in English, and most are non-geographical!). In addition you will also receive two CANQUA Newsletters. If you need further information (or immediate registration!) contact:

Mr. E.V. Sado, CANQUA Secretary-Treasurer; Ontario Geological Survey, Room 1120, 77 Grenville Street, TORONTO, Ontario M7A 1W4.

Research grinds along. Most of the publications submitted, or in press, are far removed from New York State (a couple of papers on pollen in interglacial and Holocene sequences in Britain, another on insect chitin, three others on modern insect distributions in the eastern Canadian Arctic). Perhaps the only paper of interest to Quaternary workers in this neck of the woods is one with Barry Warner and Paul Karrow on an arctic fauna and flora from the Georgian Bay region of Ontario (in press in P3). Now that the term has ended, I fully expect to continue with several Ontario and Michigan based publications on fossil insects associated with mastodon sites, as well as papers on fossil insects in northern Ontario and Illinois. I am also looking forward to seeing the results of the Smith Symposium published; the volume should be out in the next few months. I suppose I could end this by letting the readers muse on a question recently posed by the Cincinnati Museum; - What kind of beetles were associated with mastodon dung? (For the answer to this and other earth-shattering revelations from the field of paleoentomology, stay tuned to the next issue of the *Glaciogram*)! Best wishes to all!

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Marie Morisawa - Geology, SUNY/Binghamton

My students and I are still investigating the effects of urban development on small rivers, primarily those in the Binghamton area. They have supplied data to a number of towns on what is happening to their streams and remedies to be taken for the alleviation of erosion problems.

I received a Fulbright to lecture in India and spent the early part of the spring semester there at Pune and Dharwad. The new journal GEOMORPHOLOGY is coming along with two issues and an imminent third of volume 1. We invite papers on geomorphology from all of you.

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Ernest H. Muller, Geology, Syracuse University

A guide to "Seaway Trail Rocks and Landscapes", which Don Pair and I prepared last spring, is available from the St. Lawrence - Eastern Ontario Commission and other outlets in the St. Lawrence, eastern Lake Ontario region. Further information can be obtained by dialing 1-800-36SEAWY, or outside of New York State, by calling 1-800-24SEAWY.

The eastern Friends of the Pleistocene will meet over the Memorial Day Weekend (May 27-29) in the Genesee Valley. Lodging and housing on the campus of the SUNY College at Geneseo will help to keep the cost of this meeting under control. Saturday's travel will be upstream from Geneseo through Letchworth Park, to study a Valley Heads Moraine and south to Black Creek east of Belfast. Sunday we will work downstream to Irondequoit Bay. All travel will be by bus. For further information phone Bill Brennan at Geneseo or one of the co-leaders -- Duane Braun, Richard Young or Ernie Muller.

An updating of the chronology of deglaciation in the Genesee Valley, jointly authored with Duane Braun, Dick Young and Mike Wilson was submitted to Northeastern Geology a few months ago and hopefully will appear in early summer. Whether it is available in time for the Friends meeting, or not, it may serve to refresh memories and renew debate later on.

Henry T. Mullins - Geology, Syracuse University

The seismic reflection portion of our NSF - supported research project on the Finger Lakes is now complete and we are actively working on the data. We have generated transverse (E-W) and longitudinal (N-S) bedrock profiles for eight of the eleven lakes. We now know that Seneca Lake bedrock has been scoured to a maximum of 304 m ( $\approx 1,000'$ ) below sea-level and that Cayuga as well as Canandaigua Lakes have bedrock floors that extend well below sea-level as well; and, that Skaneateles Lake bedrock has, at a maximum, been eroded down to about sea-level. Transverse bedrock profiles show distinct 'V'-shaped, gorge-like cross-sections in the central and southern portions of the lakes whereas they are more 'U'-shape to the north. Longitudinal (N-S) bedrock profiles show a distinct southward slope with maximum erosion about two-thirds of the way to the south, forming true, spoon-shaped, rock-basins. There is a thick sediment-fill beneath all the lakes reaching a maximum of 275 m (894') in southern Seneca Lake. There are also distinct lateral and vertical seismic facies changes in the sediment-fill indicating a complex depositional history. The Finger Lakes have been scoured more deeply than Lake Ontario and contain considerably more sediment-fill.

Based on these new data in conjunction with Muller and Cadwell's (1986) surficial geologic map of the Finger Lakes region, myself and Ed Hinchey have developed a new working hypothesis for the origin and evolution of the Finger Lake troughs that integrates the Quaternary geology of the entire region. Basically, our view is that the Finger Lake valleys were cut by large subglacial streams (flowing under hydrostatic pressure) as large tunnel valleys, possibly analogous to those in northern Europe. The drumlinized Erie-Ontario lowland north of the Finger Lakes is viewed as a large region of shallow subglacial drainage which occurred as both sheets and in Nye Channels. This flow

became focused into discrete streams at the northern edge of the Appalachian Plateau, which then cut the Finger Lake valleys and deposited the Valley Heads "moraine" as subglacial outwash. Although these ideas are certainly speculative, they are consistent with the regional geology and we hope to test this hypothesis via deep-lake drilling either in the summer of 1989 or 1990. We also plan to initiate comprehensive investigations of the regions north and south of the lakes to further test and refine the hypothesis.

This summer we will be collecting on-land seismic reflection data from the areas immediately north and south of Cayuga Lake in conjunction with Bob Sheridan at Rutgers University. We also plan some seismic refraction experiments to determine compressional-wave velocities in selected Finger Lakes with John Ladd from Lamont-Doherty; and, plan to take our reflection program to Chataqua, Otsego and Oneida lakes to get some comparative data.

Overall it has been an exciting year for our Finger Lakes project which we hope will continue for at least the next few years.

Bill Sevon - Pennsylvania Geological Survey

There is only a little to report for the Pennsylvania Geological Survey since the extensive review provided by Tom Berg in the last issue of the Glaciogram. Bill Sevon has completed the surface materials maps of 64 7.5-minute quadrangles in the northern tier of counties, mainly Tioga, Potter, and Bradford. These 1:24,000 scale maps have been compiled at 1:100,000 and the Towanda and Wellsboro 30x60-minute quadrangles are complete. Publication plans have not been made. Sevon is now starting work on the surficial materials in the Piedmont of southern Lancaster County.

Jon Inners continues to map in the Eastern Middle Anthracite Field. He and Duane Braun (Bloomsburg University) are principal leaders for the 1988 Field Conference of Pennsylvania Geologists which will run out of Hazleton on October 6, 7, and 8. Some of the glacial materials present in the Anthracite area will be examined and their possible age will be discussed in light of the recent paper by Eyles and Westgate (Geology, 15:537-540). It appears that extensive revision of age designations will be necessary in Pennsylvania.

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Steven H. Swatling - NYS Department of Environmental Conservation

Request for Information: NYS Rivers Inventory and Assessment

The natural, cultural and recreational resources within and adjacent to New York rivers and streams are under increasing pressure from not only hydro developments but a variety of competing land use demands. The Department of Environmental Conservation is in the process of identifying and comparatively assessing these resources in order to provide a basis for objective decisionmaking regarding river resource protection efforts and to better resolve conflicts among river users.

Geologic/hydrologic features is one of the ten resource categories being incorporated into the River's Program data base. Unlike the other resource categories, DEC has not been able to find an existing inventory for these features. We are, therefore soliciting your participation in nominating sites which add value to the one mile wide river corridor in which they are an integral part. We are aware of the inherent weaknesses that go hand in hand with a nomination based inventory and can only stress that this will be a continuing open ended inventory effort. What is important is that we have an adequate base of resources this calendar year on which to build and utilize for answering pressing issues concerning river corridor values.

Sites selected for the inventory will be ranked based on multiple values such as scarcity, diversity, historical, scenic/esthetic and scientific attributes. Where practical, dimensional minimums have been set. Site nominations should include:

1. Name/Description: Taughannock Falls, cataract waterfalls with a 215 foot drop, 30 foot deep plunge pool and large well defined amphitheater.
2. Reason for and level of significance: Highest perpendicular waterfall in the northeast US. Preserved in a NYS park the site has greater than statewide significance.
3. Location: 12 miles north of Ithaca off NYRT 89  
NYTM east:0367700 north:4710300
4. Feature type from the outline Geo/Hydro Features: 1.1
5. Submitted by: Guy Lacial, Bedrock U., Bedrock, NY 123456  
Phone:607-123-4567

I have chosen a major developed site only as an example. Sites of little renown or difficult access will also be included. The following three texts have been identified as references which list sites. Any texts you recommend would be welcomed.

Roadside Geology of New York  
Bradford B. VanDiver  
Mountain Press Publishing Co. 1985

From Niagara to Montauk  
The Scenic Pleasures of  
New York State  
C.R. Roseberry

New York Geological Association Guide

Please send all information, nominations and comments to:

Rivers Inventory  
NYSDEC  
Room 412  
50 Wolf Road  
Albany, NY 12233

For additional information  
contact Steven H. Swatling  
same address, (518)457-7433

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John P. Szabo - Geology, University of Akron

I'm directing a number of M.S. theses on groundwater hydrology of various valley fills in the area around Akron. Mike Bolas and I are working the hydrology of fractured tills. These tills overlie proglacial deltaic deposits and are often considered for landfills. Jim Matz and I are beginning work on heavy minerals in tills in northeastern Ohio. We are trying the expensive patented polymer sodium polytungstate. It may be "environmentally" safe (as of now), but low humidity turns it to concrete. We'll also play some games with x-ray diffraction. Personal research continues on the pre-Woodfordian tills in north-central Ohio in cooperation with Stan Totten and the Ohio Survey. New research includes examination of the relationship of outwash channels to various tills north of Akron.



Exploration interest in this area was heightened by the gold results from till samples obtained by surface sampling and overburden drilling last year. Work in the Matheson area, northeastern Ontario is winding down after a successful five year mapping and drilling program. Ken Steele has the responsibility of putting together the final sets of data publications and writing up summary reports.

All in all the coming year promises to be a busy and productive one for the staff of the Engineering and Terrain Geology Section. Preliminary results of field activities will be published in the Summary of Field Work available in December 1988. Should anyone have an interest in the 1987 field work all current projects are updated in last year "Summary", OGS publication MP 137.

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Bryce M. Hand - Geology, Syracuse University

This past year Jeff Banikowski (County Health Department) and I have collaborated in a study of radon in basements in Onondaga County. Readings in homes on outcrops of the (uraniferous) Marcellus black shale were generally high, as expected, but what surprised us were the equally high readings on underlying carbonate units. (Carbonates are generally among the least radioactive of all rocks!) We concluded that over the past few tens of millions of years, ground water passing downward through the Marcellus has leached small quantities of uranium, and transferred some of it to the Onondaga, Manlius, and other carbonate units below. As a result, the "hot" zone that runs through Onondaga County has been widened from  $\approx 2$  km (width of Marcellus outcrop) to  $\approx 12$  km.

What has this to do with the Pleistocene? With luck, enough to make Glaciogram. Thanks to the Pleistocene, we were able to conclude: (1) that radon levels in Onondaga County are by and large independent of *modern* Marcellus-tainted groundwater; (2) that the mobile radionuclide responsible for our radon was uranium; and (3) that introduction of uranium into the carbonates had been essentially completed by  $\approx 24$  000 B.P.

We observed that homes located on a topographically high area north of Rock Cut (east-west meltwater channel) had radon levels appropriate to their stratigraphic position, even though the presence of Rock Cut precludes Marcellus-conditioned ground water's reaching those homes today. Having thus ruled out post-glacial contamination of the pre-Marcellus carbonates, we realized that radionuclide(s) supporting the radon must have been introduced before  $\approx 24$  Ka. (This follows because an ice sheet would have prevented the northward, down-section flow of ground water required to contaminate the carbonates.)

Why must the mobile radionuclide have been uranium? Radium-226 is the immediate precursor of radon-222, and is reasonably mobile in ground water. But of any  $^{226}\text{Ra}$  introduced into the carbonates 24 000 yrs ago, less than 1/30 000 would remain to support radon today. Other pre-radon intermediaries in the uranium-decay series either are too insoluble in water or (like  $^{226}\text{Ra}$ ) have half-lives that are too short, leaving uranium the only reasonable candidate.

The radon and supporting isotopes are in Paleozoic bedrock. But Pleistocene history constrains interpretation of when and how they got there.

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