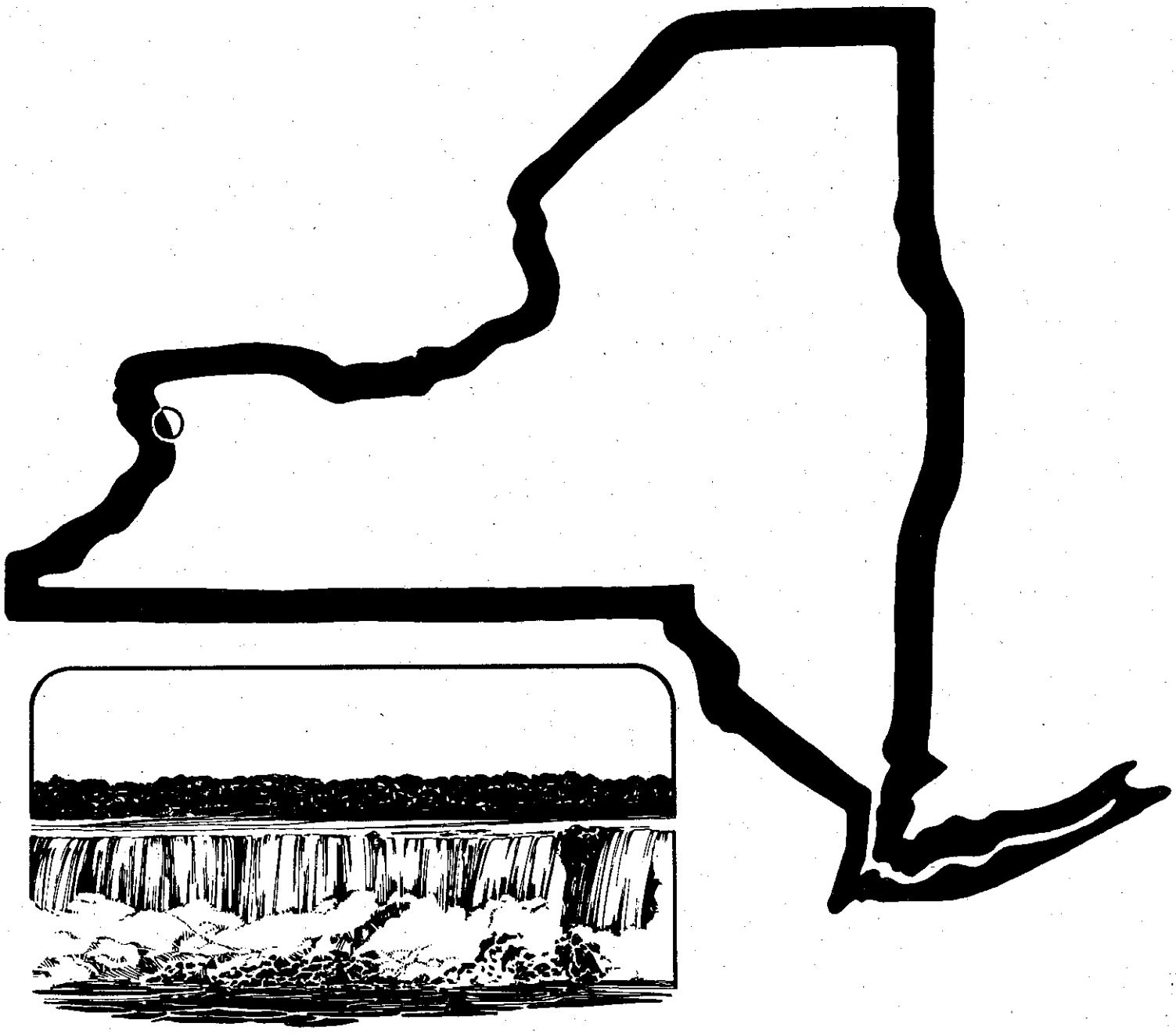
VOLUME 28, NO. 1 • APRIL 1993

# NEW YORK GLACIOGRAM



## DEPARTMENT OF GEOLOGY

University at Buffalo

Buffalo, New York 14260

## 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 as informal communication.

Parker E. Calkin

Gregory C. Wiles

**Donald H. Cadwell** - *New York State Geological Survey*

The Bering Glacier Research Team will again be returning to the Glacier this summer to complete some research. Jay Fleisher, Ernie Muller, Palmer Bailey and I are going to return to the Bering about June 3rd to complete the analog, silt-pad deposition, and stratigraphic studies. In addition to our group, we will be joined by Dan Lawson and several others from CRREL to conduct ice-penetrating radar studies.

If the National Mapping Program finally gets off the ground, we will be looking for individuals to quadrangle map during the summer 1994. More of that later. During the heat of this summer, I will be conducting some detailed quadrangle mapping in the Catskill Mountain region.

We now have a digital Surficial Geologic Map of New York at a scale of 1:665,000. This scale was chosen because it is the largest ("E" size) available to print the State on a single sheet. This data may be purchased from our Open File Office either as a color map or as digital data on 1/4 inch cartridge tape. The reference is Open File Number 2g143. For additional information call me at 518-486-2012 or the Geological Survey at 518-474-5816.

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**P. Thompson Davis** - *Department of Natural Sciences, Bentley College*

Boston GSA fieldtrip: **Multiple Glaciations and Deglaciation of a Transect from Boston,- Massachusetts, to the White Mountains, New Hampshire.** October 29 - 30. P. Thompson Davis, Dept. of Natural Sciences, Bentley College, 175 Forest St., Waltham, MA 02154-4705, (617) 891-3479, and Woodrow Thompson, Maine Geological Survey, Augusta, ME, Byron Stone, U.S. Geological Survey, Hartford, CT, Robert Newton, Smith College, Northampton, MA, Brian Fowler, Mount Washington Observatory, North Conway, NH, Limit: 38.

This two-day trip will examine drumlin exposures in northeastern Massachusetts that exhibit two tills separated by a weathering profile; glacial outwash features and eskers in central New Hampshire; and pre glacial weathering profiles ("rottenstone"), glacial depositional features (till, erratics, moraines, alluvial fans, lake sediments), and erosional land forms (grooves, striations, potholes, roches moutonnees, cirques, U-shaped valleys, the "Old Man of the Mountains") in northern New Hampshire. Of particular interest will be: 1 ) the "two-till problem", 2) the relative sequence of continental and cirque glaciation in the White Mountains, and 3) the mode and chronology of continental deglaciation. The trip is dedicated in memory of Richard P. Goldthwait.

**Aleksis Dreimanis** - *Department of Geology, University of Western Ontario*

Being interested in the transitional period from the last interglaciation to the maximum of the last glaciation in the eastern Great Lakes region, I collected samples from the Garfield Heights section at Cleveland, Ohio, and submitted them to Michel Lamonthe for optically stimulated luminescence (OSL) dating. A preliminary date on the youngest sample is in good agreement with its radiocarbon date; other samples are still being processed.

Another project, very distantly related to the New York drumlins, is an investigation of the internal structures of drumlins in Northern Latvia, jointly with Latvian geologists, hopefully to be completed by additional field work during the summer of 1993.

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**Paul Karrow** - *Department of Earth Sciences, University of Waterloo*

After the six month freeze on research while I was chairing the Department I was able to get back in the lab and to paper writing as of January 1. Fossils were recovered from samples from Washington, Woodbridge, Ontario (interglacial), Mill Creek, Michigan (interstadial), and Clarksburg, Ontario (Lake Algonquin). A sample of plant detritus from the last one has also been submitted for dating. These are the northernmost and most deeply buried Algonquin organics thus far found.

Two M.Sc. students arrived in September. R. Farvacque has a background in archeology and is planning a geoarcheological project linking occupations to lake levels in the Superior basin. J. Yang will do paleoenvironmental analysis of core from a swamp in Cambridge, where peat overlies marl.

Investigation of the subsurface stratigraphy of the Waterloo moraine is ongoing. Six more holes were drilled to rock and K. Rajakaruna has logged and analyzed samples from these holes for his M.Sc. project due for completion this spring, as is the M.Sc. project of V. Paloschi based on earlier rotasonic holes. Further drilling is planned for 1993 and 1994 funded by the municipality.

Work on the Mill Creek, Michigan site continues, with microvertebrates (5 fish and 11 mammals) written up by K. Seymour. Mollusc work by B.B. Miller is nearly completed. An assemblage of ostracodes will be identified by L.D. Delorme.

Writing on several manuscripts is progressing with papers on time classification, Florida sea levels, and geophysical-stratigraphic study of buried valleys most advanced. I am told the often delayed Stratford-Conestogo report has made it on to the March publication release list from the Ontario Geological Survey (but I haven't seen the list or the report yet). Two other recent papers are out on tills in northern Ontario (Boreas) and Toronto interglacial molluscs (Canadian Journal of Earth Sciences).

Summer plans include Midwest Friends, and IGCP 253 in Winnipeg plus more writing. Limited field work may include shoreline surveys at Georgian Bay.

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**Mike Lewis** - *Geological Survey of Canada, Dartmouth, N.S.*

Thane Anderson (GSC, Ottawa, Ontario) and I have published our ideas on the correlations of cool climate, large-area lakes and increased meltwater discharge in the Great Lakes - St. Lawrence region for the 10-8 ka (Geographie physique et Quaternaire 46:25527, 1992) and 11-10.5 ka (Climate dynamics 6:241-250, 1992) periods. We are currently working with Ted Moore and David Rea, University of Michigan, to explore these connections by examining the sedimentary record of Lake Huron and Georgian Bay.

I have begun a mapping project of offshore Quaternary sediments and surficial bedrock structure in the Great Lakes with Brian Todd ( GSC, Ottawa ) . Last summer we acquired 5 x10 km grid of high resolution seismic reflection profiles and 6 piston cores in western Lake Ontario using CCGS GRIFFON. Rolf Pippert, graduate student in Marine Geology at University of Toronto, assisted us. Reconnaissance high resolution and multichannel profiles were also obtained in the Kawartha Lakes and Lake Simcoe between Georgian Bay and Lake Ontario using the GSC vessel J.R MACKAY. This summer we plan to extend the survey into central and eastern Lake Ontario; Brian Todd will also acquire a grid of profiles from Lake Simcoe. The objective is to recognize and understand possible neotectonic features; we are supported by Atomic Energy Control Board and Ontario Hydro.

Though still quite tied up with managing Environmental Marine Geology in the GSC, I expect to be freer after this summer. I look forward to opportunities to talk with others about the correlation of the offshore and onshore Quaternary records.

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**Ernest H. Muller** - *Department of Geology, Syracuse University*

A paper on the drift stratigraphy of the Lake Erie and Ontario shore bluffs in New York State, written jointly with Parker Calkin (senior author), appeared this spring in SEPM Special Publication 48. This report builds on a foundation of student research over the years, notably by Richard Geier and Sandy Brennan at Buffalo and Nena Salomon at Syracuse.

A report, written jointly with Les Sirkin and Jesse Craft, on an interglacial deposit at Tahawus in the central Adirondacks is due for publication in Quaternary Research this Fall. This site in the NL Industries derelict Sanford Pit near Newcomb was visited by INQUA, NYSGA and FOP groups back in the sixties. Minze Stuiver dated wood from a clay unit between two till sheets at this site as older than 55,000 years. Pollen analysis by Les Sirkin turned several temperate climate indicators that have not returned to the central Adirondacks in the Holocene. This assemblage suggests a true interglacial, e.g. Sangamon (i.e.marine isotope stage 5-e) rather than an early Wisconsinan age as we had initially expected.

Upon learning of the Tahawus manuscript in draft form, Curt Stager at Paul Smiths College offered to examine the "Tahawus Clay" for possible diatom content. We are looking forward to learning the results of his study.

A manuscript (written jointly with Parker Calkin) reviewing numerical dating information on New York glacial and nonglacial episodes has been completed and awaits editor's decisions as to where it will be published. Preliminary reports on this study were reported at NCGSA in Toledo and at the NYSGS Mapping Symposium in Oneonta.

Along with all the rest of you, we in Syracuse observed the Ides of March blanketed by 43 inches of snow, a gift of the Blizzard of 1993. It set a new record for the month of March, and lifted us past the old record (set last year) for total annual snowfall, now, (3/21) standing at 177 inches.

Time now to look ahead to spring field trips. The Northeastern and Midwestern Friends of the Pleistocene trips are scheduled for the same weekend, May 22-23. My information is that Al Schneider is hosting the MWFOP on the Door Peninsula, Wisconsin; that Carol Hildreth and Richard Moore are hosting the NEFOP around Keene, New Hampshire. Next fall, Gerry Johnson will host the SEFOP at Williamsburg, Virginia.

**FRIENDS OF THE PLEISTOCENE**

MAY 22-23
Keene, N. H.

LATE WISCONSINAN DEGLACIATION STYLES OF PARTS OF THE CONTOOCOOK, SOUHEGAN AND PISCATAQUOG DRAINAGE BASINS NEW HAMPSHIRE

Waste no time in getting in touch with

Carol Hildreth
135 Washington St.
Holliston, MA 07146
Phone: (508) 429-5085

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**Richard A. Young** - *Geological Sciences, SUNY College at Geneseo*

## MIDDLE WISCONSIN GLACIAL SECTION CONFIRMED IN THE GENESEE VALLEY, NY

The preliminary report in the November 1992 Glaciogram concerning the apparent Middle Wisconsin section in Livingston County, NY, 25 miles south of the shore of Lake Ontario, has been confirmed by completion of 17 radiometric ages, pending at the time the last Geogram issue went to press. The results currently indicate a major ice advance incorporating peat in till around 38,400 BP and a separate, younger readvance over rhythmites, which give an age of 26,880 BP. Both of these events occurred *prior to* the final (Late Wisconsin?) event recorded in the local section, which is topped by a distinctly redder till lying just below the present surface and under the youngest gravel outwash.

Supporting evidence of the "two-stage" nature of the Middle Wisconsin event in the Genesee Valley comes from separate radiocarbon ages from deep lakeshore borings near Rochester that contain organic lacustrine sediments giving ages of 32,000 and 21,300 BP. These reworked sediments were scraped from the lake bottom and redeposited in and between deeply buried till sequences by younger ice advance(s).

Thus the data from the two sites combined indicates an ice advance after 38,400 BP but prior to 32,000 BP (by which time organic lake sediments were being once more deposited in the basin north of Rochester). This older advance was followed by a readvance, which incorporated 26,880 BP varves into a clast-poor till. But by 21,300 ± 170 BP the Ontario Lake basin was again receiving organic sediments, **prior** to the time when the Late Wisconsin ice presumably began to enter western NY for the last major Pleistocene event. These results are not incompatible with the St. Davids Gorge dates (Karrow and Terasmae), which imply that ice overrode the region shortly(?) after 22,800 BP, given the uncertainties in radiocarbon ages.

Preliminary pollen results from Les Sirkin (Adelphi University) indicate environmental changes at the Livingston County site that are compatible with lhe results reported in the literature for the Middle Wisconsin Scarborough Bluffs sections near Toronto, as well as with some of the climatic fluctuations proposed by Sirkin from Long Island. The results to date do not appear to support the arguments of C. H. and N. E. Eyles and J. A. Westgate at the University of Toronto that Middle Wisconsin ice did not extend south of Toronto, and that the Scarborough Bluffs "tills" are glaciolacustrine diamicts only overridden by the younger, Late Wisconsin advance.

The details of the sections and ages (run at the University of Arizona accelerator facility) will probably be presented at the Boston Annual GSA meetings in the Fall. Additional age determinations on key horizons are being run so that each important level at the Livingston County site will have at least two different age determinations obtained from separately collected samples.

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