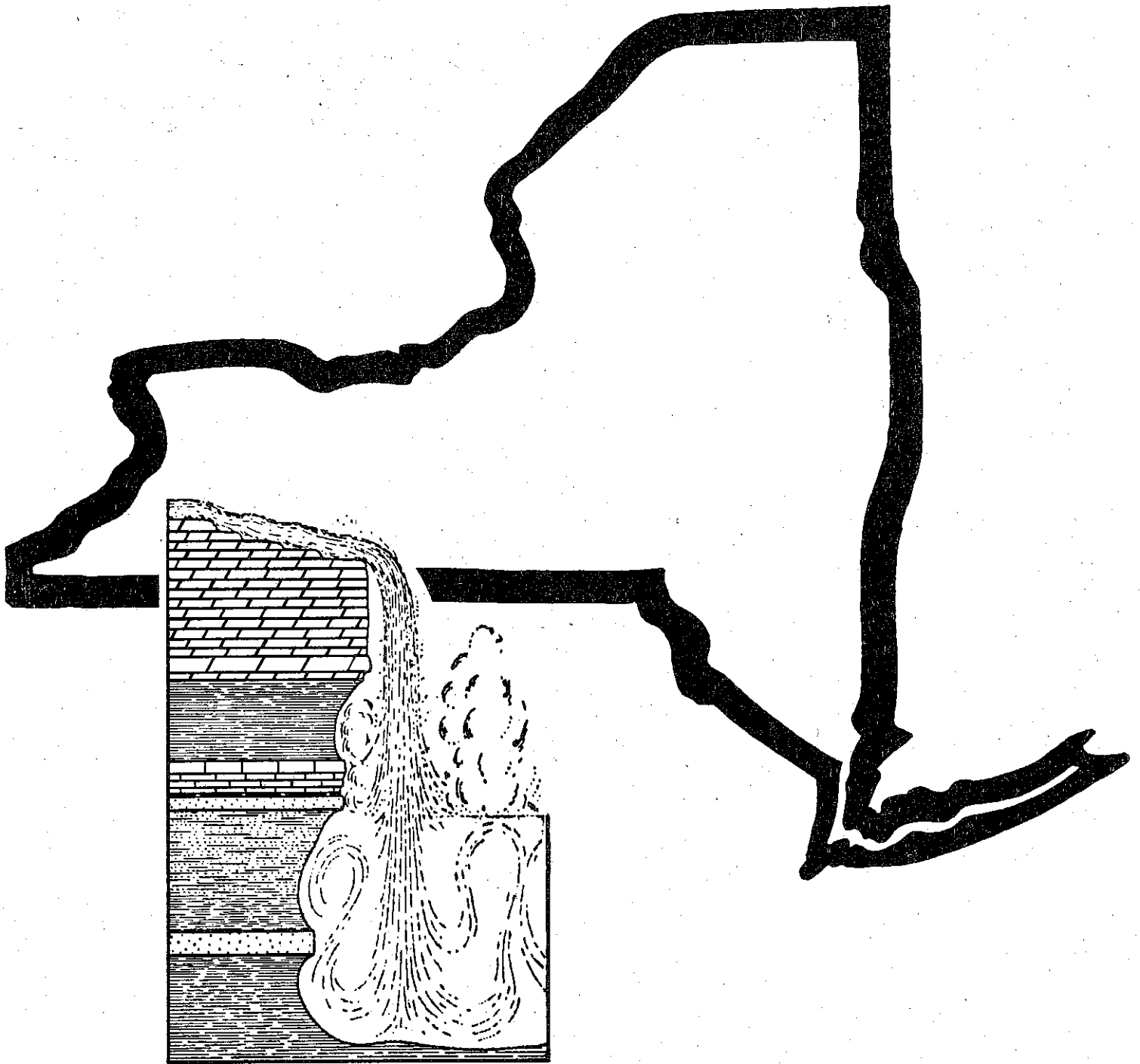


VOLUME 13, NUMBER 2 • DECEMBER 1978

# NEW YORK GLACIOGRAM



**DEPARTMENT OF GEOLOGICAL SCIENCES**

State University of New York at Buffalo  
Buffalo, New York 14207

## 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.

Parker E. Calkin

Parker Calkin - Geology, SUNY Buffalo

I will be spending the spring semester at the University of Colorado, Boulder (80302) - Institute of Arctic and Alpine Research - writing up various projects including some work on the Early - through Late-Wisconsin, Gowanda Hospital site (south of Buffalo) and the Wisconsin stratigraphy of the Lake Ontario bluffs in New York. Graduate student Dick Geier is working on the glacial stratigraphy along the Lake Erie bluffs in New York, while Ken Huang is trying to follow the groundwater as it moves over the Onondaga Escarpment in the towns of Amherst and Clarence just east of Buffalo. Lynn Doyle is attempting to depict the geometry and some of the stratigraphy of the buried Allegheny River in the present Cattaraugus Creek - Lake Erie shore area. She is using a gravity study and some shallow seismic data acquired last summer and will receive some help next summer from a USGS geophysical party working off a survey boat in Lake Erie. Pierrette Turcotte-Roy will start work this summer on a glacial geologic study along the Maine/Quebec border.

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Donald R. Coates - Geology, SUNY Binghamton

I have almost caught my breath from the rigors of hosting the Ninth Annual Binghamton Geomorphology Symposium. The theme this year was "Geomorphology Thresholds." If attendance is any criterion about success, it fared very well with 326 in attendance. Because of the large size of the proceedings volume it will not reach the marketplace until April 1979. Since the length will approach 500 pages, I hate to see the price tag. Publisher is A. M. Dowden, Inc. Two of the papers had data on cold climates....geomorphic changes from ice in rivers, and rockslides and rockfalls in glaciated terrane. The proceedings will also contain C. A. M. King's paper on "Glacial Thresholds."

We started our symposia series in 1970, and after the tenth, which is in September 1979, Marie and I believe it appropriate to move the act to various universities in the northeast each year. I will now sit back and wait for the deluge of volunteers! If interested please let me know. We will be glad to provide suggestions and advice on logistics.

I have been on sabbatical this fall semester, working diligently, and painfully, on my environmental geology textbook. The manuscript should be completed during January 1979, but don't hold your breath for the publication date.

My glacial endeavors continue to be moderate guidance of Richard Caprio and Robb Gillespie on their glacial Ph.D. dissertations and Kevin Phelan on his M.A. Consulting activities have also taken a big chunk of time, both during the summer and this fall. Some of these investigations will eventually lead to publications because by now we have drawerfuls of information just waiting to be collated and written. Perhaps some snowy day....

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Horace R. Collins - State Geologist of Ohio, Columbus

The Ohio Division of Geological Survey now has in production for publication "The glacial geology of Ashtabula County, Ohio," by George W. White and Stanley M. Totten, "The glacial geology of Champaign County, Ohio," by Michael J. Quinn and Richard P. Goldthwait, and "The glacial geology of Lake County, Ohio," by George W. White. The Ashtabula and Champaign County reports should be available by mid-1979; the Lake County report should be available late in 1979.

A brief Geological Note by George W. White summarizing the extent of till sheets and ice margins in northeastern Ohio is scheduled for production in 1979. Editorial work has begun on Dr. White's monograph, "The glacial geology of northeastern Ohio." Manuscripts on glacial geology have been received for the following counties: Columbiana, Cuyahoga, Lorain, Mahoning, Ross, and Summit.

Related map studies which are scheduled for production in 1979 are "The surficial materials of Summit County, Ohio," by Robert G. Van Horn, and "The sand and gravel resources of Portage County, Ohio," by Dennis N. Hull.

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Aleksis Dreimanis - Geology, University of Western Ontario

During the summer of 1978 a paper co-authored with P. L. Gibbard was completed on trace fossils from Late Wisconsin glacial lake sediments in SW Ontario, to be published by the end of 1978 in the Canadian Journal of Earth Sciences. Though trace fossils or fossil tracks are quite

abundant in proglacial lake sediments, little attention has been paid to them up to now in our region, and the paper was meant to stimulate their investigation as another paleoenvironmental criterion. A review paper on "Methods of till investigation in Europe and North America" including replies from investigators in the state of New York and around it, was published by A. Raukas, D. M. Mickelson and A. Dreimanis in Journal of Sedimentary Petrology, V. 38, No. 1, pp. 285-294, 1978.

Most of the months of August to October were spent at five conferences and their field trips in Canada and Switzerland, learning what is new in the Quaternary and glaciological studies. Now I am back to my regular teaching duties. Presently, 6 Ph.D. theses, 2 M.Sc. theses and 2 B.Sc. theses in Quaternary are in progress at our Geology Department, and an Interdisciplinary Quaternary Discussion Group, including mainly geologists and geomorphologists is meeting every second week.

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Jay Fleisher - Geology, SUNY College at Oneonta

Those of you who plan to attend the Northeastern Section Meeting of GSA in Hershey will have an opportunity to help organize and plan an interdisciplinary Quaternary Symposium dealing with the upper Susquehanna drainage for the 1980 meeting.

The idea developed with Les Sirkin and me at NYSGA in Syracuse and involves a format including geomorphology, glacial geology, archaeology and palynology. I've already mentioned it to several of you since and want to encourage the broadest possible joining of ideas. I'll be in contact with those of you who I know have worked in this area, or have students interested in the upper Susquehanna, and hope that others would contact me so I can keep everyone posted of developments as they occur. In the meantime, I would appreciate hearing your ideas and suggestions and look forward to discussing them with you in Hershey.

Thanks and I hope to see you in Hershey.

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Jane Forsyth - Geology, Bowling Green State University, Ohio

Jane Forsyth, at Bowling Green State University (Ohio), writes that she has had very little time for research this year, so there is

not much to report. Much of her attention is still focused on the relationship of plants and their substrates. From incomplete data, it looks as if the prehistoric prairies in northwestern Ohio had a distribution correlated with greater soil moisture (together, perhaps, with late-summer drouths), and work by her student, Diann Lind, on Drummond Island in northwestern Michigan suggests that soil moisture is also the dominant factor (other than man's activities) controlling the distribution of tree species there. Field work with an SCS soils man, Joe Steiger, in Wyandot County (Upper Sandusky), Ohio, reveals that the county had four different temporary lakes, marked by lake silts over 12 feet thick, sand beaches and dunes, and a kettled sand delta -- all in an area mapped "ground moraine" on our Ohio map! Also, field reconnaissance with another student, Mike Grube, reveals the source of the sand of the Oak Openings of NW Ohio to be (as predicted) the ancient delta of the Huron River in eastern Washtenaw County, Michigan, and some other, more northern deposits. --Small progress.

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Paul Karrow - Geology, University of Waterloo, Ontario

Summer 1978 we surveyed additional stream valleys east of Lake Huron and can now estimate the former location of the Lake Algonquin shoreline offshore where it has been removed by more recent wave erosion. Several additional fossil localities were discovered in terraces of Algonquin and younger age. Also during the summer the bedrock topography map for Galt was revised and a new one for Guelph was prepared. Both will be published by the Ontario Geological Survey. Several B.Sc. and M.Sc. theses have been completed under the supervision of John Greenhouse on geophysical aspects of the bedrock valleys in the Guelph area (Lee, Hilton, Jensen, Arai, and Chaitan) and a B.A. thesis is in progress by Lorrie Farrell. Continuous coring was carried out to a depth of 128 feet in the Elora valley; at least 6 till sheets were penetrated overlying pollen-bearing silts and sands. The valley is known to be over 200 feet deep. A report will be prepared on this during the coming year.

Ed Sado is studying the till stratigraphy of the Lucan area (north of London, Ontario) for his M.Sc. thesis. At least four Huron lobe tills are present in the area.

Bill Fitzgerald is doing his M.Sc. thesis on the glacial lake history and palynology of Minesing swamp, south of Georgian Bay. Two deep cores (36 feet and 108 feet) have been obtained with the Department's drill rig. This involves Lake Algonquin and Nipissing relationships. During the summer Bill completed a report on the Sarnia area which he mapped for the Ontario Geological Survey in 1977.

A progress report on investigations of the Guelph interstadial site was presented at the G.S.A. meeting in Toronto. Pollen work on the site by Richard Hebda (Biology Dept., U. of W.) shows a typical spruce-pine interstadial assemblage. Molluscs, ostracods, insects, and plant macrofossils have also been identified. A deep underlying paleosol is of unknown age (interstadial or interglacial?).

Cam Baker completed his M.Sc. thesis on microfabrics of clay tills near Waterloo. Reasonably good ice movement trends were obtained (NW-SE) but the sense of motion was not well defined.

Alan and Anne Morgan are away until April 1978 on leave. They have been at INSTAAR in Boulder, Colorado, are now (November) at Seattle, and after Christmas will be at Menlo Park, California. Don Schwert completed his Ph.D. study of fossil beetles from Winter Gulf (N.Y.) and Gage Street, Kitchener, Ontario and is now in North Dakota as a post-doctoral fellow with Alan Ashworth, doing further work on fossil beetles. Randy Miller is starting an M.Sc. project on fossil beetles from Lockport Gulf (N.Y.) and Alliston, Ontario.

A B.Sc. thesis on paleotemperature analysis (Oxygen isotopes) is under way by Hilary Foulkes on Gage Street and St. Agatha bogs, near Waterloo, Ontario. This is being supervised by Peter Fritz and will be correlated with Peter's earlier work on Lake Erie cores.

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J. Menzies - Geography, Brock University, St. Catherines, Ontario

Work has recently begun by J. Menzies and students (Geography, Brock University) on further investigations into the Quaternary stratigraphy of the Lake Ontario bluffs between Jordan Harbour and St. Catherines in the Niagara Region. This work will attempt to unravel in greater detail the relationship of the underlying till (Halton) to the underlying beach sediments (Lake Iroquois). Based on visual inspection at a large number of sites, this two-fold division appears rather simple. The nature of the till/tills would indicate a protracted period of deposition in varying environments as evidenced from the structures found within parts of the till. The deposits above the till are equally variable and require closer scrutiny. It is intended that a whole series of analytical tests within the field and laboratory will be carried out over this winter and into next summer.

If anyone has comments from other areas, especially from the bluffs in New York State, I would be delighted to hear from them.

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Ernest H. Muller - Geology, Syracuse University

My field work last summer was reconnaissance work in parts of Madison, Cortland, Oneida and adjacent counties in an effort to complete mapping of the Finger Lakes 1:250,000 sheet which ultimately will appear as a companion to the Niagara Sheet, published last year by the State Museum.

Instructive, but still frustrating, were days spent in the field in late May and early July with George Crowl, and some of the time with Dave Fullerton and Bill Sevon as well, in an effort to establish the age and relationships of the Olean Moraine in New York and the "Terminal Moraine" in Pennsylvania.

In spite of thesis and dissertation completions by Andrews, Jordan, Chambers, Willette, Roberts and Proett last spring, the fall term has continued to have much of interest, particularly preparation for the New York State Geological Association meetings, compilation of the Finger Lakes 1:250,000 sheet for the New York State Museum, and compilation of the New York portion of the Hudson River 1:1,000,000 sheet (with Dave Fullerton) for the U. S. Geological Survey Quaternary Map Project.

During the spring term, 1979, I expect to be at the Department of Geology at Alaska Pacific University, Anchorage, Alaska (ZIP 99504), probably returning to New York in midsummer to cooperate with Todd Miller, USGS on mapping of surficial geology in Oswego County.

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Walter S. Newman - Queens College, CUNY

Last summer, I embarked upon Holocene sea level research along the South Atlantic Coast. Our search for basal peats in the lagoons behind the barrier beaches proved futile. Our 1.0" I.D. Davis Sampler also proved ineffective. Thanks to Don Colquhoun at the University of South Carolina and Frank Stapor at the Marine Research Lab of South Carolina and their Dutch-designed gouge-auger, we turned to the many estuaries in the area. There we found extensive peat deposits suitable as sea level indicators. Although none of our samples contained Foraminifera, my colleague Jon Sperling found many species of marine and brackish-water diatoms in splits of these samples. The 14 radiocarbon dates obtained so far indicate that sea level in South Carolina has been rising at the rate of less than 1 meter/millennium for the past 6,000 years. Although we're looking



at the neotectonics, Don Colquhoun believes he already can see sea level fluctuations matching those of Fairbridge (1976).

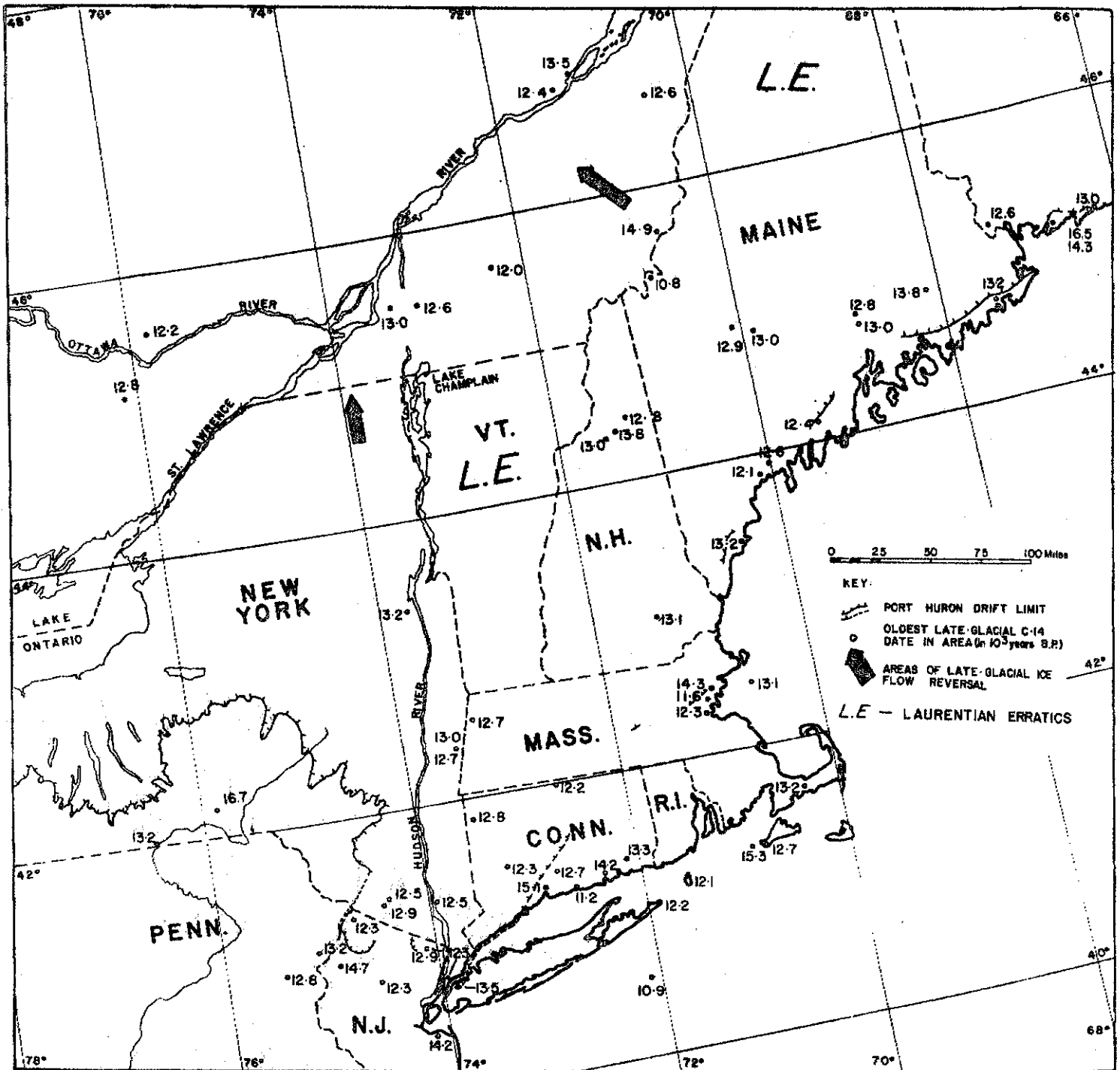
We are also continuing our sea level research along the Hudson Estuary. We now have 40 basal peats radiocarbon-dated and find that sea level has been rising at the rate of about 2 meters/millennium for the past 6,000 years. Although looking for differences in sea level curves on either side of the Ramapo Fault Zone and also crustal tilting, our results so far have been equivocal in the sense that we have so far failed to come up with statistically defensible arguments supporting either of these contentions. We have funding for an additional 60 radiocarbon dates on this project.

Our paper at the Toronto GSA meeting appears to have been poorly received. The main thrust of this paper was that a plot of the oldest available postglacial dates for eastern New York, New England and nearby areas yields no radiocarbon date older than  $15.3 \times 10^3$  years B.P. Furthermore, there is a nearly clear division between those dates older than about 13,200, concentrated in southeastern New England, and dates to the northwest which are almost always younger. The division seems bounded by drift or moraines which are Port Huron in age. I am talking about Hal Borns' coastal moraine complex in Maine, perhaps the Valley Heads complex in New York State, my Elmhurst Moraine on western Long Island, the Middletown readvance in the Connecticut River valley, perhaps one of those moraines discussed by Cliff Kaye in the Boston area, and one of several small moraines near the Delaware Water Gap described by George Crowl. The dates in the Mt. Washington area and the Boundary Mountains suggests they were nunataks about 13,000 years ago. It also may be that I am dead wrong and that either we have not dated the right material as yet or that the area was an arctic barren awaiting the arrival of a biological wave coming in from the south which finally provides material suitable for dating. I would appreciate discussion of these chronological problems. I include our diagram illustrating the data which might stimulate argument.

My co-investigators in these projects include Leonard Cinquemani, Howard Craig, and Richard Pardi.

(Diagram given on next page.)

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Richard Young - Geology, SUNY College at Geneseo

The nearly complete skeleton of an immature peccary was recovered in July 1978 from a sand and gravel pit owned by Lawrence Hill. The bones were located in a disrupted section within ripple-laminated, silty sand beneath a compact, gravelly till. The pit is near the summit of a small moraine at an elevation of 930 feet. An irregular area surrounding the bones exhibits complete destruction of the stratification throughout the 20-foot exposure below the till. Around the outer edge of this structureless zone, the laminae are convoluted, upturned or irregularly contorted, and they show evidence of quasi-liquid behavior. The contact between the disrupted zone and the adjacent beds varies from sharp to gradational and from vertical to horizontal or overhanging. The degree of fluid deformation of the beds increases inward toward the edge of the disturbed zone. Another similarly disturbed section is present in the same pit a few yards north of the bone site. Both sedimentary structures indicate "quicksand" conditions. The elevation and topography of the site require the presence of a nearby ice sheet and glacial meltwater to explain both the stratified sand deposit and the hydrology. Hydrostatic pressure could have been caused either by loading from nearby ice or by escaping subglacial meltwater. The overlying till indicates an ice readvance over gravelly outwash after the time of burial.

Although the disturbed zones bear a superficial resemblance to some fossil ice-wedge fillings, they are quite dissimilar. A quicksand condition would explain the excellent preservation of the bones.

Tooth eruption studies on the modern peccary, Pecari tajacu, permit assignment of a 9-10 month age for the individual. An older animal might have avoided the quicksand. The sedimentological evidence confirms the conclusions of other workers that these animals are not indicative of warm interglacial climates as had been previously assumed. An age determination could provide much needed control on the timing of the late glacial readvances in Western New York.

(Identified with assistance of Dr. J. W. Scatterday, S.U.C. Geneseo.)

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Robert H. Fakundiny - State Geologist

Just a short note to inform the Glaciogram readers that I have been appointed State Geologist and Chief of the New York State Geological Survey.

We intend to concentrate our efforts over the next five years in the areas of glacial geology, ground water hydrology, and regionally focused mapping programs in such topics as economic geology and coastal zone-wetlands geology.

Now is the time for Glaciogram readers to send me their ideas of what the State Geological Survey should be and what it should do. My phone is (518) 474-5816.

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