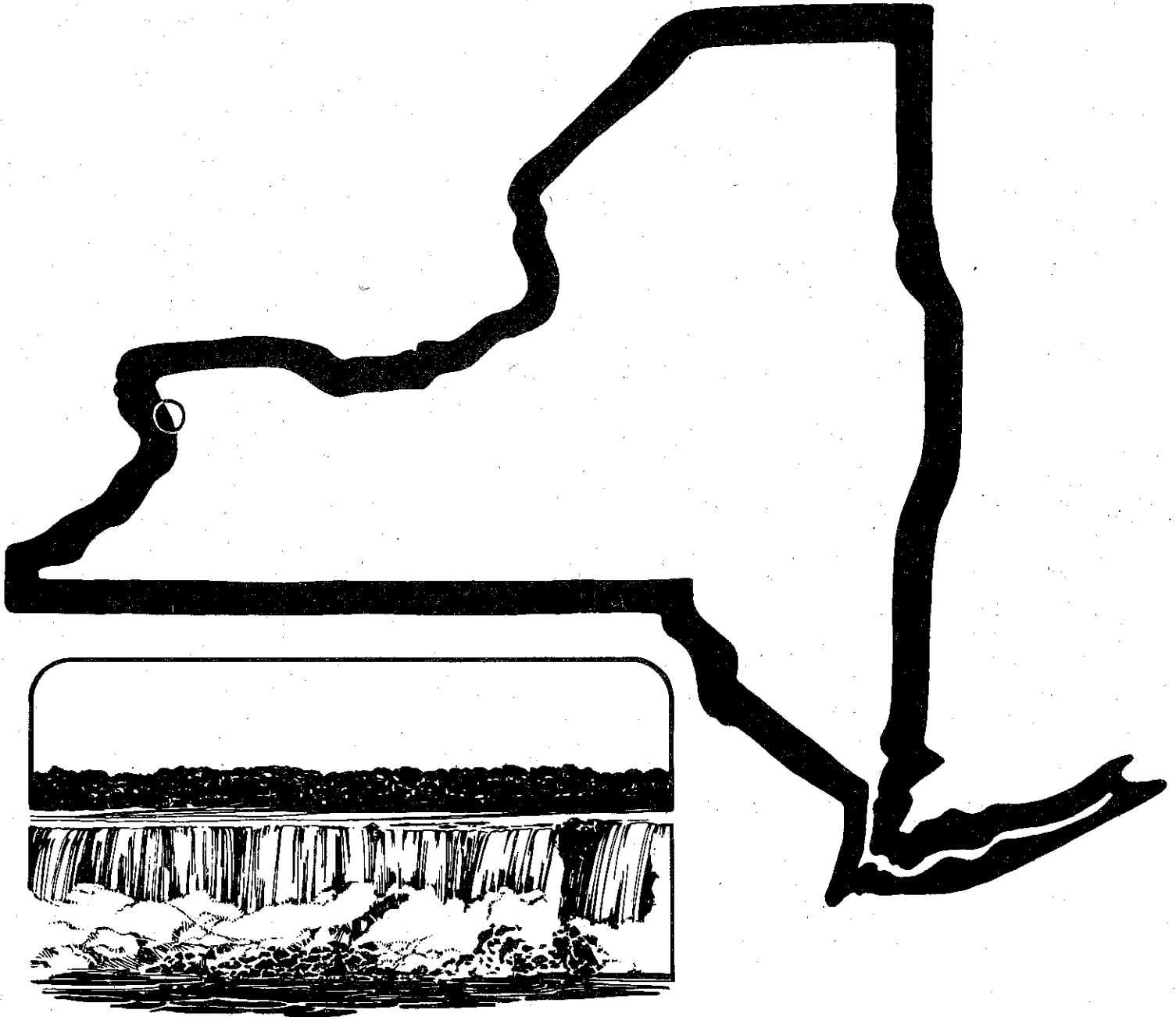


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E. F. KARROW

NEW YORK GLACIOGRAM



DEPARTMENT OF GEOLOGICAL SCIENCES

State University of New York at Buffalo

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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 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; we agree with this suggestion.

Parker E. Calkin

Robert F. Black - Geology, University of Connecticut

Graduate student Joe Gurrieri is mapping the glacial deposits of the Saranac Lake Quadrangle, NY. We spotted striae from ice flow to the northwest which were later mostly obliterated by ice flowing south-southwestly. These and anorthosite erratics are strongly suggestive of alpine glaciers in the Adirondacks prior to the last advance of continental ice.

Arthur L. Bloom - Geology, Cornell University

As a result of the late October flood in the Ithaca region, many excellent new and old stream-bank exposures are open. I hope to find something datable somewhere this fall, to support or disprove that 6-Mile Creek C¹⁴ "date" of 42 KA. I'll report further later.

Donald H. Cadwell - NYS Geological Survey, Albany

My field research has concentrated in Rensselaer and Columbia counties, to complete the 7-1/2' maps east of the Hudson River between the Hudson Highlands and the Rensselaer Plateau. The next step will be transferring this data onto 1:62500 scale maps before the reduction to the final scale for the Hudson-Mohawk 1:250,000 scale sheet. Anyone mapping east of the Finger Lakes sheet who wishes copies of the 7-1/2' maps at a scale of 1:62500 should contact me. We are having all available 7-1/2' maps reduced so individuals researchers can make the first composite reduction.

We are hoping to be able to complete the field mapping for the Hudson-Mohawk 1:250,000 sheet during the next 18 months. Therefore, anyone who has data that they want to have included should let me know reasonably soon, so there is a minimum of duplication of effort.

Work is progressing on the compilation of the Finger Lakes 1:250,000 sheet. We anticipate that the map will be ready for the printer by early 1982.

Parker Calkin - Geology, SUNY Buffalo

Most of my field work over the past four years has been in the Brooks Range, Alaska. However, graduate student Brenda Gagne has been working on some stratigraphic sections within the upper portions of Cattaraugus Creek that show three till units. These are very similar to others I've mapped near Gowanda on the north side of the Creek. The upper unit is characteristically very clayey and relatively thin compared to the lower two and we think it represents a slight advance just prior to retreat to form the Lake Escarpment-Valley Heads system. This advance may be distinct from the Lavery? exposures Bob LaFleur showed us to the south during the Friends trip of 1980. The lower of the three tills has blocks of red till within it. One working hypothesis is all related to the Lower Wisconsin red till near Gowanda Hospital (Calkin and Muller, 1980 - Friends

Guidebook of LaFleur; Calkin and Muller, in press, Am J. Sci). The red tills of Gowanda were laid down by ice moving east southeastward from the direction of the Niagara Peninsula of Ontario.

Nelson Gadd (Geol. Surv. Can. Paper 81-1c) has described anorthosite cobbles from the Cattaraugus Basin (same area as above) that appears to be derived from the Laurentians northwest of Montreal. My colleagues at Buffalo see somewhat similar maroon-weathering anorthosite cobbles and some breccias that closely resemble bedrock cropping out in Sudbury. Therefore, there seems to be good evidence of an ice lobe from the northwest as well as the St. Lawrence Valley area to the north or northeast.

The 1982 NYSGA meetings will be held at the Buffalo Marriott Inn on October 9-10 following the Eastern Section AAPG Technical sessions on the 7th and 8th. If you have not received the ESAAPG call for Papers or first announcement for NYSGA Field Trips, please contact me.

Peter Clark - INSTAAR, University of Colorado

I have published two abstracts based on my thesis "Late Quaternary History of the Malone Area, New York" (Univ. of Waterloo, 1980). The first paper was presented at the 1981 Bangor, Maine GSA - "Lake levels and the marine limit in the St. Lawrence Valley, New York, and regional correlations". The second was presented at the 1981 Cincinnati GSA - "Till stratigraphy in the St. Lawrence Valley, New York, and revised glacial history". Three manuscripts are in preparation, two based on the abstracts above and another on the last deglaciation of the northern Adirondacks, with particular emphasis on contrasting styles of deglaciation resulting from the relief differences between the St. Lawrence Lowlands and Adirondack Highlands.

Donald R. Coates - Geology, SUNY Binghamton

On September 18-20, 1981 we hosted the annual meeting of the New York State Geological Association. Three of the 11 trips stressed glacial geology, including my own titled "Geomorphology of South-Central New York". The guidebook of 282 pages can be purchased from Fred Wolff, Hofstra University.

We have had more students finishing their graduate work in glacial studies, and others are coming along the way. I enclose abstracts of two M.A.'s completed last spring, by Tim Stone and Kevin Phelan. They have both taken jobs that stress engineering geology and hydrogeology.

Amy Altman completed her M.A. degree this fall, and I will enclose her abstract in the spring GLACIOGRAM issue. It pertained to land use planning in a glacial terrane on Long Island.

There are currently three graduate students working on problems that involve glacial know-how. Peter Murdoch is studying acid rain in the Adirondacks. He is comparing two lakes and their watershed areas...one is undergoing acidification whereas the other is not. WHY?

David Ozsvath has completed his first field season mapping glacial deposits in the Catskills as work toward his PhD. He finished eight 7-1/2 minute quadrangles. Next summer he hopes to add another 12 to his list. He has concentrated his efforts in the western Catskills.

Matt Gubitosa started his field mapping several weeks ago in the southwest Catskills...Hancock and vicinity. He is interested in both the glacial geology and hydrogeology of the area and will finish his M.A. field work during the 1982 summer.

My own work that relates to glacial geology has largely been in the form of my consulting and litigation cases. For example I am presently involved in six different lawsuits. I write reports for the lawyers and then when the case goes to court I provide testimony. Four of the cases are glacially-oriented, in which glacial theories are applied to practical problems. A fifth case, which concerns rockfall, is related to freeze-thaw phenomena. The sixth case involves damages created by channelization and is strictly in the fluvial domain. I am mapping sand and gravel resources in the Wurtsboro, Ellenville, Middletown, and Port Jervis areas. If anyone has information on those localities I would be pleased to know.

Phelan, Kevin, 1981, Glacial geology in the East Vestal area, New York: M.A. Thesis, SUNY-Binghamton, 65p.

ABSTRACT

Field investigations in a small area in the Glaciated Appalachian Plateau, near Binghamton, New York provide some important information concerning the origin of two distinct lithofacies of glacial till and several landforms, including umlaufbergs and transverse till ridges. A multifaceted approach of areal mapping, morphologic observations, and sedimentological measurements, including till pebble lithology, roundness, sphericity, and fabric was used to interpret surficial materials and to model processes.

Glacial till in this region has historically been differentiated into two facies by the relative amounts of far-travelled, or exotic clasts. Up to 32% of the pebbles in bright till are derived from sources north of the Appalachian Plateau, whereas the drab till contains only a few percent exotic pebbles. Bright till is largely confined to valleys and drab till covers the upland surfaces. High pebble roundness and sphericity values indicate that the bright till is derived, in part, from reincorporated valley fill materials. Drab till is composed almost entirely of angular shards of locally derived bedrock.

An unusual reentrant form, extending 1/2 mi. into the southern Susquehanna Valley walls occurs within this study area. A series of till ridges are located in the reentrant. These features are smoothsided and nearly straight ridges oriented transverse to ice movement. They are composed of massive, lodgement till. Intense shearing in glacial ice at the south side of the Susquehanna Valley is indicated by strong till fabrics in the till ridges and an association with deformed glaciolacustrine clays.

The steep slopes acted as a major obstruction to ice flow. The glacial substratum of unconsolidated and porous sediments in the valley developed excess pore water pressure. Thus the shear strength of the glacier bed was reduced. This permitted a thrusting mechanism to entrain exotic-rich valley fill materials and transport them to sites of deposition as transverse till ridges at the base of the steep slopes.

Stone, Tim, 1981, The quality of glacial sand and gravel resources as related to environmental conditions and land forms in the Binghamton Region: M.A. Project, SUNY-Binghamton, 100 p.

ABSTRACT

The potential economic value of glacial sand and gravel materials is directly related to the conditions that controlled their depositional environment and history.

Petrographic and grain size analyses of stratified drift in the lower Chenango River Valley, and the Susquehanna River Valley from Binghamton to Nichols, New York, provide new data that support the presence of two distinct drift facies. Olean (drab) stratified drift that contains 95% or more of locally derived material is found in most ice contact features including kames, kame terraces, and eskers. Some pitted valley train terrane also contains similar material. Binghamton (bright) stratified drift generally contains 25% to 40% exotics. These were transported by glacial ice into the region and mostly occur in valley train deposits.

The distinction between Binghamton and Olean drift can also be used as an economic quality indicator. Binghamton sand and gravel with its durable exotics is a superior aggregate compared to Olean stratified drift containing shales, siltstones, and fine sandstones that are more susceptible to disaggregation. The dynamic nature of the glaciofluvial environment is reflected in the rapid changes in the composition and texture of deposits. This mixture requires selective mining to avoid deleterious materials. Carbonate cementation, iron-manganese coatings, flowtill, colluvium, glaciolacustrine deposits, depth of leaching, and degree of weathering can also impair the economic quality of a sand and gravel deposit.

Restrictive laws and urbanization reduce the availability of potential aggregate resources so the need for comprehensive sequential land use planning becomes more urgent. The aggregate operator, the consumer, and landowners near a mining operation can all benefit if plans for sequential land use are adopted. The geomorphologist can play a major role throughout the sequence of exploration, extraction, and land reclamation.

* * * * *

George H. Crowl - Geology, Ohio Wesleyan University

I mapped the Jersey Shore PA quad this summer and must now write the report. Jim Baxter (graduate student, Penn. State) and I have pushed the Illinoian boundary about 35 miles SW up Baid Eagle Creek and have "ruined" the lake deposits in Lake Leslie. They're kames. There "must have been" a lake in the W. Branch Susquehanna Valley - but no deposits to prove it.

* * * * *

Robert J. Dineen - NYS Geological Survey, Albany

This has been an exceptionally busy field season! I've nearly completed airphoto interpretation and field reconnaissance on 9 7½ minute quadrangles near Kingston and 4 7½ minute quadrangles near Schenectady for the State Glacial Map Project. I was able to trace the Rosendale Readvance ice margin from West Park (Town of Esopus Landfill-Hyde Park quadrangle) north along the base of the Marlboro Mtns., around Hussey Hill and south into the Rondout valley. The margin lies just south of Maple Hill (Rosendale quadrangle) and can be traced west

along a moraine that underlies Kallons Corners-Binnewater-Cottekill-Stone Ridge (Mohonk Lake quadrangle). The margin can then be traced north-northwest into the Esopus Valley, where it dammed a +400 ft. lake at Atwood (Ashokan quadrangle) and a +600 ft. lake at Woodstock (Woodstock quadrangle). I could not find the margin along the base of the Catskill Mtns. between Woodstock and Kiskatom, but I pick it up again at Cairo Round Top (Leeds quadrangle) where it is marked by a meltwater channel complex along the base and north face of the Blackhead Mtns. It extends northwest to Oak Hill (Durham quadrangle).

The presence of many multiple till localities in the Helderberg Plateau from the Catskill Creek valley to Duaneburg (see LaFleur, 1969), and of a few multiple till localities near Woodstock (Frimpter, 1970) suggests either that the glacier retreated to the north lip of the Helderberg Escarpment (near Altamont) or at least as far north as the Fox Creek valley (Berne), before the Rosendale Readvance. This seems to confirm my prejudice that the Rosendale Readvance equals the Middleburg Readvance of the Schoharie Valley.

Ice did not retreat from the Hudson Gorge, however. I could not find any multiple till or till-over-stratified drift localities along the Hudson River from Ravena to Kingston. The State's extensive collection of test hole data from this area also shows a dearth of till-over-stratified drift in the gorge. These data suggest that a long (stagnant?) ice tongue persisted in the gorge while the ice retreated 50 miles in the high lands.

I suspect that Lake Albany between Ravena and Kingston represents a water plane that developed in leaky, stagnant Rosendale ice occupying the gorge, based on the consistent presence of ice-contact features on the lake side of "Lake Albany" deltas between South Bethlehem (Delmar quadrangle) and Kingston. Both G. G. Connally and E. Hanson (Dunn Geoscience) have told me that they have noticed similar features. The deltas become ice-free during a lower Lake Albany phase (+300 ft.) near South Bethlehem, and during the Lake Quaker Springs phase near Kingston.

I found more evidence for the Delmar Readvance near Schenectady, where the Masick Pit (Rotterdam Junction quadrangle) is a near-mirror-image of the Wunderlich Pit (Niskayuna quadrangle), with till (Mohawk facies) overlying ice-contact (lacustrine?) stratified drift. The till is overlain by +330 to 350 ft. Lake Albany deltas. The Delmar ice margin has been traced to the Meadowdale Moraine (Voorheesville and Altamont quadrangles) along the base of the Helderberg Plateau.

This winter I hope to complete airphoto interpretation of the quadrangles I mapped this summer, the report and map for the Albany 15 minute quadrangle, and a preliminary report on the deglaciation of the Helderberg Plateau.

Aleksis Dreimanis - Geology, University of Western Ontario

Last summer and fall went very fast: most of the time I was either travelling to various conferences or lecturing on geological and also non-geological topics. Preparation of the lectures required re-evaluation of my thoughts on the genesis and classification of tills and the stratigraphy and correlations of the last glaciation.

July 28 to 6 August I attended the 8th session of the IGCP Project 24 (Quaternary Glaciations in the Northern Hemisphere) at Kyoto, Japan, presenting a paper on the stratigraphy of the last glaciation in eastern and central Canada and participating in glacial geology field trips in the Japanese Alps.

August 20-30 I went to the field conference of the INQUA Commission on genesis and lithology of Quaternary deposits in Wyoming and Idaho, and beginning of September, to the Catskills in New York.

The month of October was spent in Finland and Sweden, either on geological field trips, or lecturing on tills and the last glaciation at the Geological Survey of Finland in Helsinki, and at the Universities of Uppsala at Stockholm. Then - beginning of November were the meetings of the GSA and AMQUA Council at Cincinnati, Ohio. Now it is time to digest the impressions of the travels and the discussions with others during them and to read the Ph.D. theses submitted by my students.

Donald F. Eschman - Geology, University of Michigan

I am working on a manuscript reporting on four tills (from 48,000 ± yrs. to 13,000 yrs in age) exposed along the Black River in Sanilac and St. Clair Counties Michigan. Also, work continues on Lake Maumee and the Imlax Outlet Channel and on a number of spill-over channels between the Imlax Outlet and the Whitlesey Outlet (Ugly Channel) of Port Hourouage in the Thumb area of Michigan.

Nelson R. Gadd - Geological Survey of Canada, Ottawa

I am enjoying interestingly mixed reactions to my recent paper on late ice-flow patterns in eastern Ontario (CJES, 17, 1980, p.1439-1453), and have made a reply (CJES, 18, 1981, p. 1390-1393) to comments published with the paper. As I pointed out in the paper, the interpretation was based on a reconnaissance survey of that area. Further similar reconnaissance studies related to compilation of Canadian portions of 1/10⁶ sheets NL-18, NL-19 (now submitted to Gerry Richmond) have stimulated the recognition on a broad scale of what may be examples of, or phenomena related to, the Denton and Hughes model of late-Wisconsinan deglaciation by drawdown due to onlap of the seas in late Wisconsinan time and interpreted as occurring somewhere ca. 16,000 to 13,000 BP by Ruddiman and McIntyre (1981; QR, 16, 125-134). One such example, involving deglaciation of adjacent coasts of SW New Brunswick and SE Maine, is the subject of a brief comment on the deglaciation model presented by Genes et al (1981; QR, 16, 48-65), that I have just submitted to Quaternary Research. It was a happy coincidence that I was in New Brunswick reviewing the field evidence with former colleague Vern Rampton when my copy of the Genes et al article arrived at my office.

Some additional notes on the dispersion of distinctive maroon- or purple-colored anorthosites from a probable source in the Laurentians north of Montreal, some of which I believe travelled as far as moraines south of Buffalo, New York, are to be published in a forthcoming issue of the GSC house publication "Current Research". Another note in the same forthcoming issue records the discovery of pre-last-glacial organic matter (>42,000 yr BP; GSC-2932; on a small sample) in the Ottawa River valley between Ottawa and Montreal. This is our first knowledge of the possible extension of St. Pierre equivalent (???) non-glacial conditions this far west in the St. Lawrence Lowlands. We are hoping that re-sampling during the winter of 81-82 will provide us with enough material to upgrade the date. Biological studies are under way by Matthews and Mott and will probably continue on whatever new materials come from our stratigraphic borings this winter.

David L. Gross - Illinois State Geological Survey, Champaign

The State of Illinois is obviously not in or adjacent to New York, but the Illinois State Geological Survey has just released a publication that is a bit of a milestone and which will be of interest to most readers of the NEW YORK GLACIOGRAM. The news is the publication of our Environmental Geology Note 100. That publication series was begun in 1965—the first anywhere to carry the "Environmental Geology" title. EGN 100 by John Kempton, "Three-Dimensional Geologic Mapping for Environmental Studies in Illinois" describes the geologic logic, cartographic procedures, and history of development of geologic mapping for environmental purposes. We continue to use a map of the Quaternary deposits as the basic component in geology for planning reports. These three-dimensional maps describe the sequence of materials to some specified depth, commonly six (6) meters. Thus, this publication is a handbook of our procedures for mapping of Quaternary materials.

Quaternary studies continue as a major effort of the Illinois Survey. John Kempton is the busy one with many recent publications. He is working with Richard Berg to finish a geology for planning study in Boone and Winnebago Counties that includes detailed three-dimensional Quaternary maps and they are beginning a state-wide effort to interpret surficial maps for purposes of waste disposal. Leon Follmer is working on the Sangamonian Soil including a detailed study of a site just north of Springfield. Paul DuMontelle is studying subsidence over underground coal mines which in Illinois usually involves determinations of why Quaternary materials have moved. David Gross published a study of the Kankakee River and is beginning a long-term effort on parts of the Mississippi and Illinois Rivers. Jerry Lineback is on leave from the Illinois Survey and is working for a consulting firm in Houston. Myrna Killey is overseeing the completion of Quaternary maps of Champaign and Madison Counties. H. B. Willman celebrated his eightieth birthday by taking a day off from the work he and John Frye are doing in the driftless area in northwestern Illinois. I could go on, but that gives you the general idea.

Coal is the big news in geologic studies in Illinois, but those of us concerned with the overburden are still busy. That leads to another story. In a recent visit to the Geological Survey of Sweden I was fascinated by their organization chart which includes as two major divisions the Department of Quaternary Geology and Hydrogeology and the Department of Pre-Quaternary Geology. I always knew that the science of geology should be organized that way.

Paul F. Karrow - Earth Science, University of Waterloo, Ontario

Over the summer we were visited by U. Eicher, from Switzerland, who came to study isotopic changes in lake marl sequences with Peter Fritz. This will complement earlier work by post-doc fellow Jeff Turner on dating problems with marl, on which manuscripts are in preparation.

Ph.D. student John Coakley is studying the history of Long Point in Lake Erie. This fall a continuously-cored hole was drilled to a depth of 130 feet part-way along the spit.

Paul Finamore is doing an M.Sc. thesis on the Kirkfield outlet of Lake Algonquin. In this connection he mapped the western Fenelon Falls sheet and eastern Orillia sheet for the Ontario Geological Survey this summer.

Jim Richard mapped two sheets near Hearst in northern Ontario for O.G.S. as a basis for his thesis on the Cochrane advance.

Chris Fordham is starting an M.Sc. program in engineering geology and engineering properties of till.

Bachelor's theses in progress include those of Andis Zilans (Geography) on Grand River terraces, Sam Cerka on urban geology of Kitchener, Nancy Wilson on correlation of geophysical logs to the Pleistocene sequence in a buried valley near Guelph, Duncan McIvor on drift prospecting for gold and Randy Singh on engineering properties of clay near Lake Erie.

I spent five weeks last spring on St. Joseph Island in northwestern Lake Huron surveying raised shorelines (Algonquin-Nipissing). The Island was last glaciated from the north after the "Valders" advance farther south in Michigan. Several buried organic sites were discovered associated with the Nipissing transgression. The Guelph interstadial ms. is essentially ready for submission and a regional review paper for the IGCP on the Great Lakes-St. Lawrence area is nearly completed. Meanwhile, a paper with S. Paplawski on Toronto interglacial ostracodes has appeared in the Canadian Journal of Earth Sciences, and in the same journal was my discussion of Nelson Gadd's deglaciation history in eastern Ontario.

The Quaternary Discussion Group, which meets every three to four weeks between September and March is now in its fifteenth year of operation. Talks by off-campus speakers are offered in the fall, with in-house speakers during the winter, when travel is more difficult. We commonly enjoy visiting speakers and listeners from a 70-mile radius of the campus.

Carl Koteff - U.S.G.S., Reston

I started on my new project later this year than I had hoped, which is "Postglacial uplift in the Northeastern U.S.". Less than seven rewarding weeks were spent along the shores of Lake Champlain in Vermont: unfortunately I was not able to get over to the New York side as originally planned. Better luck next year. This sure beats working at administrative tasks as I had been doing the past 3½ years. With a more civilized schedule this winter and spring, perhaps

the new project can begin to have a character of its own. I will be back in the Vermont side of the Champlain Valley again at least by June, and several trips to New York are planned.

Robert G. LaFleur - Geology, Rensselaer Polytechnic Institute

Mapping in eastern New York has moved into the southeastern Adirondacks with the activities of 3 graduate students, Karen Maiurano, Luanne Wheeler, and Mike Ianniello, who are working in the Lake Luzerne, The Glen, Bolton Landing, Corinth and Gansevoort 7.5' quadrangles. Dave DeSimone has completed the Schuylerville and Fort Miller quads and continues mapping of Washington County for his dissertation. Chuck Porter is busy mapping in the Schoharie Valley south of Route 20 also for his Ph.D. Ken Galli has finished his M.S. thesis on sedimentology of the Olean-Kent-Lavery tills in Cattaraugus County and has moved on to the oil industry. I am putting the finishing touches on a paper describing the Mid (?) and Late Wisconsin Hell Hollow and Mohawk stratigraphy in the area between Little Falls and Saratoga Springs.

Remember the Geomorphology Symposium "Groundwater as a Geomorphic Agent" will be held at RPI September 25, 26, 1982.

Forest Lyford - U.S.G.S., Albany

The U.S. Geological Survey, Water Resources Division, has initiated a five-year study of ground-water resources in buried glacial valleys of the Northeast. The project, titled "Northeastern Glacial Valleys Regional Aquifer Systems Analysis," will concentrate on methods for defining geologic frameworks and hydrologic processes in buried valleys and methods for simulating hydrologic responses to ground-water development and climatic variations. Forest Lyford, Project Chief, will have a professional staff of three, including modeler, geochemist, and geohydrologist, headquartered in Albany, New York. Special studies in support of the project will be performed in New England, Connecticut, New York, New Jersey, Pennsylvania, and Ohio District Offices. Much of 1982 will be spent staffing and planning project activities.

Ernest Muller - Geology, Syracuse

The Syracuse "pod", spearheaded by Dave Franzi and Jack Ridge, aided toward the end of the summer by Mike Antonetti and James Loewy continued quadrangle mapping last summer northeast of Utica in the area variously affected by iceflow from Black River, Oneida, Mohawk and Adirondack terranes.

Blessed with abundance of exposure, Ridge is unraveling the stratigraphic relationships in the Newport and Middleville Quadrangles. Franzi is attempting to define geochemical characteristics of the several drifts in the Remsen, Hinckley and adjacent quadrangles.

Franzi was co-leader with Dick Goldthwait and Perry Stewart for a field trip prior to GSA examining glacial deposits in southwestern Ohio. Ridge led an Evenson Little Friends trip south of Delaware Water Gap during one of the few spare weekends of October.

During these past few weeks I have made time to work again on compilation of the Finger Lakes 1:250,000 sheet. At Don Cadwell's insistence, and with his help, it begins to appear that the compilation will be ready for commitment of funds for publication by the New York State Geological Survey out of this year's budget.

New York state occupies parts of several sheets of the 1:1,000,000 Quaternary map in preparation under leadership of Gerry Richmond and Dave Fullerton, U.S. Geological Survey, Denver. Dave tells me that the Lake Erie sheet is ready for review by contributors, that the Hudson River compilation is due for completion this winter, and that the Adirondack sheet must follow soon after.

Mike Wilson (now at Texas A. and M.) prepared an abstract of his dissertation on the LeRoy meltwater channels, for GSA in Cincinnati. Unfortunate circumstances prevented the presentation. Although he made an early start from his Motel, the bus was trapped in a traffic tie-up on the Interstate and did not reach the Convention Center until after the time slot was past.

In his guide for the New York Canal Association's field trip this fall, Tom Grosso (Monroe Community College) neatly related glacial geology and history to construction of the Black River Canal.

CHAUNCEY D. HOLMES

1897-1981

Chauncey Holmes was born on the Valley Heads Moraine in New Woodstock in 1897. He earned degrees at Syracuse University and at Yale University under Richard Foster Flint. For a year thereafter he taught at the University of North Dakota before joining the faculty of the University of Missouri in Columbia. for 23 years, 6 of them as Chairman of the Department of Geology.

Chauncey will be long remembered among New York glacial geologists for his painstakingly detailed work on "Till Fabrics" and his analysis of "Glacial erosion in a dissected plateau" among other notable works. Where conflict of opinions developed he had the gift for adopting and blending the best of both points of view, as in his synthesis of "Geomorphic development in humid and arid regions" and of "Equilibrium in humid-climate physiographic process".

Although he traveled far afield, Chauncey's heart was always in the hills and valleys of upstate New York. Upon retirement he returned to the area of his boyhood, settling in Tully.

Retirement for Chauncey could never be complete. He had not yet finished work on his new home in Tully before he took up the new research challenge of palynology. He designed his own sampler, assembled his own reference collection and mastered the new skill, at the same time imparting his enthusiasm to a number of science students with whom he worked. A guide to local geology and plaster relief models of the environs were other geologic contributions from his retirement.

Perhaps the prime objective of his academic career was the awakening of geologic awareness among introductory students and nongeologists. To this end he established at Syracuse University a fund to recognize annually "the outstanding introductory geology student(s)". For more than 20 years, he and Frances were regularly on hand for the Holmes Award and Lecture. This year he had responded as usual to the annual invitation. "Well, you know", he had said. "that's one of the things that Frances and I look forward to. Yes, we'll be there."

Such was not to be the case, however, for Chauncey Holmes died peacefully in his sleep during the night of November 22nd at his home in Tully.

Chauncey is survived by his wife, Frances Vivier Holmes and a son Wilbur Holmes of Stamford, Connecticut.

Walter S. Newman - Queens College, CUNY

I'm on sabbatical working for NASA and have been so tied up with their computer that I forgot to write-up material for the glaciogram. Working on isobases and turning out computer generated isobase maps. We have a set for the east coast and are now working on the world based on 3700 C-14 dated points. Fascinating!

Gerald W. Olson - Agronomy (Soils), Cornell University

My work is summarized in the new book, "Soils and the Environment: A Guide to Soil Surveys and their Applications", just published by Chapman and Hall (London), Methuen (New York) and Dowden and Culver (Stroudsburg, PA.). Editor is Don Coates at SUNY Binghamton.

Allan D. Randall - U.S.G.S., Albany

Over the past couple of years, Tom Holecek and I have devoted some of our time to short reaches of several through valleys at or just south of the Valley Heads moraine. We undertook well inventory, test drilling with power auger, water-level measurements, one seismic line. We were interested to note that in at least 2 valleys (Harford and Fabius, both near Cortland) there is good evidence for a wedge of till at shallow depth beneath the valley floor. The wedge of till extends southward a few thousand feet from the present crest of the moraine, overlies a thick section of stratified drift, and is overlain by only a very few feet of outwash or fan gravel. Apparently the penultimate event in the depositional history here was a brief readvance.

Peter T. Regan - NYS Geological Survey, Albany

The following is a brief description of a project being conducted at the New York State Geological Survey. Staff involved include Robert H. Fickies, Robert J. Dineen and Peter T. Regan. Publication is anticipated late in 1982.

This study, entitled Engineering Geology Classification of Soils in the Albany, N.Y. 15' Quadrangle, is a USGS funded pilot project to demonstrate a methodology for portraying engineering properties of glacial deposits. The base map is the glacial geology map of the Albany 15' Quadrangle in preparation by Dineen. The nearly two dozen glacial units have been classified into several groups with similar engineering characteristics. This process utilized previously defined glacial units which were combined into a lesser number of new units based on the Unified Soil Classification System. In addition to the Engineering Properties Map, another map illustrating colateral geological information has been prepared. This information includes thickness of overburden and geological hazards of the glacial deposits, namely land-sliding in the Lake Albany clays and aeolian transport of fine lacustrine sands.

W.D. Sevon and T.M. Berg - Pennsylvania Geological Survey, Harrisburg

During 1981 Sevon spent most of his time working on various field trip guidebooks, some time on Pike County geology, and a minimum amount of time on Quaternary studies. One pretty product, for which Sevon takes all the blame, published by the Survey this year, is Map 59, Glacial deposits of Pennsylvania. This is a very generalized, 9x12 inch, colored map showing the areas known to have glacial deposits. A brief explanation of materials and stratigraphy is also on the sheet. This is available free from the Survey.

At long last the new bedrock map for Pennsylvania has been published and is now available from the State Book Store, P. O. Box 1365, Harrisburg, PA 17125 for \$9.00 (Pa. residents add 6% sales tax). The map is a thing of beauty, if you are into bedrock; the current interpretations of major maximum ice positions are shown to tickle your glacial fancies. Berg does not anticipate starting another state map revision in the immediate future!

Berg was able to obtain USGS support for field expenses for George Crowl to map the glacial/periglacial geology of the Jersey Shore 7½-minute Quadrangle west of Williamsport. The bedrock geology has been mapped by USGS Geologists Howard Pohn, Al Taylor, Terri Purdy, and Bill Colton. Crowl did the mapping on a voluntary basis, and the Pennsylvania Survey greatly appreciates his work and the USGS help. One interesting result of Crowl's mapping is recognition of older till (probably Illinoian) more than 25 miles west of the previously mapped limits near Williamsport. The Jersey Shore Quadrangle will be published as a Pennsylvania Survey Atlas.

The most exciting part of the year was the discovery by Berg of a multiple till section near Morris, PA, in southcentral Tioga County. The site was studied by Sevon and G. H. Crowl and described in some detail in:

Berg, T. M. and others, 1981, Geology of Tioga and Bradford Counties, Pennsylvania: Guidebook, 46th Annual Field Conference of Pennsylvania Geologists, Pennsylvania Geological Survey, p. 142-144.

The following description is abbreviated from the guidebook:

Strip mining for coal during the spring and summer of 1981 by Antrim Mining Company exposed a sequence at present unique in the eastern glaciated part of Pennsylvania. Prior to the excavation of this strip mine no exposures of multiple tills were known in Pennsylvania east of the Salamanca reentrant.

The vertical sequence temporarily exposed here revealed three color distinctive tills: an upper brown till, a middle yellow till, and a lower gray till. The brown till has a damp color of reddish brown (5YR4/3-4/4) to brown-dark brown (7.5 YR 4/2); the yellow till, yellowish red (5YR5/6); and the gray till, dark gray (5YR4/1). These tills dry to brown (7.5YR4/4-5/4), light to strong brown (7.5YR6/4-5/8) to yellow (10YR7/4-7/6), and grayish brown (10YR5/2) respectively. Lithologies of the different tills are not significantly different. Striated pebbles are common in the brown and gray tills. All pebbles in the yellow till are weathered and usually have a yellowish coloration. Grain size composition of the tills likewise shows little difference between the tills. Organic carbon determinations indicate that the gray till has 1.84 percent organic carbon and the brown till has 0.97 percent organic carbon.

The contact between the brown till (upper) and yellow till (middle) is apparently an erosional contact with evidence of local mixing of the two tills and evidence of local inclusion of masses of the yellow till in the brown till. The contact between the yellow till (middle) and the gray till (lower) is sharp.

The upper brown till has a well developed fragipan in the soil zone. Soil development, including the fragipan, appears typical of soils in Pennsylvania which are developed on glacial tills of Woodfordian age. The color and weathering of the yellow till is typical of tills identified elsewhere in Pennsylvania as being of Illinoian age. The lower gray till appears to be totally unweathered. The gray till locally overlies saprolite developed in the sandstones, siltstones, and shales of the underlying bedrock.

The critical problem involved with this sequence is the contact between the yellow (middle) and gray (lower) till. Initial evaluation favored the interpretation that the contact is mechanical and not the base of a weathering zone. Later evaluation, by different interested persons, favored the interpretation that the contact is the base of a weathering zone. The site has been sampled in detail, but analyses have not been done and the problem is not resolved.

Stanley M. Totten - Geology, Hanover College

During the summer of 1981 I mapped the glacial geology of Geauga County, Ohio, for the Ohio Geological Survey. The map is complete and the written report will be completed Spring, 1982. Publication of map and report by the Survey is anticipated.

Richard A. Young - Geology, SUNY Geneseo

Work on the Rochester Pure Waters Sewer Project construction has defined several significant zones of structural deformation in the local bedrock with individual offsets approaching 30 feet. Much information is being gained concerning the glacial overburden, which appears to be unaffected by the structures (within the precision of the borehole data). The structural zones indicate compressional deformation with minor reverse faulting and folding, which has been documented in existing tunnels. Work is projected to continue for several years.

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