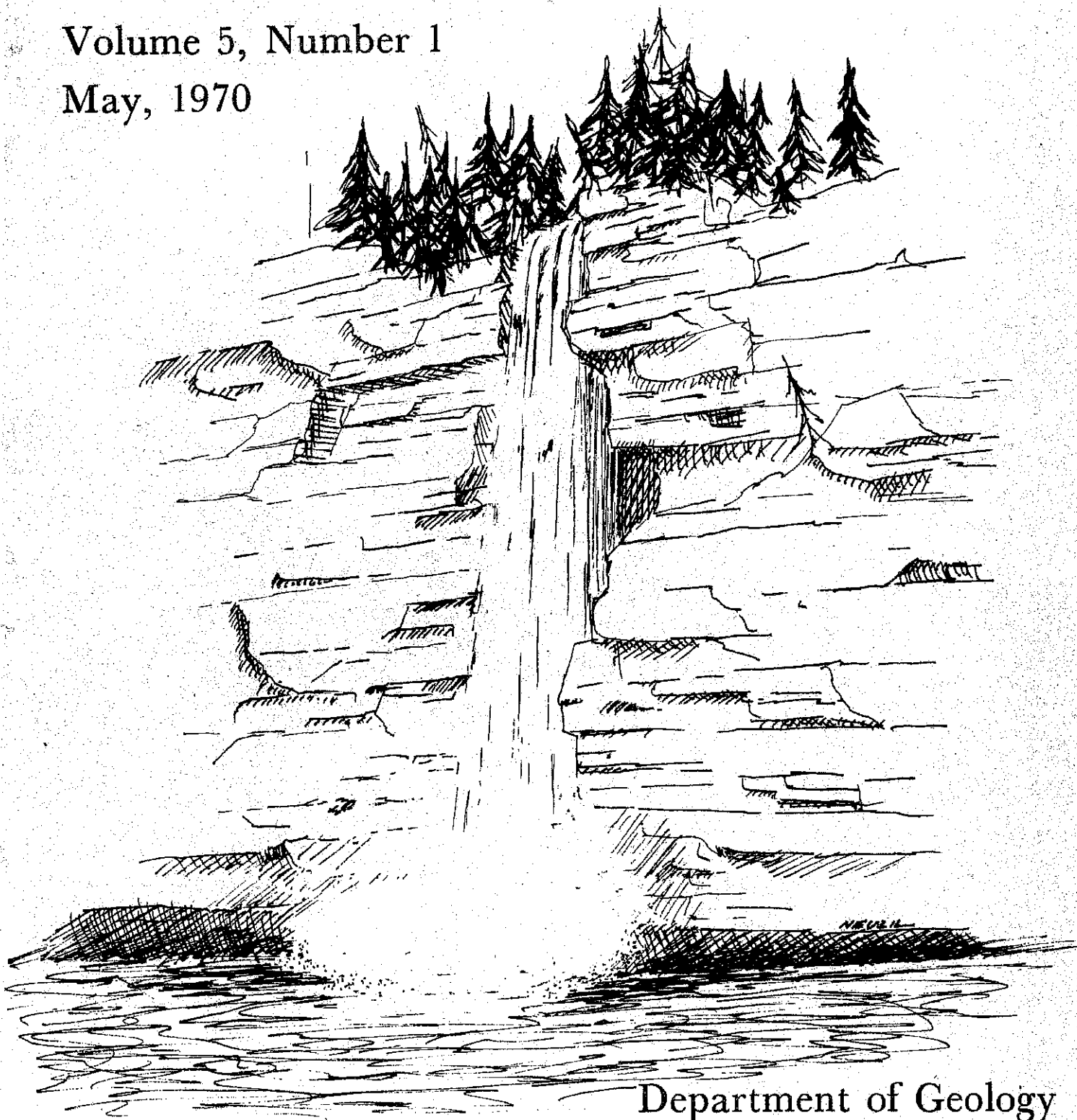


NEW YORK GLACIOGRAM

Volume 5, Number 1

May, 1970



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EDITOR'S PAGE

Most of us geomorphologists and glacial geologists have not been sufficiently dynamic in adding our expertise to environmental studies. Of course there are important exceptions to this, such as occur in "Environmental Geology Notes" a series of reports that have been published by the Illinois State Geological Survey since 1965. The newest one "Geology for Planning in De Kalb County, Illinois", Number 33, April 1970, by David L. Gross, has been described by George White as "the glacial geology of the future...and ...where the research money is". Another bright spot occurs at Penn State University where Richard Parizek and others are solving environmental problems with hydrogeologic studies.

About four years ago I started a very modest dialogue with my colleagues in geography, we called ourselves the "Environmental Research Group (ERG)", which led to some grants and then to a broader cooperation with biologists. I will offer a new course in the fall term 1970 entitled "Environmental Geomorphology". Our local group has now become so committed to this new direction that we plan to host a meeting in the fall 1970 in an attempt to show the dimensions of the problems that our country faces, and to invite papers by people who are working on and solving the problems.

The point needs to be made that we as geomorphologists and glacial geologists have unique talents and experience that are necessary for solution of problems that are occurring on the earth's surface. We have the background in soils, streamflow, ground water, slopes, landforms, and erosion-sedimentation analysis that is vital for understanding the interaction of surficial changes being inaugurated by man when he upsets the normal regime of a system. It is time that we seize the opportunity and fill the knowledge vacuum that now exists.

PART I NEW YORK AND ADJACENT REGION

ROBERT K. FAHNESTOCK

1/30/70

Bill Bradley (Univ. of Colorado) and I are working on reports on the Knik River and Lake George where we have been studying the effects of the breakout floods on the pattern and deposits of the river.

In western New York (from Parker Calkin and his students SW to the PA line) Bill Metzger and I have been looking at the buried topography and surficial deposits from the Lake Escarpment moraines to the Lake shore with an idea of explaining the present configuration of the shore and the lake plain.

Ernie Muller and I are interested in studying the characteristics of tills and outwash of surging glaciers with an idea that the recognition of ancient surges of portions of continental ice sheets would have some bearing on the interpretation of the Pleistocene and on the understanding of the mechanism of surging.

G.GORDON CONNALLY

3/23/70

Since I have not done anything unusual in the past year, I would like to take this opportunity to comment on two recent and excellent publications. The first is Bulletin G-55 of the Pennsylvania Geological Survey, "Pleistocene Stratigraphy of Northwestern Pennsylvania" by White, Totten and Gross. The second is Bulletin 31 of the Vermont Geological Survey, "Surficial Geology and Pleistocene History of Vermont" by Stewart and MacClintock.

I am very happy to have gotten off the hook with my tentative correlations between Ohio, Pennsylvania and New York in the last Glaciogram. However, the Pennsylvania correlations do still present some problems for us in New York. One is the presence of a definite

intraglacial event between deposition of the Kent till and the Lavery till. The second is the relationship between the Titusville till and the Olean till. It should be noted here that White, et. al. suggests the relationship of the Titusville till with the upper two tills at Otto, New York. First let me say that the description of the Titusville till leaves no doubt in my mind that it is the same as the Olean till in the western Finger Lakes. However, I originally correlated the lower till at Gowanda and the till smear over bed rock at Otto with the Olean on the basis of heavy minerals. Could the Olean have reached western New York prior to 66,000 years B.P., or are these reddish tills equivalent to the Mapledale? The section on anomalous "red till" discussed under the Titusville till certainly is interesting when compared to Otto and Gowanda.

White, et. al. show a change in gradient on the trend surfaces when approaching the border of the Titusville till. Wingard in a master's thesis at Michigan State found a similar situation in New York for the Olean till. At that time I interpreted the east to west trends in New York as confirming an east to west movement of Olean ice. Could the Pennsylvania trend surfaces be interpreted similarly? Could the Pennsylvania trend surfaces represent an initial northeast to southwest movement along the margin of the ice sheet and a later northwest to southeast movement out of the Erie Basin?

My comments on the Vermont Bulletin will be restricted to the interpretation of the Lake Quaker Springs and Lake Coveville. It is most unfortunate that Stewart was not able to attend either the 1969 Northeast Section meeting, the NYSGA meeting at Plattsburgh nor the Friends meeting in Quebec. I do not feel the Quaker Springs Lake can be extended beyond the Brandon-Ticonderoga region, which I have stated

many times and documented many times. I feel the evidence that the Bridport readvance took place into Lake Coveville is irrefutable. This to me precludes finding a Quaker Springs level north of the Brandon-Ticonderoga quadrangles. I have stated specifically that I failed to find a Quaker Springs level in the Lamoille Valley, a fact that Stewart and MacClintock failed to mention.

I hope these comments will not detract from the overall contribution made by Stewart and MacClintock, but will merely point up the need for further work in the State of Vermont.

JOSEPH H. HARTSHORN

3/25/70

Surficial mapping, groundwater studies, and topical work are all mixed up in the work now going on at the University of Massachusetts. Gail Ashley has collected samples of varves from as many localities as possible within the boundaries of glacial Lake Hitchcock; unfortunately the great number of places that Antevs visited are almost all buried by an economic slump (pardon). Only one or two functioning brick pits still exist in the Connecticut Valley in Massachusetts and Connecticut. Her aim is to reconstruct the environment of deposition of the many different kinds of varves through a study of the sedimentary structures, granulometry, fossil content, and mineralogy. Joe Caggiano is concentrating on the glacial geology and glacial history of the Mt. Holyoke and Belchertown quadrangles, which contain several lake levels, numerous pieces of outwash history, and enough sedimentary puzzles to keep anyone happy. Kerry Campbell has nearly completed the surficial geology of the Northfield quadrangle, which straddles the Connecticut River and the Mass-Vermont-New Hampshire borders. Among his prizes are some new lake-level evidence, large post-lake

alluvial fans, and the only postglacial wind-eroded bedrock locality in the Northeast. Sherm Clebnik has spent one summer in Connecticut for the Geological and Natural History Survey. His quadrangle is the Willimantic, and future work may include the Columbia if necessary to complete the local picture. Anyone who is familiar with that part of Connecticut knows the controversies that have been stirred up over the origin of the Thames-Willimantic-Quinebaug terraces. Tom Gustavson has temporarily retired from teaching at Southampton College on Long Island to return to school. His arena will be the untouched Belchertown-Ludlow complex of ice-contact stratified drift deposits north of the Chicopee River and graded either to that stream or to the glacial lake in the Connecticut Valley, or the Malaspina Glacier in southeastern Alaska. Fred Larsen has returned to his position as Associate Professor at Norwich University but is about ready to turn in a first draft map of the Mt. Tom quadrangle. Problems have included deltas, lakes, outwash, beaches, and eolian deposits. We hope to clear up some of the problems of glacial Lake Hitchcock west of the Provin Mountain barrier. Joe Hartshorn and Roger Colton are in press with the West Springfield glacial map; right next door is Bob Schnable with the Southwick quad. We hope that both will come out about the same time as USGS Quad Map Series.

BERNARD S. ELLIS

3/31/70

Since I find myself in almost the identical position of a consumer, rather than a producer, that K.W. Davis finds himself (GLACIOGRAM, Vol. 4, No. 2, Pg. 11), it seems fitting to parrot his comments - silently.

We do differ in one respect, however. Our staff is conducting

detailed investigations. We have logs, profiles and some samples from dam site investigations in numerous areas of the State. Concentrations of work have occurred in Greene, Broome, and Cattaraugus counties, with lesser amounts in Genesee, Steuben and Montgomery.

Recently we began work on the Chautauqua-Cattaraugus boundary line, in the Conewango valley. It has been very interesting to note the marked increase in the complexity of deposition and erosion of glacial materials in this ice-margin area. Construction of several dams will start in this area this summer. We have our fingers crossed that our interpretations shown on the geologic profiles will stand the inevitable "moment of truth" as the dozers and pans open up these areas during construction.

CHAUNCEY D. HOLMES

3/31/70

In continuing to probe beyond what (and where) I believe to be the Valley Heads drift limit hereabouts, I have begun exploration of the Morrisville Swamp northwest of Morrisville. Available time, late-fall weather, and other factors limited my field work to a single afternoon. Results to date for the area traversed are: 1) About 6 feet of peat rest, with fairly abrupt contact, upon (lake?) clay which is much too compact for sampling with my usual swamp equipment. 2) Percentagewise, moss and fern spores dominate most of samples collected. 3) The history thereby suggested seems to be quite different from that of the other swamps I have studied thus far, and 4) I need many more field facts as well as more samples.

Tully's four Junior High budding palynologists (See my note in the Nov. '69 GLACIOGRAM) are making real progress in spite of inadequate equipment. Does anyone have a used-but-still-usable college-grade microscope for sale at a charitable price?

Currently my activities are restricted following a 12-day hospitalization in February--a probable mild coronary. I'm hoping I can "feel" my way back to some safe schedule of productivity before too long.

WALTER S. NEWMAN

4/1/70

The untimely death of G. William (Bill) Holmes early in January still numbs his colleagues. Robert Melvin of the U.S. Geological Survey and myself are now working through the work Bill had completed and hope to see much of his work published posthumously.

Rhodes W. Fairbridge, Stanley March and myself have begun to quantify our ideas on peripheral or marginal bulge and have submitted a manuscript to QUATERNARIA summarizing our thoughts. I find our data so persuasive that for the first time I'm throwing caution to the wind and completely endorse the bulge concept. Our computations show the bulge to have had a maximum height of 20 meters, width of at least 500 kilometers, an inward crustal velocity in the order of 100 meters/year. Mantle viscosity using these data works out to about 10^{22} poises. Finally, the bulge has decayed exponentially with time over the past 15,000 years, faithfully paralleling postglacial crustal rebound.

GEOMORPHOLOGY OF THE GENEGANTSLET BASIN, NEW YORK*

The Genegantslet basin of south-central New York is anomalous in that, although a fairly large basin, its major valley lacks the exotic rich Binghamton drift found in neighboring valleys. It is also anomalous in the number and fine development of features of cryogenic origin, such as stone polygons, stone stripes, and block fields. One can find features of cryogenic origin in the surrounding areas but their development is usually poor and their extent very limited. An obvious conclusion is that a more vigorous and long-lived period of periglacial conditions existed in the Genegantslet basin than in most of the surrounding country. Both the lack of Binghamton drift and the abundance of periglacial features are related to the fact that the Genegantslet is not a through-valley, but has instead a high drainage divide to the north over which few exotics could be transported. This fact also caused the supply of ice from the north to be diverted and cut off from this basin long before it was in the large neighboring basins. Thus, while much of the encompassing region was still being invaded by active ice, extensive down wasting was occurring in the Genegantslet, exposing much of the basin to a highly vigorous periglacial environment. Lingering ice lobes and firn banks during this stage were responsible for the superposition upon the landscape of a variety of features superficially resembling alpine regions.

The ice sheet, roving over the region from the northeast, produced marked asymmetry in sub-basins trending roughly perpendicular

* This is a condensed version of some conclusions from an M.A. thesis at State University of New York at Binghamton, August 14, 1969.

154 pages.

to the ice flow. Their northeastern slopes are steep and irregular in contour while their southwestern counterparts are deeply mantled with drift and often contain gentle slopes with small parallel stream valleys etched into them producing a trellis drainage pattern with the trunk streams. The Genegantslet valley is also highly asymmetric. The area immediately east of the Genegantslet drains southeast towards the Chenango, as do the major tributaries of the Genegantslet, thus producing an asymmetric basin. Before the ice extended the length of the Genegantslet valley, its upper tributaries may have drained directly into the Chenango River.

Glacial deposits of topographic significance consist almost entirely of dead-ice features. True recessional moraines are not present, which supports the idea that ice downwasting, not backwasting, was predominant.

Streams are highly erratic and reveal poor adjustment to their channels and environment as a result of pondings and diversions produced by glaciation. Present-day erosion of material from hillsides and along small valleys is accomplished largely by winnowing out of fine sediment from about the roots of plants. This is accomplished via a series of small braided rills and pipes. Many such rills and pipes originate as the trails and tunnels of field mice and moles.

Except along glens and steeper portions of stream channels, very little significant change has occurred in the basic landscape of this basin since the demise of the periglacial environment.

PHILIP WAGNER

4/2/70

Aside from normal teaching activity, a great deal of my time since the last issue of Glaciogram has been spent hammering out a new (for me) approach to surficial studies. As I'm sure is typical everywhere, most of our Quaternary - oriented graduate students are no longer content to pursue thesis research as "basic" as Pleistocene history. Instead they want something that is clearly and immediately relevant to environmental problems. In order to achieve some sort of balance, I've been encouraging them to broaden their outlook, with myself being just one step ahead.

For example, several of our students will study the glacial history of nearby areas, but will additionally consider water supply (well yield, depth to water table, etc.), sewage disposal (percolation tests, site evaluation, etc.), geomorphology (locale and nature of erosion and sedimentation), demographic aspects, and so forth.

As a part of the new emphasis on environment, we have been undergoing interdisciplinary curricula evaluation and construction in which the glacial geology - hydrogeology - geomorphology components have been receiving favorable emphasis and recognition. I would be glad to hear from other Glaciogram readers about similar programs elsewhere.

As for research news, I'm still working on the various subjects mentioned in the last Glaciogram, but I might outline some new developments. Charlie Denny and I have been comparing notes on the northern Champlain Valley lake and marine sequence. Charlie Denny suggests that the Fort Ann stage is composed of an earlier, lower level and a later, higher level; a review of my field notes substantiates the same for the Vermont side. Lake New York, a

level I previously suggested for a low, fresh water, level that drained to the north, is better documented in Vermont - it appears that this level resulted from a readvance of the Laurentide ice in early Champlain Sea time. Evidence for such a readvance is widespread near the International Border. Much of the fresh and marine water events can be related to ice margins, but that's another story

PAUL KARROW

4/7/70

Not sure I have anything new to report! Here at Scripps from January to June am taking marine geology courses and studying raised marine terraces. Will work for G.S.C. in Saskatchewan this summer. Back home several things are underway 1) ostracods of Toronto interglacial beds, 2) palynology of post-glacial bogs, 3) Hamilton Bay vertebrate fauna, 4) Lake Iroquois molluscs. 1. By S. Poplawski, 2) By Thane Anderson (Ph.D.), 3) with C.S. Churcher and 4) with A.H. Clarke and H.B. Herrington.

NICHOLAS K. COCH

4/8/70

Most of the summer will be devoted to teaching and research in the U.S. Virgin Islands and in Yucatan and to continuing my research on the marine Pleistocene of Virginia. About three weeks will be spent working with Mike Katuna who is a graduate student at Queens. He will be starting a study of Great Peconic Bay between the north and south forks of eastern Long Island. Aside from a survey of sediments and relations of sediment facies to current and salinity changes out from the mouth of the Peconic River, we are going to look at some of the interesting submarine morphology shown on topographic sheets. We hope to determine how much of this morphology

is relict (Pleistocene) and how much is related to present dynamic processes. If possible, we also hope to get an idea of the rate of sedimentation in Great Peconic Bay.

GEORGE W. WHITE

4/14/70

Pennsylvania Geological Survey Bulletin G-55, "Pleistocene Stratigraphy of Northwestern Pennsylvania", by G.W. White, S.M. Totten and D.L. Gross has recently appeared. Correlations between Ohio on the west and New York on the north are indicated. The major difference from previously published maps is the greater extent of the Lavery Till and the indication of the outer margin of this till at the New York Pennsylvania boundary. The bulletin includes about 40 longitudinal sections showing different drift layers, some of as many as 4 ages.

If no one else has notified you, be on the look-out for a volume to be published by the Ohio State University Press in late 1970 (early 1971 ??) containing 23 papers on "Till", presented at the GSA Symposium on Till in Columbus in May 1969. This deals mainly with structure, composition, thickness, origin and stratigraphy of tills. It should be more coherent than the usual symposium volume, because the dedicated editors have taken their duties very seriously indeed and have spent a great deal of time in correlating, arranging, condensing, reviewing, and revising the contributions. Be particularly on the watch for two papers from Saskatewan by Dr. Earl Christiansen and Dr. Stephen Moran--they will "curl your hair"! Several of the papers are concerned with Ohio and Pennsylvania.

A symposium of Wisconsinan Stage in the Midwest is scheduled for the November 1970 GSA meeting in Milwaukee.

WILLIAM D. SEVON

4/20/70

This winter has been spent applying the seat of the pants to the seat of the chair in an all out effort to finish my part of three 7½' quadrangles in Carbon and Monroe Counties, Pennsylvania. The distribution and character of the Illinoian (?) deposits of the area is covered in these reports.

I now have in operation a program of glacial sediment analysis (made feasible by the presence on the Survey staff of a full-time laboratory technician) which should be continuous for several years. At present we are working on a backlog of Illinoian (?) samples. The work will expand into Wisconsin material this summer.

This summer I start a new program of regional mapping in northeastern Pennsylvania. The project will be oriented toward environmental use of the geology and will include mapping of both the bedrock and surficial deposits. The first area to be covered is the northern half of Monroe County.

PETER E. BLACK

4/30/70

Syracuse, N.Y. -- Specially prepared watershed models and photographic records of dye spot movement under a rainfall simulator have led to the preparation of a film entitled SUBSURFACE AND STREAM FLOW ON WATERSHED MODELS. The fifteen-minute, 16mm sound and color film is available from the Film Library, State University College of Forestry at Syracuse University, Syracuse, N.Y. 13210.

The film, prepared by Dr. Peter E. Black, presents introductory watershed concepts and definitions, justification, advantages, and limitations of model study approaches; model construction procedure; simulator operation; and time-lapse sequences of trials alternated with studio-filmed comment, experiment set-up, and results showing effects of soil depth, drainage density, position on slope, drainage area above dye spot, and land slope on runoff timing. Additional films using the apparatus and illustrating effects of watershed size, shape, and other parameters are planned. The film

has been prepared for senior high school and college natural science and hydrology students, hydrologists, water resource managers, and lay audiences.

DONALD R. COATES

5/1/70

More of my time in the next years can be devoted to glacial geology, since our staff will have four geomorphologists by September 1970...Marie Morisawa already joined us in February, and Iaakov Karcz (fluid mechanics) will come in the fall as will Don Doering, a post-doctoral fellow. Research this summer will be both on a mega-scale and on a meso-scale. I plan to continue my large reconnaissance studies of glaciated and non-glaciated Appalachian Plateau terrain in attempts to explain their differences. A second project will be the mapping of several hundred small circular to elliptical valley hills, largely of till composition, that occur between Deposit and Elmira, New York.

At the Pittsburgh GSA meeting in February 1970, I presented a paper entitled "Topographic basins in the uplands of the Appalachian Plateau". This is one aspect of the more general problems of till deposition in this region. A third project will be a continuation of periglacial studies, with the location and mapping of these features in southern New York and northern Pennsylvania. Any and all thoughts on these matters would be appreciated.

Three of my students will complete theses during the summer. Although some of their work is not glacially oriented, some report of their results may be given in the next issue of Glaciogram. Three Ph.D. students will complete their field work this summer. Don Cadwell is finding many interesting problems in glacial deposits of the eastern Susquehanna valleys. Jim Kirkland has discovered that the western Catskills contain surprises. Steve Kowall, although primarily interested in a hydrogeology comparison of plateau and folded structures in Pennsylvania, has found a treasurehouse of periglacial features and will study them quantitatively.

Another part of the summer will be spent collecting information for a new graduate course I will give during the fall entitled Geology 313: "Environmental Geomorphology". The editorial reflects my thinking on the problem. I am building up a collection of case histories on the subject and would appreciate knowledge of those that I might miss and are in out-of-the way places, journals, or books. Marie M. and I are starting to plan a 1-2 day meeting in the fall on this topic of environmental geomorphology, and would welcome any suggestions. Our tentative plans call for a keynote speaker (any volunteers), a program with several relevant papers, and perhaps a workshop-discussion period that might lead to the formulation of a status or position paper. The meeting would be for students and professionals and would be held on a Friday evening and Saturday.

The New York State Geological Association is being held at Cortland this year, and there are three different glacial field trips, so this should be inducement for purchase of the guidebook. Since some of us will be unable to attend the AMQUA meetings, I hope that someone will write a synopsis for the next Glaciogram to brief those that couldn't make it.

Chris Neuzil is again thanked for his cover artistry.

JOSEPH A. CAGGIANO, JR.

5/1/70

In addition to mapping the surficial geology of the Belchertown and/or Ludlow quadrangles evidence will be sought regarding: 1) the nature of late-glacial drainage and outwash sequences on the eastern flank of the Connecticut valley, 2) the nature of beaches and near shore sediments of Lake Hitchcock, 3) the relationship of near shore sediments and varves, 4) the general absence of fauna and flora in Lake Hitchcock sediments, and 5) the nature and genesis of color bands in the varves. Discussion of the paucity of fauna and flora with Stuart Ludlam, the resident limnologist at U. Mass., and a literature search on this subject indicate that this is a problem which needs attention. Any suggested approaches or references on this subject would be gratefully received from anyone who has worked on the problem or has an interest in it.

Hopefully, I shall have much more to report for the Fall issue of Glaciogram.

Correlation of Glacial Deposits by Neutron Activation

The oldest glacial deposit in Northwestern Pennsylvania was first described by George W. White. It is named Slippery Rock Till for an exposure in the limestone quarry of the Vanport Stone Company, three miles north-northwest from Slippery Rock, Pa. The Slippery Rock Till is exposed as a subsurface unit in this and other excavations of the area. On stratigraphic ground, it is probably pre-Illinoian in age. In some cases the top of this till is paleosol. In other cases, the formation is much weathered, resting on bedrock, and presents some doubt as to its glacial origin.

Samples of both identified Slippery Rock Till and doubtful exposures were collected and examined by neutron activation techniques. The purpose of this experiment was to utilize trace elements for correlation. Samples of 1 gram weight were radiated in a flux of 5×10^{12} neutrons/cm²/sec. Several samples of the same exposure were radiated simultaneously in order to ensure equal distribution of elements throughout the population from which the samples were taken.

Exposures of the Slippery Rock Till were successfully correlated primarily on the basis of their rare earth content. Samples of the Slippery Rock Till were also compared with other Pleistocene deposits of the area, and with fragments of the underlying bedrock. The trace elemental contents were clearly distinguishable.

Work is underway to test the applicability of this technique for regional correlation.

Results of other research completed during the summer of 1969, were presented at regional meetings of the Geological Society: "Pre-Pleistocene Drainages of Slippery Rock and Muddy Creeks Determined by Subsurface Exploration" (Northeastern Section); "The Hierarchical Anomaly of the Au Sable and Saginaw Drainage Basins, Michigan" (North-Central Section).

KERNAN W. DAVIS

5/1/70

The Division of Water Resources, New York State Conservation Department, is conducting a comprehensive study of the Oswego River Basin. During the course of this work, we noticed an intriguing six mile long valley that cuts between Owasco and Skaneateles Lakes, just north of the Onondaga-Cayuga County Line. Northward-flowing Dutch Hollow Brook enters about a mile and a half from Skaneateles Lake and flows westward through this broad cross valley. About a mile from Owasco Lake, the brook winds its way through a narrow notch in a landform which blocks the western portal of the valley. The dimensions of the landscape, including the delta at the mouth of Dutch Hollow Brook, call for a grand scale explanation.

If one lets his eye wander along the contour lines representing the 1000 and 1100 foot elevations, one is led in a sweeping arc across Skaneateles Lake to the Onondaga Valley.

Quick field reconnaissance failed to yield evidence of bedrock in the valley bottom. A geophysical survey and auger boring program might be conducted in the near future. Academic interest in this valley is invited.

PARKER CALKIN

5/3/70

I have done very little field work in western New York since early last fall; however, I have two graduate students working on Quaternary stratigraphy problems in the Buffalo area. John Barnes has been working principally on material from a multiple till exposure on Clear Creek near Gowanda and Paul Fickett is initiating a detailed study on the red till vs gray till problem of this area. Paul will attempt to determine why there is a rather sudden change to gray till from the red just south of Buffalo. We already have some ideas but Paul will attempt to make detailed chemical studies of the color components in each till.

My sabbatical comes up this coming year and I now plan to go to the Scott Polar Research Institute at Cambridge for the school year (1970-71). I'll work on some of the radio echo sounding records taken this past austral season in Victoria Land, Antarctica.

DAVID L. GROSS

5/4/70

In 1969 I finished my dissertation on the "Glacial Geology of Kane Co., Illinois" and joined the Illinois State Geological Survey. Most of my time in the last year has been spent on our new research program on Lake Michigan. Last summer we did extensive coring and grab sampling from the University of Michigan's ship, the R.V. INLAND SEAS, in the southern end of Lake Michigan. This is a new and rapidly expanding research area for the Illinois Survey in which Charles Collinson, Jerry Lineback, Nate Ayer and I are working on the stratigraphy, areal distribution, composition and geologic history of the unconsolidated sediments. At the same time, utilizing the same samples, Neal Shimp (Chemistry Group ISGS) and Harry V. Leland (limnologist, Univ. of Ill.) are studying the chemistry and pollution of the bottom sediments, particularly the lead contamination of these sediments. Our first two papers (Gross and Others, and Shimp and Leland) have been published in the Environmental Geology Note series of the ISGS. We anticipate extensive shipboard work and the collection of many sediment cores from the southern one third of Lake Michigan in the summer of 1970.

Other projects include a paper with Steve Moran describing a feldspar staining technique which is now in press in the Journal of Sedimentary Petrology. A second paper (Moran, Gross and Johnson), describing an apparatus for determining carbonate contents is anticipated. I have one paper, also with Steve Moran (Grainsize and mineralogical gradations within tills of the Allegheny Plateau) and am junior author on another (Johnson, Gross and Moran, Till stratigraphy of the Danville region, East-Central Ill.) in the till symposium volume being published by the Ohio State University Press. I am also assisting Dick Goldthwait, along with Jane Forsyth and Fred Pessl with the editing of that book. Environmental geology is receiving more and more emphasis in the Illinois Geological Survey and I compiled a report "Geology of Planning in De Kalb County, Illinois" which was published by the Survey in the Environmental Geology Notes series.

ALAN M. JACOBS

5/4/70

In 1968 the Illinois State Geological Survey began a joint project with the Limnological Research Center, University of Minnesota, to study the paleolimnology of lakes in Illinois. Thus far we have hosted one of Herbert E. Wright's postdoctoral students from Germany, Eberhard Gruger, who worked on the pollen stratigraphy of several lakes near Vandalia, Illinois. Alan M. Jacobs, liaison for the Survey, has studied the origin and physical stratigraphy of the same lake basins, and has continued to get cores for additional clay mineral and C¹⁴ analyses. The Vandalia area lakes are unique in that they were in a periglacial area during Woodfordian time, and have recorded ecologic events in their sediment record continuously for over 40,000 years. Drs. Gruger and Jacobs have reported their results in Paris last summer at the INQUA meetings, and the French journal, Revue de Geographie Physique et de Geologie Dynamique, will publish their papers this year.

My other projects include a study of stream parameters in the Kaskaskia River system (a tributary of the Mississippi River), providing stratigraphic information to a company that plans to strip-mine coal beneath 40 meters (no misprint) of glacial deposits and advising a graduate student at Southern Illinois University (Edwardsville Campus on a project on loess stratigraphy. I am also working on the surficial deposits of St. Clair County, Illinois, in conjunction with an environmental geology study of the East St. Louis area (R.E. Bergstrom, coordinator) and geologic mapping for the 1:250,000 Belleville and St. Louis sheets. I will present a paper on the surficial deposits of St. Clair County at the North Central sectional G.S.A. meeting in East Lansing, Michigan, this May, and will complete mapping work for the Belleville sheet this summer. The paper I presented at the North Central sectional G.S.A. meeting last May in Columbus, Ohio, is in the final stages of preparation and will be submitted to a journal this spring under the title: "A Reliability Test for Studying Grain-size Variations Within Tills."

ERNEST H. MULLER

5/4/70

On June 10th, I leave for Reykjavik, Iceland, to nose about a bit on old familiar sites before the Glaciological Society excursions to be hosted by the Joklarannsoknafelag (Icelandic Glaciological Society) from June 19-26.

During July and August, I expect to be working for Acres Canadian Bechtel at Churchill Falls, Labrador. It was not far from Churchill Falls that one center of the waning Laurentide Ice Sheet made its last stand 6500 years ago according to Prest (G.S.C. Map 1257A). Now, in connection with the largest power development in the western world, some 40 miles of impounding dikes are under construction to complete enclosure of reservoirs that total about 1/3 the area of Lake Ontario. I hope that the excavations will both take advantage of and clarify geological relationships in this area of otherwise sparse exposures.

John Harrison is in final stages of dissertation preparation and will be in Ottawa during the summer to complete reports for the Geological Survey of Canada. He reported on the investigations in the North Bay-Mattawa area (Ontario) at the 13th Annual Conference on Great Lakes Research held in Buffalo, April 2nd. In September he takes up new duties on the faculty at the University of Calgary.

MARIE MORISAWA

5/7/70

I am still settling in after my move in February from Antioch College to SUNY Binghamton. It is good to be back among my many New York State friends.

Last summer I was working on an evaluation of natural rivers, studying two lovely rivers in entirely different types of glacial terrain. One was the Little Miami in southwestern Ohio and the other was the upper Green River in Wyoming. I will be working on the same project this summer, and rivers in glaciated regions include the Wind in Wyoming, Rogue in Oregon and Manistee in Michigan.

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