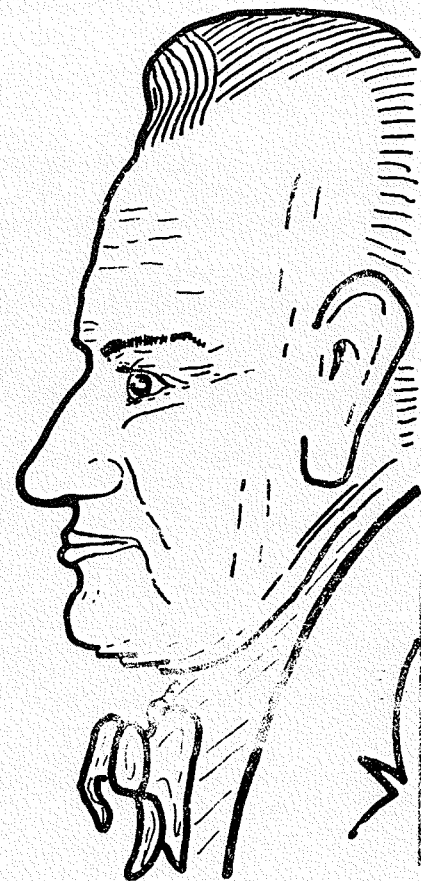


**NEW YORK STATE
GEOLOGICAL
ASSOCIATION**

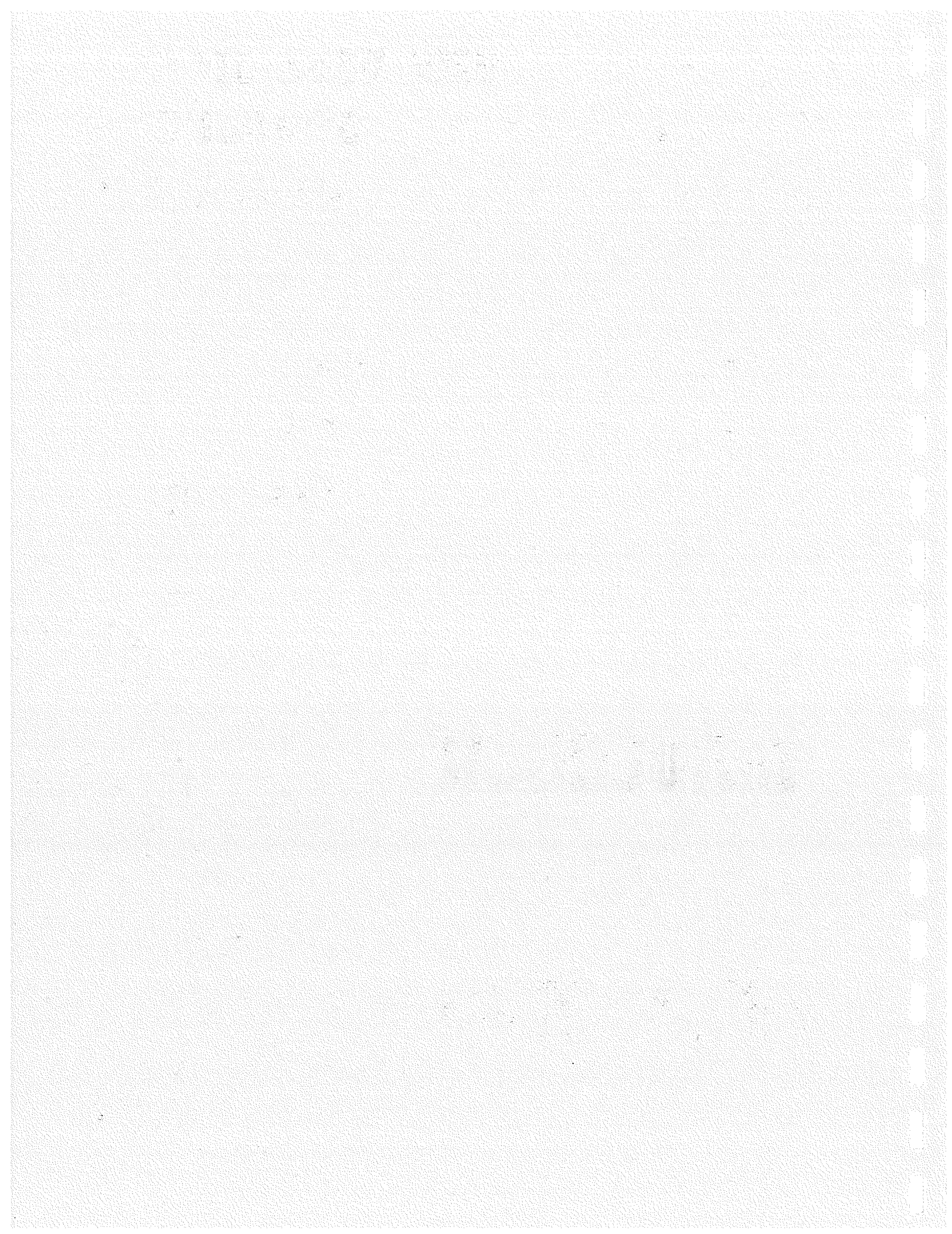
**TROY
MAY 1961**

**33rd
Annual
Meeting**

**GUIDEBOOK
TO
FIELD TRIPS**



Amos Eaton



GUIDEBOOK TO FIELD TRIPS

NEW YORK STATE GEOLOGICAL ASSOCIATION

33rd Annual Meeting

Robert G. LaFleur
Editor

Contributing Authors

James R. Dunn
Donald W. Fisher
Philip C. Hewitt
Robert G. LaFleur
Shepard W. Lowman
Lawrence V. Rickard

Host

RENSSELAER POLYTECHNIC INSTITUTE

Troy, N. Y.

May 12-13, 1961

PREFACE

Geologic studies in Rensselaer and Columbia Counties began in the infancy of American Geology. It is especially noteworthy that our host, Rensselaer Polytechnic Institute, played a vital role in the development of this then new science. The founding of the Rensselaer School (1824) by Stephen Van Rensselaer, Patroon of Albany, was a distinct departure from the conventional classical institute of higher learning of that day. This school of science (the idea of an engineering school came later) claimed the unique innovation of having science taught by personal contact in laboratory, field, and by classroom functions in which students lectured while professors listened! That geology was highly regarded is evidenced by the Rensselaer circular of 1827 which reads, "...it is now required that each student take two short mineralogical tours to collect minerals for his own use, for the purpose of improving himself in the science of mineralogy and geology." Into this promising environment, as Director of the Rensselaer School, came Amos Eaton, who had studied science under Benjamin Silliman and law under Alexander Hamilton.

In 1820-22, Van Rensselaer sponsored the first commissioned geological survey in this country, that of Albany and Rensselaer Counties. Amos Eaton was Geologist-in-charge with Joseph Henry, who was later to achieve fame in his own right, as his assistant. In the same year, Chester Dewey prepared a structure section from Troy, N.Y. to Williamstown, Mass. Again, under the patronage of Van Rensselaer, Eaton executed Governor DeWitt Clinton's far-sighted plan to make an agricultural and geological survey along the Erie Canal. This extraordinary accomplishment included a cross-section of the rock formations from Buffalo on the west to Williamstown on the east. Eaton further displayed his versatility by authoring textbooks on botany, zoology, and chemistry, as well as geology---thereby demonstrating his keen perception for related sciences. No more fitting tribute could be bestowed than that by his favorite student, James Hall, who said, "If we with great means do what he did with small, we shall deserve well of coming generations."

An impetus to geologic investigation was given in 1836 by the creation of the N.Y. Geological Survey, with the appointment of not one but four "State Geologists", all energetic men of equal authority and (it was hoped) equal competency: W. W. Mather, First or southeastern District; E. Emmons, Second or northern District; T. Conrad, Third or central District; L. Vanuxem, Fourth or western District. Conrad was selected for his reputation in conchology and because the New York rocks were known to be full of fossils and none of the other three knew anything about them. It soon became obvious that Conrad was overwhelmed with the business of identifying fossils and in 1837 the Survey was reorganized. Conrad was named first State Paleontologist, Lardner Vanuxem transferred to the Third District, and James Hall assumed responsibility for the Fourth. The fruit of this colossal endeavor was the monumental Geology of New York in four parts, which even today, forms the basis for any stratigraphic studies within the State.

The geological bibliography of the Troy area boasts the names of many of the pioneers of American Geology. Aside from Eaton, there were J. D. Dana, T. N. Dale, C. D. Walcott and Ebenezer Emmons, about whom we shall have more to say.

D. W. Fisher

CONTENTS

	Page
TRIP A. GLACIAL FEATURES IN THE VICINITY OF TROY, N.Y. by Robert G. LaFleur	A 1
INTRODUCTION	A 1
HISTORICAL REVIEW	A 2
GEOMORPHIC SETTING	A 9
ICE ADVANCE FEATURES	A 9
Drumlins	A 9
STAGNATION FEATURES	A12
Albia-Burden Lake Moraine	A12
Schodack Terrace	A13
HUDSON VALLEY LACUSTRINE STAGES	A14
The Lake Albany Problem	A14
Sequence of Glacial Lakes	A15
ICE MARGIN STAGES	A15
Lake Schodack	A15
Lake Hampton	A16
Lake Rensselaer	A16
Post-Rensselaer-Pre-Albany Interval	A17
ICE-FREE STAGES	A17
Lake Albany	A17
Lower Stages of Lake Albany	A18
SELECTED EXPOSURES	A18
SELECTED REFERENCES	A19
NOTES	A21
TRIP B. SOME ASPECTS OF TURBIDITE SEDIMENTATION IN THE VICINITY OF TROY, N.Y. by Shepard W. Lowman	B 1
INTRODUCTION	B 1
HISTORICAL REVIEW OF TURBIDITES	B 1
TYPES OF FLOWS	B 6
TRIP STOPS AND DESCRIPTIONS OF EXPOSURES	B 6
Deepkill Euxinic Assemblage	B 7
Schodack Brecciola Assemblage	B 8
A. School 14 Locality	B 8
B. Sage Avenue Locality - 15 th St. Occurrence	B10
C. R. P. I. Campus Locality	B10
G. Troy High School Locality	B11
NOTES	B13
REFERENCES	B14

TRIP C. SILURIAN AND DEVONIAN ROCKS OF THE CENTRAL HUDSON VALLEY	
By J. R. Dunn and L. V. Rickard	C 1
INTRODUCTION	C 1
STRATIGRAPHY	C 1
UPPER SILURIAN & LOWER DEVONIAN	C 1
Introductory Statement	C 1
Upper Silurian	C 3
Lower Devonian	C 7
MIDDLE DEVONIAN	C15
STRUCTURE.	C20
STRUCTURES IN THE WESTERN CENTRAL HUDSON VALLEY	C20
ECONOMIC GEOLOGY	C20
REFERENCES	C25
TRIP STOPS	C26
NOTES.	C27
STOP LOCATION MAP.	C28

TRIP D. STRATIGRAPHY AND STRUCTURE IN THE SOUTHERN TACONICS	
(RENSSELAER AND COLUMBIA COUNTIES, NEW YORK)	
By D. W. Fisher	D 1
THE TACONIC SYSTEM	D 1
THE TACONIC PROBLEM.	D 4
STRATIGRAPHY	D 4
THE EUGEOSYNCLINAL (TACONIC) SEQUENCE	D 4
Age Unknown, Probably Lower Cambrian	D 4
Lower Cambrian	D 6
Upper Cambrian and Lower Ordovician.	D 9
Middle Ordovician.	D 9
THE MIOGEO SYNCLINAL SEQUENCE.	D 9
STRUCTURE.	D13
THE TACONIC PROBLEM CONTINUED.	D16
HYPOTHESES PROPOSED TO EXPLAIN THE FIELD RELATIONS.	D16
SELECTED ANNOTATED BIBLIOGRAPHY.	D18
APPENDIX: SELECTED OUTCROPS, MARKED ON GEOLOGIC MAP	D19
NOTES.	D22
A NEW INTERPRETATION OF THE TACONIC PROBLEM	
By P. C. Hewitt	D25
AA. Hewitt's Hypothesis.	D25
SELECTED REFERENCES.	D27

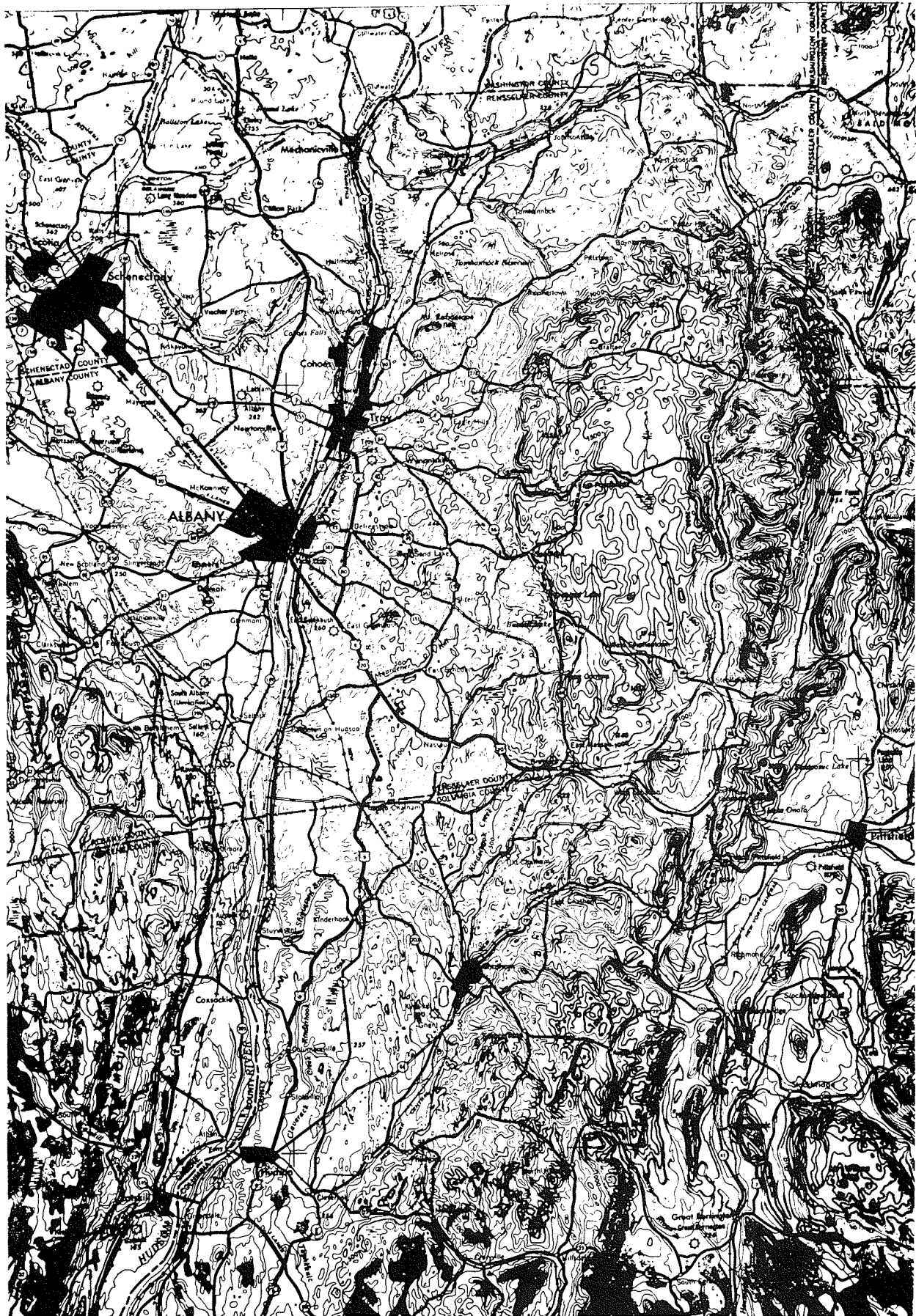


Northern Hudson - Southern Champlain Valleys
(Portion of the Glens Falls
1:250,000 sheet. U.S.G.S.)

		<u>Whitehall</u>	<u>Castleton</u>
		Rodgers, unpub.	Kaiser, 1945 Fowler, 1950 Zen, 1961
	<u>Glens Falls</u>	<u>Fort Ann</u>	<u>Pawlet</u>
	Fisher, recon.	Flower, unpub. Dale 1898	Shumaker, unpub.
<u>Saratoga</u>	<u>Schuylerville</u>	<u>Cambridge</u>	<u>Equinox</u>
Stoller, 1916* Cushing & Ruedemann, 1914		Platt unpub. Dale, 1898	Hewitt, unpub.
Fisher & Hanson, 1951			
<u>Schenectady</u>	<u>Cohoes</u>	<u>Hoosick</u>	<u>Bennington</u>
Stoller, 1911*	Stoller, 1918* LaFleur recon.* Ruedemann, unpub. Herman, unpub. Cutcliffe, unpub.	Potter, unpub.	MacFadyen, 1956
<u>Albany</u>	<u>Troy</u>	<u>Berlin</u>	
	LaFleur, 1961 unpub.* Elam, 1960 unpub. Balk, 1953	Dale, 1904	
<u>Coxsackie</u>	<u>Kinderhook</u>	<u>Pittsfield</u>	
Goldring 1943	Fisher, unpub. Craddock, '57 LaFleur, recon.* Talmadge, unpub.	Fisher, unpub. MASS.	
<u>Catskill</u>	<u>Copake</u>	<u>Sheffield</u>	
Ruedemann, 1942	Weaver, 1957		
<u>Rhinebeck</u>	<u>Millbrook</u>		
Warthin, unpub.	Knopf, unpub.		

STATUS OF GEOLOGIC
MAPPING IN THE
NORTHERN - CENTRAL
HUDSON VALLEY

Glacial mapping marked with*.
All others are bedrock geology



Central Hudson Valley - Southern Taconics - Northeastern Catskills

(Portion of the Albany 1:250,000 sheet. U.S.G.S.)