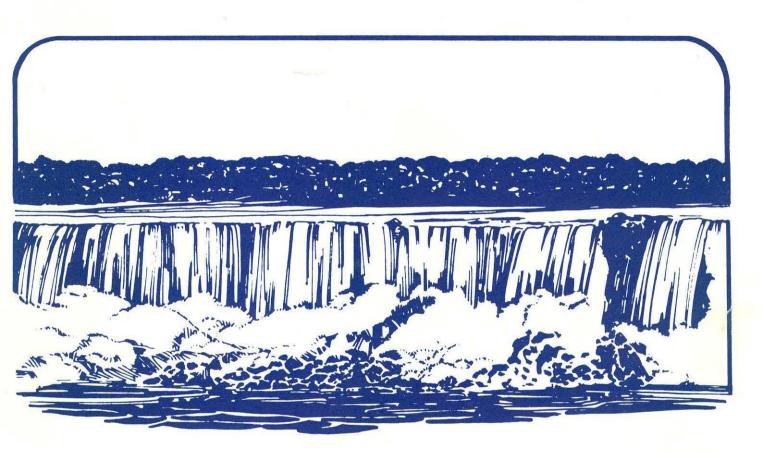
### GEOLOGY OF THE NORTHERN APPALACHIAN BASIN WESTERN NEW YORK



# Field Trips Guidebook for New York State Geological Association 54th Annual Meeting

October 8 — 10, 1982 Amherst, New York

Department of Geological Sciences State University of New York at Buffalo Edward J. Buehler and Parker E. Calkin

In Conjunction With

11th Annual Meetings Eastern Section
American Association of
Petroleum Geologists





### 19 October 1982

Dear Guidebook Authors/ Field Trip Leaders,

Thank you again for your fine contributions to the 54th Ann. NYSGA

Field Conference. I have heard good things about all the trips and I think

the trips all went well in the eyes of participants. There is no real way that

you can be compensated for all your work but I did have some extra guidebooks

which I am distributing to each of you. In addition, I enclose some extra

reprints for the first-listed guidebook authors.

Yours sincerely,

Parker E. Calkin

General Chairman 1982

## NEW YORK STATE GEOLOGICAL ASSOCIATION 54th ANNUAL MEETING October 8-10, 1982 Amherst, New York

GUIDEBOOK FOR FIELD TRIPS IN WESTERN NEW YORK, NORTHERN PENNSYLVANIA AND ADJACENT, SOUTHERN ONTARIO

Edward J. Buehler and Parker E. Calkin Editors

Department of Geological Sciences State University of New York at Buffalo Held in Conjunction with 11th Annual Meeting Eastern Section American Association of Petroleum Geologists

Published by the New York State Geological Association. Guidebook available from the executive secretary: M.P. Wolf, Geology Department, Gittleson Hall, Hofstra University, Hempstead, New York 11550.

### HISTORY OF THE NEW YORK STATE GEOLOGICAL ASSOCIATION (NYSGA)

The first intercollegiate state field meeting was organized at Hamilton College in Clinton, N.Y., by Nelson C. Dale in 1925 (we think we are the oldest state intercollegiate geological association in the nation). The meetings became an annual event and consisted of an evening banquet and a Saturday trip to local outcrops near the host institution. A few handout sheets were prepared by the field director for this occasion. These early trips emphasized the stratigraphy, geomorphology, structural, glacial, and economic geology of the Pre-Cambrian, Lower Paleozoic and Pleistocene strata of the state - this pattern continues. The excursions were popular with 150-200 students, faculty and "working" geologists attending; personnel from the New York State Museum were also active contributors.

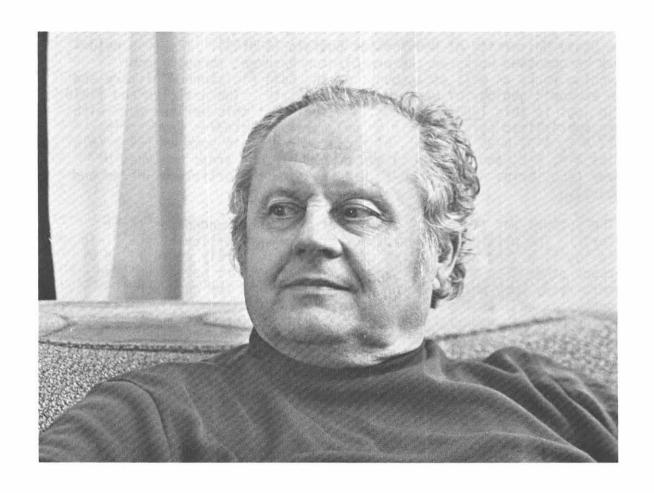
After the war years, 1942-45, the meetings were resumed and extended to cover two field trips (hard rock and soft rock) for the weekend; a small "guidebook" was also prepared. It remained a loose-knit, self-perpetuating, but unmanaged association until 1953 when Kurt E. Lowe (as "permanent secretary") undertook the responsibility of providing some organization. More host institutions were added, and in 1956 the first bound guidebook with a choice of seven trips were offered by the University of Rochester. All the guidebooks have been reprinted and sold since that time (see last page of guidebook for list and prices).

Through Kurt Lowe's efforts, more of a "routine" arrangement became established at each meeting, and the number of participants increased from 150 in 1954 to over 400 in 1965. The field guidebooks became more sophisticated and detailed, and now also included petrology, paleoecology, sedimentology, and engineering-environmental geology. They grew from 100 pages (1963) to over 400 pages (1977), but, as with the attendance, they are now decreasing to more manageable levels (see reverse side).

A constitution was developed by Kurt Lowe in 1969, when Phil Hewitt became the first Executive Secretary. Daniel F. Merriam took over the responsibility in 1973, and through the society's emphasis on stratigraphy, structure and paleontology, sought the establishment of a national affiliation with the American Association of Petroleum Geologists (A.A.P.G.).

A few years ago the organization celebrated its 50th annual meeting, and looks forward toward the further development and understanding of N.Y. State geology, and its resource potential and environmental problems during the next 50 years.

Presently under the direction of Fred Wolff, the Association has become incorporated, continues its affiliation with the national A.A.P.G, and still remains a loose-knit organization. It continues to host annual field trips throughout N.Y. State for its students and faculty, and promotes the sale of guidebooks to anyone interested in the regional geolgoy of this classic, diverse area.



DEDICATION TO

EDWARD J. BUEHLER (1916 - 1982)

Professor Edward Buehler died on July 12th while much of this publication was in preparation. He had been instrumental in the organization of these joint meetings and of this guidebook. He also had organized the 1966 NYSGA meeting and guidebook. Ed loved western New York; he received his Bachelor's and Master's degrees from the University of Buffalo. In 1948 after receiving his Doctor of Philosophy degree in geology from Yale University, he returned to teach at his Alma Mater with a major emphasis on paleontology. In deep appreciation of his devotion and contributions to the understanding of western New York geology, this volume is affectionately dedicated.

#### FOREWORD AND ACKNOWLEDGEMENTS

In 1966 Dr. Edward Buehler assembled a comprehensive group of geologic articles and field trips for the first NYSGA meetings to be hosted by the State University of New York at Buffalo (SUNYAB). The 1966 guide-book encompassed works on the pre-Clinton basement through Upper Devonian rocks as well as accounts of the Late Pleistocene history and the economic geology of western New York State. The articles and field trip logs in this 1982 guidebook, a) supplement this earlier work with more specialized stratigraphic or paleontologic studies (e.g. trips A-1, A-2, A-3, B-3, and B-5), b) replace or up-date some articles (e.g. trips A-4, B-2, and B-3), or c) add completely new areas or types of study (e.g. trips A-5, A-6, B-2, B-4, B-5 and the article by Hodge and others).

The authors and field trip leaders are to be commended for their efforts. The writing of a guidebook article and particularly a field trip log is a long and exacting process that is rarely appreciated by persons other than the field geologist. The authors have submitted camera-ready copy which has considerably lessened the guidebook expenses as well as the time necessary for assemblage. Only minor editing has been undertaken. The fact that the format of some of the articles is at variance with the specific format requested should not hinder the articles' great usefulness.

The faculty and staff members of the Department of Geological Sciences have all contributed to the joint meetings with which this guidebook is associated; their help and cooperation is gratefully acknowledged. The guidebook has been printed and bound by the printing facility of the State University of New York at Buffalo. Funds for most of the printing have been generously provided by the Conferences in the Disciplines Committee of SUNYAB. This has allowed the Organizing Committee to maintain the tradition of low registration costs.

Parker E. Calkin General Conferences Chairman and President of NYSGA for 1982 Meeting

### TABLE OF CONTENTS

	<u>Page</u>		
Fronti	ispiece I - Bedrock map of western New York		
	II- Map showing end moraines and major strand lines of the glacial Great Lakes, western New York 2		
	vsical Signature of central and western New York. D.S. Hodge, Eckert, and F. Revetta		
SATURDAY TRIPS			
A-1	Upper Moscow-Genesee Stratigraphic Relationships in Western New York: Evidence for Regional Erosive Beveling in the Late Devonian. Carlton E. Brett and Gordon C. Baird 19		
A-2	Carbonate Facies of the Onondaga and Bois Blanc Formations, Niagara Peninsula, Ontario. Mary Rose Cassa and Don L. Kissling		
A-3	Eurypterids, Stratigraphy, Late Silurian-Early Devonian of Western New York State and Ontario, Canada. Samuel J. Ciurca, Jr		
A-4	Glacial Geology of the Erie Lowland and Adjoining Allegheny Plateau, Northwestern New York. Parker E. Calkin 121		
A-5	Recent Oil and Gas Development on Public Lands in Western New York State. Peter J. Buttner, Manfred P. Wolff, and Hyler Gray		
A-6	Geologic and Engineering History of Presque Isle Peninsula, PA. Joan Pope and Richard J. Gorecki		
SUNDAY TRIPS			
B-1	Stratigraphy and Facies Variation of the Rochester Shale (Silurian: Clinton Group) Along Niagara Gorge. Carlton E. Brett		
B-2	Glacial and Engineering Geology Aspects of the Niagara Falls and Gorge. Parker E. Calkin, and Thomas Wilkinson 247		
B-3	Quaternary Stratigraphy and Bluff Erosion, Western Lake Ontario, New York. Parker E. Calkin, Ernest H. Muller, and Thomas F. Drexhage		

		Page
B-4	Sedimentologic and Geomorphic Processes and Evolution of Buttermilk Valley, West Valley, New York. Jon C. Boothroyd, Barry S. Timson, and Lorie A. Duane	
B-5	Devonian Black Shales of Western New York. Douglas Patchen and Kathrine Lee Avery	355
	Subsurface Expression and Gas Production of Devonian Black Shales in Western New York. Arthur M. Van Tyne	371

