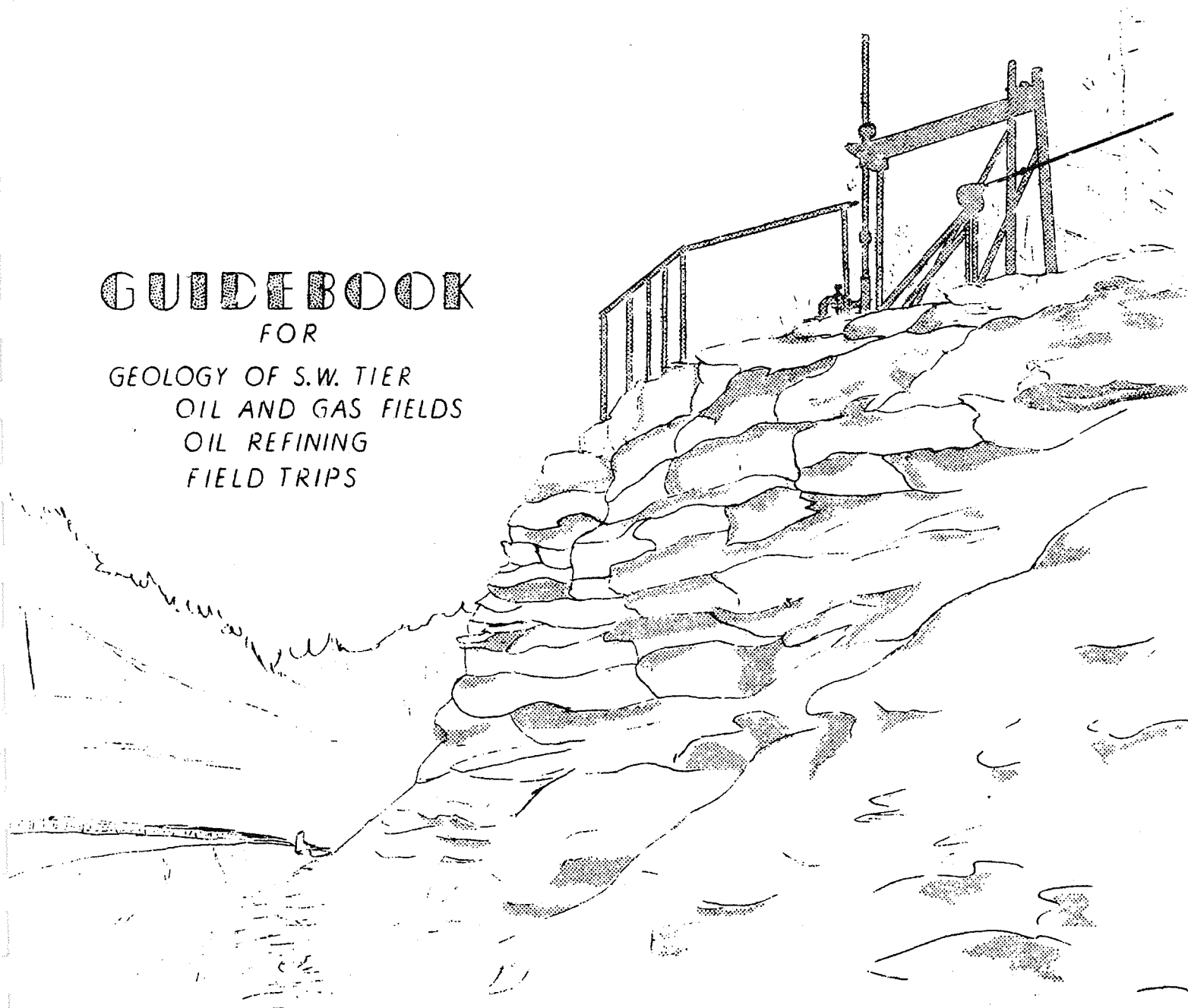


NEW YORK  
STATE GEOLOGICAL  
ASSOCIATION

TWENTY-NINTH ANNUAL MEETING  
WELLSVILLE, N. Y. — MAY 9-12, 1957

GUIDEBOOK  
FOR  
GEOLOGY OF S.W. TIER  
OIL AND GAS FIELDS  
OIL REFINING  
FIELD TRIPS





GUIDEBOOK

NEW YORK STATE GEOLOGICAL ASSOCIATION

Twenty-ninth Annual Meeting

Wellsville, New York

May 9-12, 1957

\* \* \* \* \*

Prepared  
by  
Authors of the Various Chapters

Edited and Compiled  
by  
W. H. Young, Jr. and W. L. Kreidler

HOSTS

New York State Geological Survey  
Sinclair Refining Co.  
Oil and Gas Companies of the Area

\* \* \* \* \*

Permanent Secretary for New York State Geological Association  
Dr. Kurt E. Lowe  
The City College, Dept. of Geology, 139th St. & Convent Ave., New York City 31, N.Y.



## TABLE OF CONTENTS

|  | <u>Page</u> |
|--|-------------|
| List of Illustrations, Maps, Figures - - - - -                 | 1           |
| Schedule of Events - - - - -                                   | 2           |
| I - Introduction- - - - -                                      | 3           |
| II - Physiography and Glacial Geology- - - - -                 | 5           |
| III - Stratigraphy and Paleontology - - - - -                  | 15          |
| IV - Devonian Depositional History - - - - -                   | 21          |
| V - Relation of Oil and Gas Production to Structure - - - - -  | 27          |
| VI - Sub-Oriskany Oil and Gas Possibilities- - - - -           | 30          |
| VII - Underground Gas Storage - - - - -                        | 32          |
| VIII - Secondary Recovery of Oil by Waterflooding- - - - -     | 39          |
| IX - Oil Refining- - - - -                                     | 50          |
| X - Field Trip Logs  |             |
| Trip A1 - A2 - Geological Outcrops in the Wellsville Area-     | 54          |
| Trip B1 - B2 - Harrison Valley Oriskany Gas Storage Field-     | 56          |
| Trip C1 - C2 - Sinclair Oil Refinery - - - - -                 | No Log      |
| Trip D - Oil Fields and Well Shooting- - - - -                 | 58          |
| Trip E - Stratigraphy of Southwestern New York - - -           | 61          |
| XI - Acknowledgments - Hosts, Sponsors, Contributors - - - - - | 64          |
| XII - References and Topo Sheets- - - - -                      | 65          |



## ILLUSTRATIONS, MAPS, FIGURES

|         |  | Page |
|---------|--|------|
| Map.1   | Glacial Features of Allegany County and Vicinity - - - - -             | 4    |
| Table 1 | Geologic Exposures and Places of Historical Interest - - - - -         | 12   |
| Map 2   | Geological Map of Wellsville Area- - - - -                             | 13   |
| Table 2 | General Stratigraphic Column - - - - -                                 | 17   |
| Fig. 1  | Upper Chemung and Lower Canadaway Stratigraphic Relationships- - - - - | 16   |
| Plate 1 | Fossils Commonly Encountered in Wellsville Region- - - - -             | 22   |
| Fig. 2  | Upper Devonian Depositional Phases - - - - -                           | 23   |
| Table 3 | Key to Oil and Gas Fields and Anticlines of Map 3- - - - -             | 24   |
| Map 3   | Structure Map of Wellsville Area with Oil and Gas Fields - - - - -     | 25   |
| Chart 1 | Sample Correlation Showing Approximate Positions of Oil Horizons - - - | 28   |
| Map 4   | Structure of the Harrison Gas Field before Storage - - - - -           | 35   |
| Fig. 3  | Flow Diagram and Layout for Typical Waterflood Operation - - - - -     | 43   |
| Fig. 4  | Typical Separator as Used in Allegany Field- - - - -                   | 46   |
| Chart 2 | Flow Chart for Processing Pennsylvania Grade Crude Oil- - - - -        | 51   |
| Fig. 5  | Layout of Harrison Valley Compressor Station - Trips B1 - B2 - - - - - | 57   |
| Fig. 6  | Layout of Water Injection System - Trip D- - - - -                     | 59   |
| Fig. 7  | Layout of Oil Well Power and Stock Tanks - Trip D- - - - -             | 60   |

SCHEDULE

Headquarters - Wellsville Rod & Gun Club, on Gypsy Lane about 1.5 miles SE of village.

Note: All trips will leave from headquarters in private cars. Come prepared to take or go with others, so all cars will be filled.

EMERGENCY CALLS from out of town can be directed to the Hotel Fassett - Tel. Wlsv. 744

Thursday May 9

3 P.M. TRIP C2 - Sinclair oil refinery (same as Trip C1). See questionnaire for name and address data.

7-11 P.M. Registration, exhibits, social evening at headquarters. Sleeping accommodations will be assigned upon registration. (These may be secured before 5 P.M. by calling Wellsville 492.

Friday, May 10

8 A.M.-1 P.M. Registration at headquarters. Secure location of accommodations here when registering.

ONE OR TWO TRIPS MAY BE SELECTED FOR THE MORNING.

8:30 A.M. TRIP A1 - Geological outcrops in Wellsville area. Visit and study the Wellsville, Machias, Cuba & Hinsdale (U. Dev.) units and fossil locations.

TRIP B1 - Harrison gas storage field. Visit an Oriskany sandstone gas field previously depleted and now used for storage of gas from Texas and the south.

TRIP C1 - Sinclair oil refinery. Trip through the Sinclair Refining Company's Wellsville plant which processes Allegheny crude oil.

Noon Lunch at headquarters - price ± 80¢

1 P.M. TRIP D - Oil fields and well shooting. See the secondary recovery of oil by waterflooding. Visit water treating and pressure plants; flowing and pumping oil wells; oil, gas & water separators; see a well "shot" with nitroglycerine.

6:30 P.M. Annual banquet at High School cafeteria. Field clothes will be permitted. Dinner will be served semi-cafeteria style. Price \$2.00 including tip. Short business meeting will be followed by a panel discussion and question period on the subjects covered on all field trips.

Saturday, May 11

7:30 A.M. Registration for late comers

8:00 A.M. TRIP E - Stratigraphy and glacial geology of southwestern N.Y. This will include stops at the Wolf Creek conglomerate (U.Dev.) fossil locale and the Olean conglomerate (Penn.) outcrop at Rock City.

Noon Lunch (price ± 80¢) and exploration of the famous Olean conglomerate "boulder city".

Sunday, May 12

8:30 TRIP A2 - Geological outcrops in Wellsville area. (same as Trip A1).

TRIP B2 - Harrison gas storage field. (same as Trip B1).