

FIELD TRIP GUIDEBOOK

MIDDLETOWN

N.Y. 1989

61st Annual Meeting



NEW YORK STATE

GEOLOGICAL ASSOCIATION

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61st Annual Meeting

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Field Trip Guidebook

Edited by

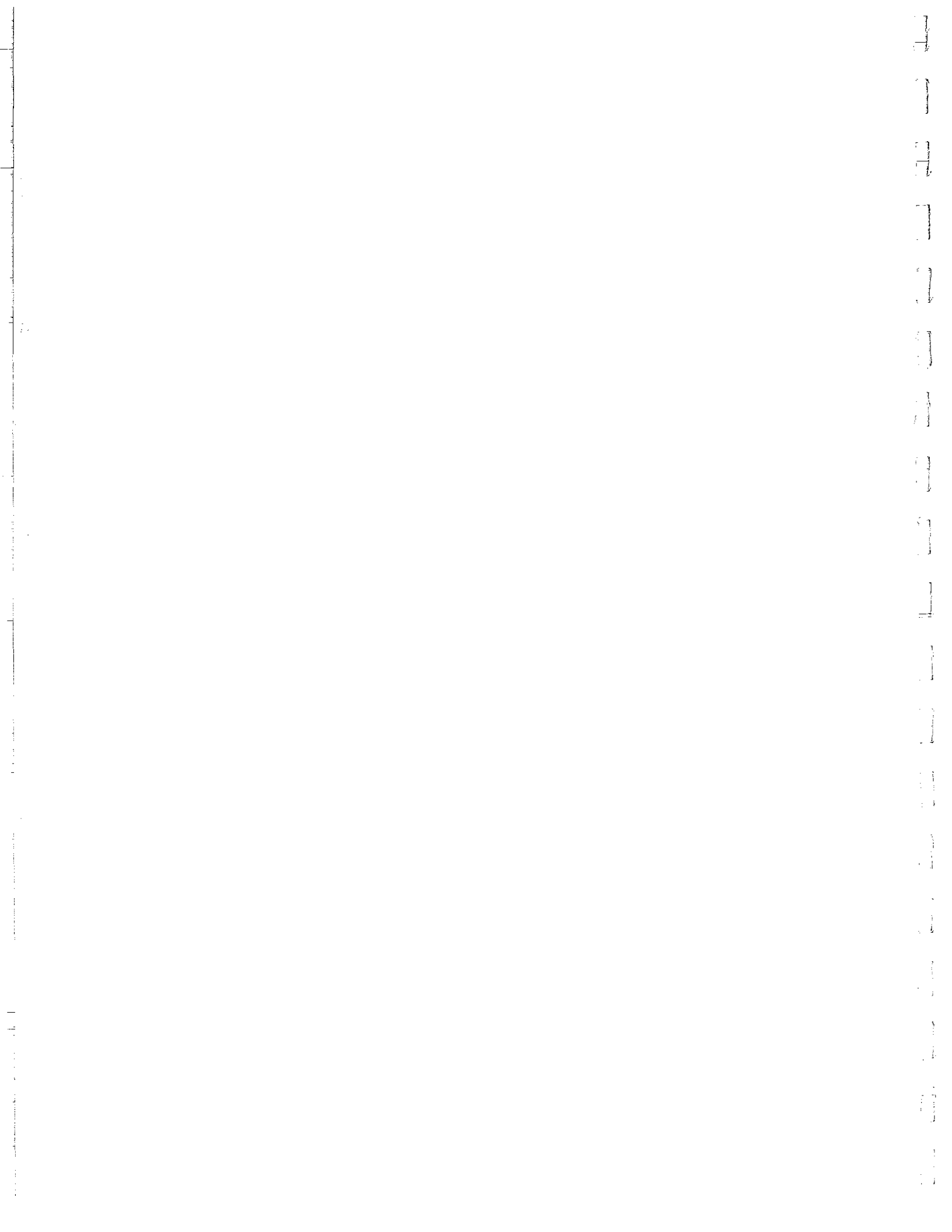
Dennis Weiss

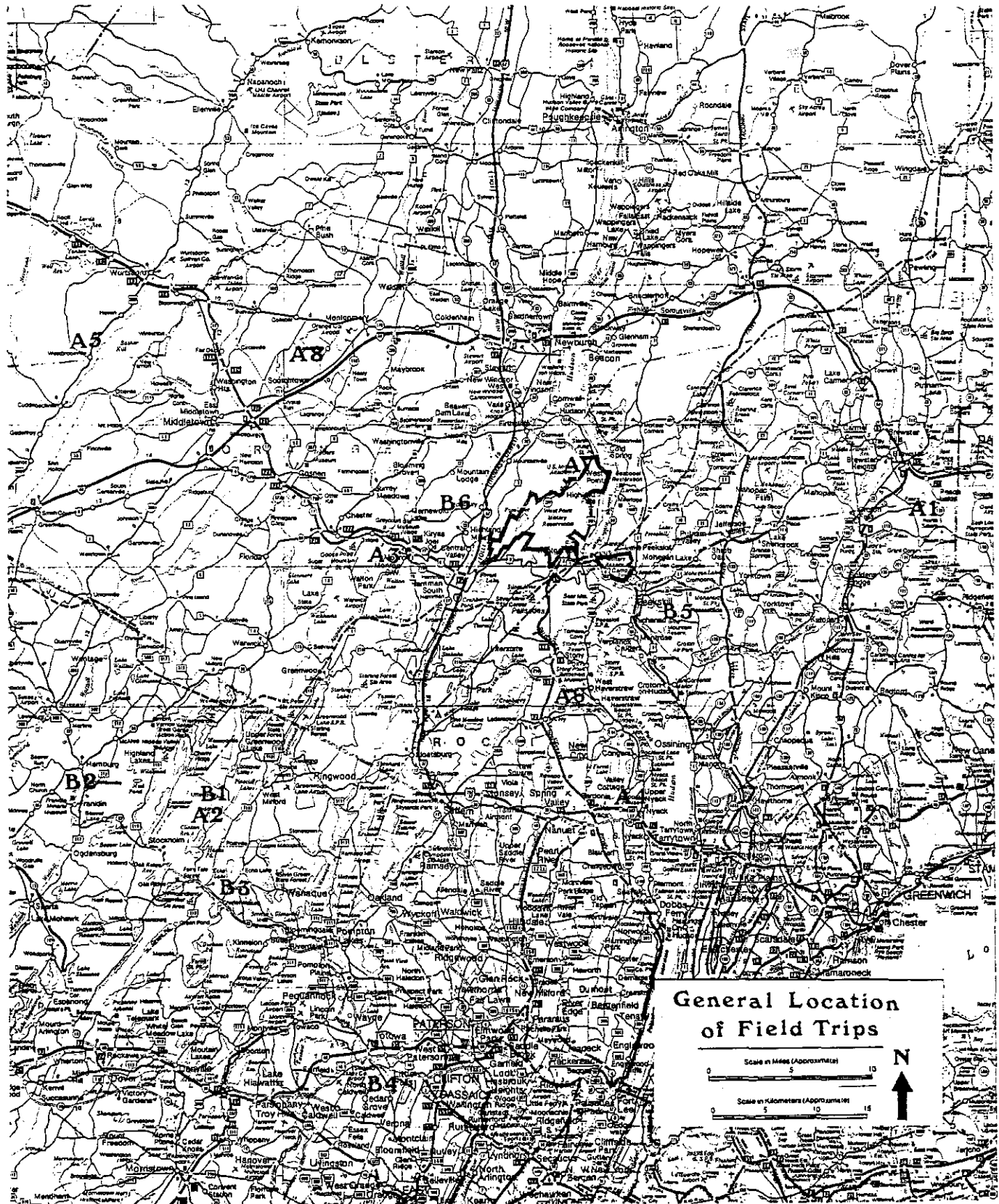
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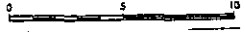
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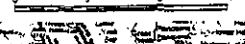
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General Location of Field Trips

Scale in Miles (Approximate)



Scale in Kilometers (Approximate)



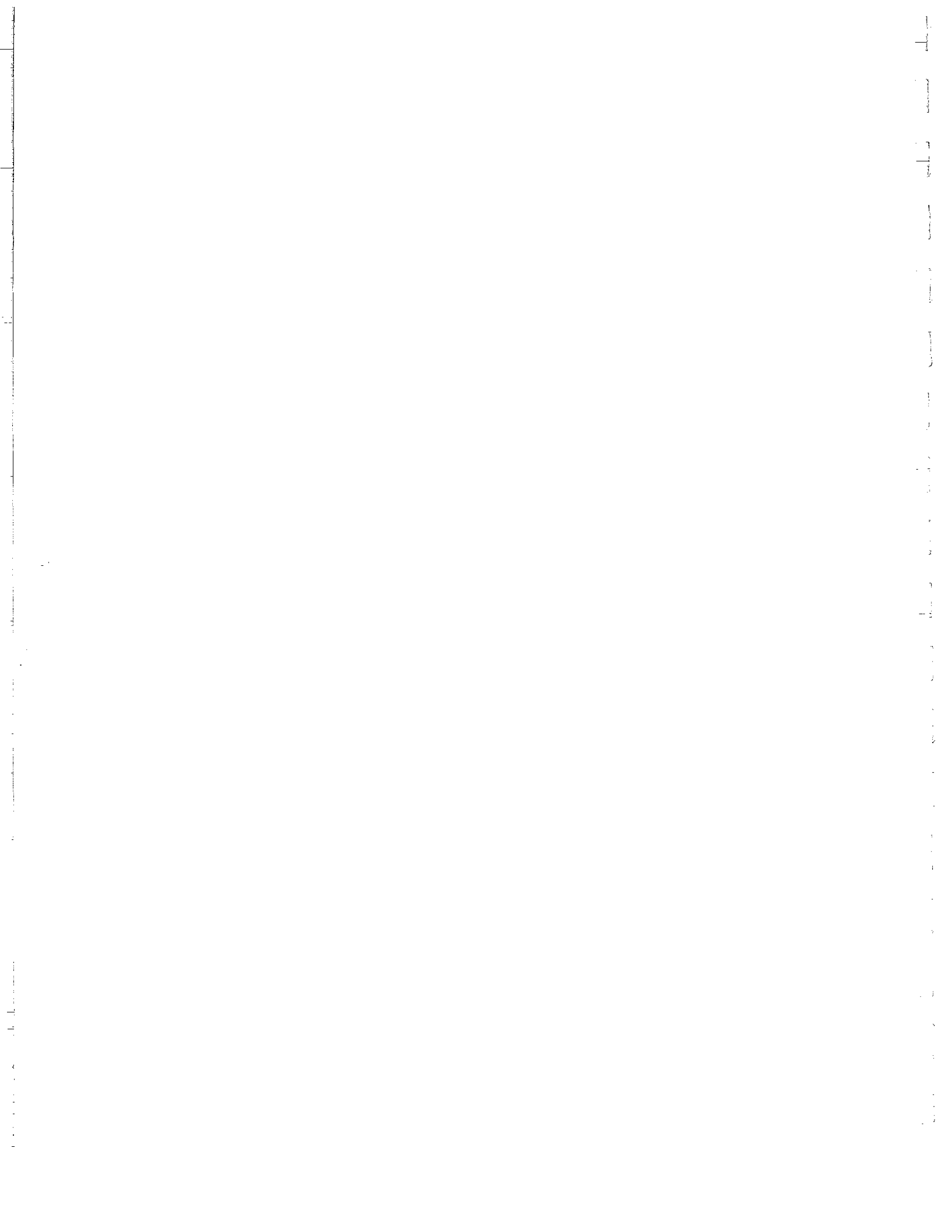


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PREFACE

The diversity of the geology of the Lower Hudson Valley and environs is reflected in the breadth of field trips contained in this guidebook for the 61st Annual Meeting of the New York State Geological Association. No where in New York can one view, in an area of comparable size, such a wide variety of rocks, structures, and sediments representing more than one billion years of Earth history. Evidence of major events in the Earth's history and development ranging from periods of extreme deformation, to times of extensive sedimentation, to the breakup of continents, to the covering of the land by vast ice sheets are contained in the area's geologic sequences. In addition, modern problems in applied geology such as seismic risk and slope stability are also of particular concern.

Several of the field trips retrace the paths their authors led us on at previous meetings of the Association. Howard and Elizabeth Jaffe; Gordon Connally, Les Sirkin, and Don Cadwell; and Bob Finks update information presented at various meetings over the past twenty-nine years. It is with nostalgia that I remember that these were the first trips of the Association that I attended as a student. Moreover, some of you may recognize the art work of Jack Fagan which adorns the cover the guidebook. New views are presented by Pam Brock on the stratigraphy of the Manhattan Prong; by Tony Prave, Moses Alcalá, and Jack Epstein on the nature of sedimentation in the middle and late Silurian; and by Alan Kafka, Margie Winslow, and Noel Barstow on the neotectonics of the Lower Hudson Valley region. Clearly, there is continuing interest in the Green Pond Outlier. Larry Malizzi and Alec Gates; Jim Mitchell and Randy Forsythe; and Bob Finks and Michael Raffoni present their respective interpretations of that area's geologic development. Triassic/Jurassic intrusive and extrusive igneous activity is examined by Jeff Steiner and John Puffer, respectively. Over the years the area of the Lower Hudson Valley has been extensively developed and the surficial deposits of the area disturbed. Despite this added difficulty, Les Sirkin, Don Cadwell, and Gordon Connally have been able to complete new studies of the Pleistocene geology of eastern Putnam County and Westchester County. As growth and development of the region have continued, the expansion of its highways has been accompanied by problems of slope stability. Clay Bolton's field trip will examine this concern which, in recent years, has led to catastrophe in several instances. Looking back into prehistory, this region has been occupied by man for over 6,000 years. Phil La Porta's presentation on chert, relates its stratigraphic occurrence to regional archeologic studies. Finally, as our concerns for science education increase, Bill Tucci and Bob Kalin in their "Geologic Climb of Schunnemunk Mountain" present a useful "hands on" teaching exercise for Earth Science teachers.

In closing, I would like to thank the authors of each trip for their effort and cooperation. Without them this guidebook would not be the professional reference and source of information it is. In addition, my gratitude goes to Jack Fagan for finding the time to do the cover of the guidebook, Jim Olmstead and Fred Wolfe for their wisdom and guidance, Larry O'Brien for his uplifting and cheerful support during the editing process, and finally to my wife Susan for patiently enduring the piles of manuscripts and edited texts left all over the house.

Dennis Weiss, Editor
October, 1989

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