

SYMPOSIUM ON SURFACE AND SUBSURFACE RECONNAISSANCE

Presented at the
FIFTY-FOURTH ANNUAL MEETING
AMERICAN SOCIETY FOR TESTING MATERIALS
Atlantic City, N. J., June 19, 1951



Special Technical Publication No. 122

Published by the
AMERICAN SOCIETY FOR TESTING MATERIALS
1916 Race St., Philadelphia 3, Pa.

SYMPOSIUM ON SURFACE AND SUBSURFACE RECONNAISSANCE

Presented at the
FIFTY-FOURTH ANNUAL MEETING
AMERICAN SOCIETY FOR TESTING MATERIALS
Atlantic City, N. J., June 19, 1951



Reg. U. S. Pat. Off.

Special Technical Publication No. 122

Published by the
AMERICAN SOCIETY FOR TESTING MATERIALS
1916 Race St., Philadelphia 3, Pa.

COPYRIGHT, 1952
BY THE
AMERICAN SOCIETY FOR TESTING MATERIALS

Printed in Baltimore, Md.
August, 1952

FOREWORD

The papers and discussions in this Symposium on Surface and Subsurface Reconnaissance were presented at the Tenth and Eleventh Sessions of the Fifty-fourth Annual Meeting of the American Society for Testing Materials held in Atlantic City, N. J. on June 19, 1951. The Symposium was sponsored by Committee D-18 on Soils for Engineering Purposes. Messrs. L. E. Gregg, Assistant Director of Research, Kentucky State Highway Dept., Lexington, Ky. and G. W. McAlpin, Director, Bureau of Soil Mechanics, New York Department of Public Works, Albany, N. Y. acted as Chairmen of the sessions.

The purpose of this Symposium on Surface and Subsurface Reconnaissance is to assemble information on techniques that have been applied to this type of reconnaissance on soils in widely varying fields and to examine these techniques for their limitation as well as application.

NOTE—The Society is not responsible, as a body, for the statements
and opinions advanced in this publication.

CONTENTS

	PAGE
Introduction—G. W. McAlpin and L. E. Gregg.....	1
Interpreting Geologic Maps for Engineers—E. B. Eckel.....	5
Engineering Implications of Geological Reconnaissance in the Plains Area—Missouri River Basin—E. A. Abdun-Nur and J. D. Dowling.....	16
Preliminary Foundation Exploration in Arctic Regions—L. A. Nees and A. M. Johnson.....	28
Preparation of County Engineering Soil Maps for Illinois—T. H. Thornburn.....	40
The Engineer Looks at Pedology—R. L. Greenman.....	46
Application of Aerial Photographs to Preliminary Engineering Soil Surveys—R. D. Miles.....	57
The Preparation of an Engineering Soil Map of New Jersey—D. R. Lueder.....	73
Panel Discussion on Pedology, and Geology and Air Photo Application.....	82
Earth-Resistivity Tests Applied to Subsurface Reconnaissance Surveys—R. W. Moore	89
Electrical Resistivity Geophysical Method as Applied to Engineering Problems— H. LeRoy Scharon.....	104
Geophysical Measurements of the Depth of Weathered Mantle Rock—D. Wantland.	115
The Practical Value of an Earth Resistivity Method in Making Subsurface Explora- tions—W. F. Abercrombie.....	136
Application of Seismic Methods to Foundation Exploration—A. M. Johnson and R. H. Wesley.....	142
Experience With Geophysics in New York State—P. H. Bird.....	151
Seismology Applied to Shallow Zone Research—D. Linehan.....	156
Resistivity Reconnaissance—I. Roman.....	171
Panel Discussion on Geophysical Methods, Including Resistivity and Seismic Method	221
General Discussion.....	227

THIS PUBLICATION is one of many issued by the American Society for Testing Materials in connection with its work of promoting knowledge of the properties of materials and developing standard specifications and tests for materials. Over the years the Society has published many technical symposiums, reports, and special books. These may consist of a series of technical papers, reports by the A.S.T.M. technical committees, or compilations of data developed in special Society groups with many organizations cooperating. A list of A.S.T.M. publications and information on the work of the Society will be furnished on request.