
SOIL MICROMORPHOLOGY

Edited by

GEORGES STOOPS
State University of Ghent, Belgium

and

HARI ESWARAN
Soil Management Support Services
Washington, D.C.



A Hutchinson Ross Publication



VAN NOSTRAND REINHOLD COMPANY
New York

CONTENTS

Series Editor's Foreword		ix
Preface		xiii
Contents by Author		xvii
Introduction		1
PART I: ROLE AND SCOPE		
Editors' Comments on Papers 1, 2, and 3		10
1	KUBIĚNA, W. L.: The Principle of Micropedology <i>Micropedology</i> , Collegiate Press Inc., Ames, Iowa, pp. 5-8 (1938)	12
2	OSMOND, D. A.: Micropedology <i>Soils and Fertilizers</i> 21 :1-6 (1958)	15
3	BULLOCK, P.: The Changing Face of Soil Micromorphology <i>Soil Micromorphology, vol. I. Techniques and Applications</i> , P. Bullock and C. P. Murphy, eds., AB Academic Publishers, Berkhamsted, pp. 1-18 (1983)	21
PART II: GENERAL CONCEPTS OF FABRIC		
Editors' Comments on Papers 4, 5, and 6		40
4A	KUBIĚNA, W. L.: Introduction <i>Micropedology</i> , Collegiate Press Inc., Ames, Iowa, pp. 125-128 (1938)	43
4B	KUBIĚNA, W. L.: Elementary Fabric <i>Micropedology</i> , Collegiate Press Inc., Ames, Iowa, pp. 129-153 and 171-173 (1938)	47
5	BREWER, R. and SLEEMAN, J. R.: Soil Structure and Fabric. Their Definition and Description <i>Jour. Soil Sci.</i> 11 :172-185 (1960)	75
6	ALTEMÜLLER, H.-J.: Gedanken zum Aufbau des Bodens und seiner begrifflichen Erfassung <i>Zeitschr. Kulturtechnik</i> 3 :328-334, 335, 336 (1962)	89
PART III: SPATIAL RELATIONSHIPS OF BASIC SOIL COMPONENTS		
Editors' Comments on Papers 7, 8, and 9		98
7	STOOPS, G. and A. JONGERIUS: Proposal for a Micromorphological Classification of Soil Materials. I. A Classification of the Related Distributions of Fine and Coarse Particles <i>Geoderma</i> 13 :189-199 (1975)	102

- 8 BREWER, R., and S. PAWLUK:** Investigations of Some Soils Developed in Hummocks of the Canadian Sub-Arctic and Southern-Arctic Regions. 1. Morphology and Micromorphology
Canadian Jour. Soil Sci. **55**:304-311 (1975) **113**
- 9 ESWARAN, H., and CI. BAÑOS:** Related Distribution Patterns in Soils and Their Significance
An. Edafologia Agrobiologia **35**:33-45 (1976) **120**

PART IV: ORGANIC MATTER

- Editors' Comments on Papers 10 Through 13** **134**
- 10 JONGERIUS, A., and J. SCHELLING:** Micromorphology of organic matter formed under the influence of soil organisms, especially soil fauna
Internat. Congr. Soil Sci. 7th Trans. Madison, Wisc. **3**:702-710 (1960) **138**
- 11 BABEL, U.:** Humuschemische Untersuchung eines Buchen-Rohhumus mittels mikroskopischer Methoden
Mitt. Vereins f. Forstl. Standortkund. u. Forstpflanzenzüchtung **15**:33-38 (1965) **146**
- 12 BARRATT, B.C.:** A Revised Classification and Nomenclature of Microscopic Soil Materials with Particular Reference to Organic Components
Geoderma **2**:257-261, 264-271 (1969) **153**
- 13 DE CONINCK, F., D. RIGHI, J. MAUCORPS, and ROBIN, A. M.:** Origin and Micromorphological Nomenclature of Organic Matter in Sandy Spodosols
Soil Microscopy, G. K. Rutherford, ed., The Limestone Press, Kingston, pp. 263-273, 279-280 (1974) **166**

PART V: MICROSTRUCTURE

- Editors' Comments on Papers 14 and 15** **180**
- 14 BECKMANN, W., and E. GEYGER:** Entwurf einer Ordnung der natürlichen Hohlraum-, Aggregat- und Strukturformen im Boden
Die mikromorphometrische Bodenanalyse, W.L. Kubiëna, ed., Ferdinand Enke Verlag, Stuttgart, pp. 163-188 (1967) **184**
- 15 DUMANSKI, J., and R. J. ST. ARNAUD:** A Micropedological Study of Eluvial Soil Horizons
Canadian Jour. Soil Sci. **46**:287-292 (1966) **210**

PART VI: CLAY REARRANGEMENTS

- Editors' Comments on Papers 16 Through 20** **220**
- 16 MINASHINA, N. G.:** Optically Oriented Clays in Soils
Soviet Soil Sci. **4**:424-430 (1958) **225**
- 17 STEPHEN, I.:** Clay Orientation in Soils
Science Progress **48**(190):322-331 (1960) **232**

- 18 BUOL, S. W., and F. D. HOLE:** Clay Skin Genesis in Wisconsin Soils
Soil Sci. Soc. America Proc. **25**:377-379 (1961) **242**
- 19 NETTLETON, W. D., K. W. FLACH, and B. R. BRASHER:** Argillic Horizons without Clay Skins
Soil Sci. Soc. America Proc. **33**:121-125 (1969) **245**
- 20 FEDOROFF, N.:** Classification of Accumulations of Translocated Particles
Soil Microscopy, G. K. Rutherford, ed., The Limestone Press, Kingston, Ontario, pp. 695-700, 711, 712 (1974) **250**

PART VII: AMORPHOUS AND CRYSTALLINE NEOFORMATIONS

- Editors' Comments on Papers 21 Through 25** **258**
- 21 KUBIËNA, W. L.:** Die taxonomische Bedeutung der Art und Ausbildung von Eisenoxyhydratmineralien in Tropenböden
Zeitschr. für Pflanzenern., Düng., Bodenkunde **98**:205-214 (1963) **262**
- 22 PARFENOVA, E. I., and E. A. YARILOVA:** Characteristic Features of Certain USSR Soils in Thin Sections
Mineralogical Investigations in Soil Science, Israel Programs for Scientific Translations, Jerusalem, 1965, pp. 78-96 **271**
- 23 FLACH, K. W., J. G. CADY, and W. D. NETTLETON:** Pedogenic Alteration of Highly Weathered Parent Materials
Internat. Congr. Soil Sci. 9th Trans. **4**:343-351 (1968) **290**
- 24 TURSINA, T. V., I. A. YAMNOVA, and S. A. SHOBA:** Combined Stage-by-Stage Morphological, Mineralogical and Chemical Study of the Composition and Organization of Saline Soils
Soviet Soil Sci. 81-94 (1980) **299**
- 25 MIEDEMA, R., A. G. JONGMAN, and S. SLAGER:** Micromorphological Observations of Pyrite and Its Oxidation Products in Four Holocene Alluvial Soils in the Netherlands
Soil Microscopy, G. K. Rutherford ed., The Limestone Press, Kingston, Ontario, pp. 772-794 **313**

- Author Citation Index** **337**
- Subject Index** **341**
- About the Editors** **345**