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Foreword

Every pedologist will name Drs. Kubiena and Brewer as the two foremost names in soil micromorphology. They literally dedicated their lives to establishing definitions, nomenclature, and procedures in the study of soil micromorphology. Their research results are now being used by many others. Until now, efforts in soil micromorphology have been concerned primarily with descriptive elements. To be useful to scientists in the future, soil micromorphology must transcend from a descriptive to a process emphasis. Soil micromorphology should be useful in separating cause from effect and helping us understand why different soils form horizons the way they do, as well as understanding the variation within horizons. The U.S. system of soil taxonomy should benefit immensely from these efforts.

This publication is a result of a Soil Science Society of America symposium held by Divisions S-5 and S-9 at the annual meeting in Anaheim, CA. The authors of each of the 10 chapters were responsible for relating soil micromorphology to particular aspects of soil classification. All authors are recognized authorities and a record of their research results in one volume will be most useful in fostering continued research in soil micromorphology.

On behalf of the Soil Science Society of America our thanks to the authors, editors, and the organizing committee.

E. C. A. Runge, President
Soil Science Society of America
Preface

The concept of applying microscopic techniques in soil science was independently conceived by Harrison (1933) and Kubiena (1931). Because Harrison's paper was published posthumously (Harrison died in 1929), the task of fostering and nurturing soil micromorphology fell on Kubiena's shoulders. This was a task he enjoyed and carried out with gusto.

Professor Kubiena was a brilliant teacher as well as a scientist. He soon had a following of soil micromorphologists whom he had trained. Kubiena was a geographer at heart and was always interested in the regional distribution of soil. Soil micromorphology was a comparative science to him, comparing the characteristics of one soil with the characteristics of another soil. Consequently, the exchange of organized knowledge through soil classification systems was paramount.

Soil classification is grounded in thorough, objective descriptions of soil morphology; therefore it is appropriate that the work of soil micromorphologists be brought to bear on soil classification. Twenty years have passed since the publication of Roy Brewer's (1964) enormously influential work on identification, description, and classification of pedological features such as cutans, glaebules, crystallaria, voids, and plasmic fabrics. Yet, in only a few instances have micromorphological data been employed in comprehensive systems of soil classification. Even when incorporated into a system (e.g., requirements concerning argillans in Soil Taxonomy's [Soil Survey Staff, 1975] definition of the argillic horizon), serious questions have been raised about how micromorphological data can be quantified (e.g., McKeague et al., 1980). On the other hand, it is clear that micromorphological studies can inform classification efforts by elucidating specific processes of soil genesis. Genesis and morphology still go hand-in-hand in comprehensive soil classification systems.

The review papers included in this special publication were presented at a symposium organized through Divisions S-5 and S-9 of the Soil Science Society of America and held at Anaheim, CA, 28 Nov.-3 Dec. 1982. In the symposium, micromorphological properties of major soil classification units in Soil Taxonomy were described and discussed. The objective of the symposium was to narrow the gap between the micromorphologist and the soil classifier so that the soil classifier could use the additional knowledge about soil micromorphology for his or her classification procedures.

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Lowell A. Douglas, Editor
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