NUMBER 39
SEPTEMBER 24, 1979

This Week's Citation Classic

Brewer R. *Fabric and mineral analysis of soils.* New York, NY: Krieger, 1976 (1964). 482 p. [Division of Soils, CSIRO, Australia]

The book presents the principles involved in, and an orderly method of, investigating the genesis of soil profiles, based on calculations of soil formation by non-clay mineral analysis and on description of soil fabrics and their interpretation in terms of soil processes. [The *SCI*® indicates that this book has been cited over 270 times since 1964.]

Roy Brewer
CSIRO, Division of Soils
Canberra Laboratories
PO Box 639, Canberra City, 2601
ACT, Australia

June 12, 1979

"Motivation for the research that led to writing the book came originally from two sources: Kubiena's pioneering work on soil fabrics,[1] and Haseman and Marshall's classic quantitative evaluation of soil formation based on calculations of mineral weathering.[2] These studies excited me because of my training as a petrologist, and, more so, because of some dissatisfaction with my occupation as a field pedologist which, in those early days (1941-52) was confined to routine mapping of 'soil types' with little attention to landscape development and soil genesis. So, I gambled, to some extent, with my future career. Although I was supposed to be mapping the soils of the Southern Tablelands of New South Wales, I surreptitiously devoted most of my time to a genetic study of a particular soil profile using mineral analyses and some observations on soil fabric.[3] Fortunately, my chief (J. K. Taylor) was sufficiently impressed by this study to encourage further work and overlook the lack of a soil map of the Southern Tablelands.

From this point on, I devoted most of my time to thin section microscopy, even though, because of lack of equipment and staff, I had to make the first thin sections myself entirely by hand, even using a hacksaw to cut the impregnated blocks. Later, I was given an assistant and equipment was mechanized.

"My second stroke of good fortune was in the timing of the research work. In those early days, CSIRO had considerable pride in the basic research of its scientists; innovative work was encouraged without questions about its immediate usefulness. The early studies of soil fabrics were essentially exercises in data collection and attempted interpretations; their immediate use would have been difficult to demonstrate. In the present atmosphere of emphasis on use-oriented research, I doubt whether such a new approach would have gotten off the ground.

"Having published a number of papers on various aspects of fabric and mineral analysis of soils, a good deal of it in collaboration with my colleague J. R. Sleeman, the advantages of collecting them, and other unpublished observations, into a book became apparent. Much of the material required little reworking, so writing the book was not as arduous as it might have been.

"I believe that the frequent citation of the book is due mainly to the section on soil fabric. It is the only text that puts together, in an orderly way, the principles of fabric analysis for soil materials, and that is definitive in regard to the features discussed. My greatest satisfaction, however, is that it has provided an impetus to other workers, as is evidenced by the invitation to write this note. Its objective has been fulfilled to a satisfying degree."

1. **Kubiena W L.** *Micropedology.* Ames, IA: Collegiate Press, 1938. 243 p.
2. **Haseman J F & Marshall C E.** The use of heavy minerals in studies of the origin and development of soils. *Missouri Agr. Exp. Sta. Res. Bull.* **387**:3-75, 1945.
3. **Brewer R.** Mineralogical examination of a yellow podzolic soil formed on granodiorite. *CSIRO* (Australia) *Soil Publ.* No. 5, 1955, 28 p.