



**Pédologie. Sol, végétation, environnement, 3ème ed. By
Ph. Duchaufour**
Jean-François Ponge

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Book review

Pédologie. Sol, végétation, environnement, 3^{ème} ed. By Ph. Duchaufour. 1991. 289 pp., 83 figs., 2 col. plates. Size 13.5 x 21.5 cm. First edition 1984, second edition 1988. Price 150 FF. ISBN 2-225-82421-5.

This is the third edition of the now well-known DUCHAUFOR's treatise of pedology (abridged version), with notable additions (289 pp. in place of 224 pp. in the 2nd ed.). The purpose of the author is, like in the previous editions, to bring about an unique book dealing with all aspects of soil science, either fundamental or applied.

The first part (50 pp.) is devoted to the properties of the two main chemical parts of the soil: mineral and organic matter. A few additions concern mainly soil microbiology and clay-humus assemblages. This part is mainly descriptive but may help to understand most processes taking place within the soil system.

The second part (64 pp.) is devoted to bulk properties of the soil. This is the place where most physical and chemical measurements made on the soil (considered as a black box) are detailed and their use for agriculture and silviculture commented. Additions are mainly on the root system of cultivated plants and the importance of soil atmosphere and water for their development and nutrition. This part is mainly experimental and may be of interest for people dealing with the soil as a medium for plant growth and seed germination.

The third part (112 pp.) is devoted to the building of the different kind of soil profiles and their classification. This is the place where DUCHAUFOR's views about the soil system as the interface between biosphere and geosphere are better developed. Time scales, man influence, climate changes are key points of his brilliant demonstration. The place of humus type, as the mean by which vegetation determines the soil profile, is emphasized, but nothing is said of the reverse (being probably judged out of place). Addition and changes concern mainly nomenclature and classification problems which are always puzzling soil scientists, from the beginning. The different classifications in use are presented, each with its advantages and disadvantages, and passages from the one to the other are indicated. The different soil types are abundantly described, with black and white schemes and colour photograph plates, in an order following the German classification which is based on the degree of evolution of soils.

The fourth part (44 pp.) is devoted to applied pedology. Are comprised under this heading mapping of the soils (and of integrated systems including soils), soil improvement and protection. The last aspect is only present in this edition. It embraces protection against erosion, compaction, desertification, pollution (heavy metals, nitrates, etc...) and acidification.

This book is remarkable by its high scientific level and the clarity of the exposition of facts (gaps are not overlooked). For a practical use, however, the absence of keys or (better) synoptic tables for the identification of soil and humus types is regrettable. Concerning science, two points need to be better exemplified (in a future edition, if any), i) the place of soil animals in the genesis of the different kind of humus profiles, ii) the short term influence of man and vegetation upon soil profiles. Protection of soils cannot be understood without a good knowledge of these processes. Last, the absence of an English edition is regrettable. To this date DUCHAUFOR's book has been only translated in Spanish and Japanese! Maybe an English translation from Japanese could be hoped within a few years.

J. F. Ponge National Museum of Natural History Laboratory of General Ecology

4 Avenue du Petit-Château F-91800 Brunoy, France