SAHULKA, J., LISÁ, L.: Differential effects of exogenous L-glutamine, L-glutamic acid, Na glutamate and casamino acids on glutamine synthetase and nitrate reductase in isolated pea roots cultured with or without sucrose. — Can. J. Bot. **59** : 1121—1127, 1981.

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BOOK REVIEWS

JENNY, H.: THE SOIL RESOURCE. ORIGIN AND BEHAVIOUR. Ecol. Studies, Vol. 37. — Springer Verlag, Berlin—Heidelberg—New York 1980. 377 pp., 191 figs. Cloth DM 57,—, approx. US $ 33.70.

This publication comprises a wide complex of problems ranging from the processes of soil genesis to the relations between soil and ecosystems. The conception of the soil/ecosystems relationship is quite original. The application of thermodynamics to the processes in ecosystems, and emphasizing the dynamics of soil processes are of particular importance. The chapter on the alteration of organic matter in soil brings new views on the changes of energy in soil. Instructive is the description of the formation chelates, their structure, and of the interaction between humus and clay minerals. Attention is also paid to podzolization and the pedogenesis of soil horizons and profiles.

In the second part of the book we find an excellent analysis of factors controlling the genesis of soil and the role of organic matter in ecosystems. Of no less interest is the section on the chronosequence of soil and ecosystems, and the quantitative models, *e.g.* of the accumulation of organic matter. Further chapters are devoted to topography, influence of the climate on soil ecosystems, changes of nitrogen, and biotic agents in the genesis of ecosystems, including the role of animals and Man.

The closing chapter presents an integration of the factors discussed on the basis of dynamic points of view, which offers new ideas of the variability of individual factors.

The book will be appreciated not only by pedologists and ecologists but also by agronomes.

F. POSPÍŠIL (*Praha*)

GARRETT, S. D.: SOIL FUNGI AND SOIL FERTILITY. — Pergamon Press, Oxford—New York—Toronto—Sydney—Paris—Frankfurt 1981.

The life and function of fungi under controlled conditions in the laboratory and in the natural environment of the soil and the significance of soil fungi in the living ecosystem and in the maintenance of soil fertility for crop production are described in the second edition of this book. The contents of most chapters are largely new as compared to the first edition of 1963. Economically important are especially two groups of root-infecting fungi — the mycorrhizal fungi and the pathogenic fungi. But also the activity of soil saprophytic fungi in the breaking-up of dead vegetation and in decomposition of organic substances of other microorganisms is needed for receiving the source of mineral nutrients for higher plants in a soluble form and for creating favourable physical soil conditions. The methods of studying the soil fungus flora, competitive saprophytic colonization of substrates by soil fungi and their survival on colonized substrates, ecological control of pathogenic root-infecting fungi, and ways of promoting the growth of mycorrhizal fungi in infertile soil are the main problems of the second part of the book.

This book will be of interest to mycologists, soil microbiologists, soil physicists and chemists.

VLASTA ČATSKÁ (*Praha*)