
Book Reviews

Jenny, H.: The Soil Resource. Ecological Studies. Vol. 37. Berlin, Heidelberg, New York: Springer 1980. 377 pp., 191 figs. Hard bound DM 57,-.

This book is concerned mainly with three aspects of the soil: 1) the soil as part of the "larger system" soil – vegetation, 2) the basic physical and chemical processes, as well as the transformations of energy which occur in the soil and in the "larger system", 3) soil genesis in relation to "state factors". The first aspect is discussed only in generalities, the others are the topics of the two main parts of the book.

The introductory chapter (18 pp) is somewhat heterogeneous. It discusses basic concepts of the ecosystem and soil, a few special features of soil, soil classification, and basic facts in physical chemistry and thermodynamics.

Part A (177 pp) contains five chapters on special physical and chemical processes in the soil and the "larger system" (water regime, behavior of ions, origin, transformations and stability of clay minerals, biomass and humus and soil colloidal interactions) and a sixth chapter on selected complex processes responsible for the origin of soil horizons and some large soil groups. Attention is directed towards basic physical and chemical facts and laws and to the relationships between soils and plants. Of course these laws, acting universally in nature, are illustrated on soils or soil material (e.g. ion exchange on clay minerals), but the modifications and irregularities, occurring frequently in soils and often known only empirically and not well understood theoretically, as well as the interferences between various processes are widely neglected. This is partly compensated for by instructive examples demonstrating the qualitative

and quantitative results effected by the processes in soils and vegetation.

Part B (170 pp) "Soil and Ecosystem Sequences" reviews our present knowledge of the relations between soil forming factors taken as state factors and features of soils and larger systems by way of many well investigated examples. This part represents a revised version of the authors well-known work "Factors of Soil Formation" (1941): new facts and the results of 40 years of discussions enrich this part. The reader may realize, that the "state factors" approach is often very useful, but may fail in more complex situations. For example, in soils with a complicated evolution, time is not only a quantitative state factor but also a historical one.

Every chapter and the whole book are concluded by short reviews and lists of from 12–78 references. Unfortunately, references to the contributions in Russian are mostly lacking, including those referring to important works on soil forming factors.

On a whole, the book is an outstanding, concentrated and very well written and illustrated review of Professor Jenny's life-work. It achieves a high level for its science and for its didactics. The scientific life of the author is delineated in the foreword by J. Olson. On the other hand, the title of the book: "The Soil Resource" is not completely justified because important features of soil as a natural resource are insufficiently or not at all treated, e.g. the functions of soils in nature and human society, the geographical distribution and potential fertility of the great soil groups and some physical properties of soils.

E. Ehwald, Eberswalde