Die Oekologie der Pflanzen. By Dr. Oscar Drude. Band 50, Die Wissenschaft Sammlung von Eingeldarstellungen aus den Gebieten der Naturwissenschaft und der von Friedr. Vieweg & Sohn. 1913. Pp. Technik. Braunschweig, Druck und Verlag viii + 308, with 80 figures in the text.

Not since the publication of Warming's "Oecology of Plants" in English in 1909 has a general work on the ecology of plants appeared. Professor Drude comes well-equipped for the presentation of the subject by years of study and travel in Germany, Great Britain and the United States. A student of Grisebach's, one of the earliest and greatest of plant geographers, Dr. Drude has seen the rise and progress of plant geography and ecology, and his first chapter on physiognomic growth forms of plants in which a historic review of ecology is given is written from personal acquaintance with the prime movers in the new department of botanic science. The first one hundred pages deal with the physiognomic life forms of plants. Beginning with page 31, a classification of these forms is given with numerous figures and reference to illustrative plants. Some of the groups considered are Monocotyledonous Crown Trees, Tree Ferns and Cycads, Dicotyledonous Woody Lianes, Grass Trees, Dicotyledonous Stem Succulents, Perennial Grasses, Dicotyledonous Cushion Plants, Geophilous Bulbous Plants, Saprophytes and Parasites. Altogether Drude recognized 54 growth forms, grouped under the heads of Aërophytes, Aquatic Plants and Cellular Plants (mosses and thallophytes), etc. Following the general consideration of each group, notes are given for purposes of further study and cross reference and bibliographic details are cited. Illumination illustrations and additions end this instructive chapter.

The second chapter deals with climatic influences, periodicity of vegetation and leaf characters. The topics treated in this chapter describe the physiognomic effect and organization of the leaf and the physiologic questions of plant nutrition. Here the author deals with the duration of the leaf, bud formation and protection, light and leaves, transpiration, etc. Under climatic periodicity, the author gives a geographic division of the climatic zones, recognizing 18 climatic groups. Phenology and other problems of climatic influence are considered in detail in this chapter.

The third chapter is concerned with physiographic ecology. The ecologist must deal with the difficult problem of why species unite into certain communities and why they have the physiognomy which they possess? The author treats of the edaphic influences of soil, ground water, bacteriologic soil content and the influence of lime and acids. He quotes Jaccarrd's law on the distribution of species in the alpine meadows and pastures, and deals with the much discussed question of association and formation. The last section of this chapter deals with thirteen vegetation types, viz., hydrophytes, helophytes, oxylophytes, halophytes, lithophytes, psychrophytes, psammophytes, eremophytes, chersophytes, psilophytes, sclerophytes, conifers and mesophytes.

The fourth chapter, and last one, is devoted to matters of evolutionary interest and is headed ecologic epharmony and phylogeny. In several sections, phylogeny and growth forms, eurychory and stenochory, correlation, epharmony, mutation and heredity are considered. Additional notes and a bibliography complete the volume.

Altogether, ecologists, the world over, will be indebted to Professor Drude for a lucid exposition of the important principles of that department of botanic science denominated ecology. He has presented much that is entirely new, and he has made over into a different form much that is old. The whole book shows a thorough grasp of the entire subject of plant ecology, which the author has been able to digest and assimilate and present in an attractive and useful form to the student world. The figures are good and many of them new, representing typic species, some of them grown in the Dresden Botanic Garden.

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A Treatise on Quantitative Inorganic Analysis. By J. W. Mellor, D.Sc. Philadelphia, J. B. Lippincott & Co.