
Discretus Calculus. *Herbert S. Ingham.* Philosophical Library, New York. 1964. 197 p. 44 illus. \$6.00.

This book attempts to develop necessary mathematics to accompany a modification of the physics of relativity which the author developed in an earlier treatise. The form of the book is axiomatic, but this form is deceptive for no formal proofs are included and the development becomes highly philosophical at an early point. The book is written for a person who has some familiarity with calculus and some knowledge of physics. Frequent references are included to problems in physics. The terms used are collected in a very usable glossary and, in general, the book is rather self contained. It is the opinion of the reviewer that many interesting questions are raised in this presentation, but the development is not yet at the point where it can be convincing. The work is somewhat difficult to read, but should be intriguing to persons interested in some of the problems of the mathematics currently used in the theory of relativity.

ROBERT L. WILSON

The Ecology of North America. *Victor E. Shelford.* University of Illinois Press, Urbana, Illinois. 1964. x+610 p., illus. \$10.00.

This "ecology" book is really a plant geography-zoogeography book, rich in ecologic data, which is organized on the basis of prehistoric plant distribution. Despite this idealistic viewpoint, the actual data presented are those of the present, the result being a realistic detailed description of the modern distribution and ecological relationships of plants and animals, viewed in the broader context of the major ecologic areas determined by prehistoric distribution.

Following a brief introductory chapter on ecologic concepts, factors, and terminology, Dr. Shelford plunges directly into a discussion of the major biomes of North America. Broadly summarized, these include: the Temperate Deciduous Forest, and associated floodplain; the Boreal Coniferous Forest and Mountain Communities; the Tundra; the Northern Pacific Coast Rainy Forest; the Summer Drought Community (Oregon-California); the Desert Communities; the Temperate Grasslands, and marginal ecotone communities; the Tropical Deciduous Forest and Tropical Rainforest; and other more local communities.

Overall discussion of each biome includes its general location and subdivisions, climatic data, and floral and faunal dominants. Any historical background that seems relevant is included. Following this, similar data are presented for each subdivision of the biome, as well as abundant detailed information on many different ecologic aspects of these smaller units. In this connection, Dr. Shelford includes a striking amount of numerical data, such as the number of spiders per square inch in the bark of certain species of trees, the number of acres defended by a nesting tufted titmouse, the number of lace bug nymphs per square meter on low forest shrubs, the number of each species of breeding birds in each different tree community in a 100-acre area, which trees are most browsed by deer in a specific forest region, the numbers of individuals of each species of animal present in different parts of an ecologic area as plant succession takes place. An additional bonus is a complete index to all the species of plants and animals discussed in the book, as well as a thorough bibliography.

This book is not only a well organized and complete synthesis of the distribution and interrelations of the dominant plants and animals of the major ecologic areas of North America, but it contains such a wealth of detail, rarely available in a single book to the ecologist, that it should be in the library of every person seriously interested in ecology, plant geography, zoogeography, entomology, or natural history.

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