
A Review of Nitrogen in the Tropics With Particular Reference to Pastures: A Symposium.

Edited by a Committee of the Division of Tropical Pastures, C.S.I.R.O., Australia, Bulletin 46, Commonwealth Bureau of Pastures and Field Crops, Hurley, Berkshire, England. 1962. V+185 p. \$5.30.

Since the price of nitrogen fertilizer prevents its extensive use on pastures in the tropics, soil and plant scientists in such areas are vitally concerned about the biological nitrogen cycle and how it can best be managed to provide maximum production of meat, milk, wool, etc. Bulletin 46 of the Commonwealth Bureau of Pastures and Field Crops includes 13 papers which were presented at a symposium on the role of nitrogen in the agriculture of the tropics and sub-tropics held in Brisbane, Australia, February 1960.

This little book does an admirable job in reviewing world literature on various aspects of the nitrogen cycle. The review type papers are divided into four parts—general problems of nitrogen economy, soil nitrogen, plant nitrogen, nitrogen fixation, and some aspects of nitrogen and plant production. There is some duplication of information, but topics such as nitrification, denitrification, nitrogen fixation, and utilization of nitrogen by plants and animals receive adequate treatment.

This reference book will be of value to biologists who wish to update their information on the nitrogen cycle, and to agronomists who are involved in the nitrogen economy of soils and crop production.

J. L. MORTENSEN

Chordate Morphology. *Malcolm Jollie.* Reinhold Publishing Corp., New York. 1962. 448 pp. + Bibliography (10) and index (20). \$8.75.

Teachers of comparative anatomy will welcome this volume as a really *new* book dealing with the core subject of any zoology department. The author has done an excellent job of incorporating new materials and interpretations while retaining the central theme of evolutionary sequences in a text which is illustrated by *new*, well-labeled drawings. His exclusion of the Hemichordates from the Chordate Phylum is now generally accepted and a separate Phylum Hemichordata with the inclusion of the controversial Rhabdopleura and Cephalodiscus should find approval. Osteology receives detailed consideration (158 p.) in which the experienced anatomy teacher will trace the line of development for the skull and other skeletal elements with useful side excursions into other phases of comparative osteology. Embryogenesis receives brief treatment (23 p.) apparently on the assumption of an anatomy-embryology sequence in the premedical curriculum. The various organ systems receive adequate treatment in order, ending with the muscles, where Cryptobranchus is used as the Urodele type rather than the more readily available Necturus. Criticism may also be made of the use of small type (an economy measure) and the *Mammal to primitive stages* order in the presentation of all systems. This reversal of the usual order of presentation is especially difficult in the excretory and circulatory systems. An excellent table of contents, a good bibliography and an adequate index add to the usefulness of the book. This volume should be on the desk of every teacher of comparative anatomy. Its use as a textbook in a one-semester course may be limited by the mass of detailed information but it has superlative value as a source of reference materials.

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