

the chapters are, it seems to me, overly drawn out for a work of this nature. The reading is frequently tedious, minor items are belabored, the messages diffuse. It is a pity that the editors didn't impart more muscle to the book by insisting on a substantial condensation of several of the chapters. Lest the argument be raised that the breadth and scope of certain chapters are justification for prolixity and trivia, I refer to T. F. Anderson's superb exposition on bacterial viruses. This is a model of incisiveness and of the presentation of basic facts and general principles on a subject which is broader in scope and diversity than any of the other subjects in the book. I also thought that Lennox on immunological analysis and Weibull on locomotion have the elements of a suitable pedagogical complexion.

The individual author system, as employed here, reveals the need for wise editing to curtail repetitious and overlapping treatments and to insure inclusion of material borderline to the assigned topics; it would also mean exercising firm control over space apportionment and style, and ruthless pruning. I imagine this situation to be little different from a conductor's responsibility for forcing a balance among the musicians in his orchestra, even the virtuosos. Reiteration and overlapping are particularly noticeable and irksome in connection with information on the chemical composition and on the properties and functions of the bacterial cell wall. Also, since the protoplast and the cell wall are intimately bound up with each other in the living cell, the artificial separation of the treatments of the two is not only conducive to redundancy, but is unrealistic and unnatural.

On the other side of the ledger, if one is willing to condone the exclusion of the remarkable body of knowledge which exists on yeast cytology and of a consideration of actinomycetes, myxobacteria, and perhaps other investigations on less studied bacteria, one will find in the book practically all of the significant, basic information available at the deadline for receipt of manuscripts. There can be no doubt about the timeliness and the value of this volume for anyone seeking intimacy with bacteria.

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Bionomics, Systematics, and Phylogeny of *Lytta*, a Genus of Blister Beetles (Coleoptera, Meloidae). Richard B. Selander. University of Illinois Press, Urbana, 1960. vi + 295 pp. Illus. \$5.50.

The main portion of this paper is a monograph of the North American species of *Lytta*. The 69 species recognized are classified in four subgenera, 13 species groups, and 11 subgroups; each category is defined and characterized, often partly on the basis of bionomic information. There is an artificial key to species; there is also another set (more difficult for the beginner to use) designed to show relationships, with separate keys for each subgenus, species group, and subgroup.

The introductory portion contains a summary of the bionomics of the genus on a world basis, a redefinition of the genus, and a reclassification which places *Poreospasta* and *Pomphopoea*, previously recognized as separate Nearctic genera, as subgenera, and which adds five new subgenera, two of which are North American. The classification that results is certainly more satisfactory than its predecessors and is the first that really interrelates the world fauna.

For the treatment of the North American species, Richard Selander has examined a large portion of the specimens in collections and has carried out extensive field work himself, particularly in Mexico. Some of the species of *Lytta* are not easy to obtain for study. They may be very abundant in a limited area at one time and then not be seen again for many years. Some species have been collected only once, even large and strikingly marked species that would attract the attention of any entomologist. The extreme fluctuations in population are puzzling, but no more so than the sources of the enormous numbers of individuals of large species sometimes produced. The larvae of all species for which the life history is known live in the nests of solitary bees, feeding on stored pollen and probably on immature bees. At times a greater mass of *Lytta* protoplasm seems to have been produced than can be accounted for by the numbers of bees in the area.

At the species level the classification is a conservative one. Geographic variation, involving both anatomic and color pattern characteristics, has been an-

alyzed in detail for polymorphic species. The author has chosen to use vernacular names for geographic races that are very distinct, as suggested by Wilson and Brown. Names that we might expect to be retained as Latinized sub-specific names have all been synonymized, including two previously proposed by Selander himself. The classification benefits; it is simple and easily followed.

The diagnostic features of each species have been illustrated adequately, and the ranges have been indicated by small maps in the text. I am happy to see individual localities shown; this is a particularly valuable feature because one often encounters difficulty in identifying some of the older localities in a list of records. A considerable amount of geographic detective work must have been necessary to produce these maps, particularly those for Mexico and California, two regions where many collectors have used almost meaningless names for localities all too frequently. The text ends with a detailed index, a rare item in a systematic paper.

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The Luapula Peoples of Northern Rhodesia. Custom and history in tribal politics. Ian Cunnison. Manchester University Press, Manchester; Humanities Press, New York, 1960. xiv + 258 pp. Illus. \$6.50.

The African peoples described in this book live on either side of the lower Luapula River, the boundary between northeastern Rhodesia and the Congo. They are principally fishermen, for the environs of the river are fertile swamps. The peoples are of particular interest, because, although on the Rhodesian side, they comprise a single society under a paramount chief, they are culturally heterogeneous and are of several tribal origins. This book is a study of political and social integration occurring in a situation of persistent cultural diversity. Cunnison found himself compelled to begin his analysis from the point of view of Luapula histories. These people have a marked interest in their oral traditions; although Cunnison recognizes that the oral traditions are not necessarily correct accounts of the past, he admits their validity for the

peoples themselves, for they use them as codes of precedent for status, rights, and cultural activities. The oral histories are more than this, however, for they contain sociological explanations of the contemporary society; the nature of these explanations enables anthropologists to find the best approach for examining key institutions and the state of unity within diversity.

The focal group, the Lunda people, is designated and accepted by all Luapula peoples as the rulers; among the Lunda are found not only the paramount chief but also many other persons with official authority and privilege. Although this has been a conquest-state for more than a century and a half, Lunda cultural influence tends to be limited to a number of political centers, and little effort has been made to establish conformity. The Lunda chiefship and political authority is, nevertheless, linked directly and indirectly to the institutions of the various peoples; it provides a coherent structure and a stable continuity to the society. This book provides a useful addition to our knowledge of central African peoples.

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Implications of Evolution. G. A. Kerkut. Pergamon Press, New York, 1960. x + 174 pp. Illus. \$5.

"It may be distressing for some readers to discover that so much in zoology is open to doubt, but this in effect indicates the vast amount of work that remains to be done." Kerkut made this discovery for himself, and this book is his cry of distress. Evolution has not, he writes, been proved beyond all reasonable doubt. He is not an antievolutionist, since he concedes "that many living animals can be observed over the course of time to undergo changes so that new species are formed." But he argues, correctly of course, that we do not know exactly when and how life arose from nonliving matter (chapter 2), that the phylogenetic relationships of the viruses, rickettsiae, and bacteria are obscure (chapter 3), ditto for the protozoans (chapter 4), ditto for the origin of the Metazoa (chapters 5 and 6), ditto for the invertebrate phyla (chapter 7), ditto for the origins of the vertebrates as suggested by the biochemical studies (chapter 8). All of

which means that zoology is not yet a completed story, and, indeed, a vast amount of work remains to be done.

The basic conclusion of the author is, however, something else—since we cannot yet reconstruct in all details the phylogeny of the animal kingdom, therefore, evolution is not "proven"! This is a confusion of two distinct problems; we may be sure that life (or, for that matter, the Cosmos) had a history, but it does not follow that we know all the events of which these histories are composed, with their respective dates. The author has been wise not to suggest any alternatives to the theory of evolution; he has been unwise to write chapter 9 ("Vertebrate palaeontology") without which the book would have been better than it is.

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New Books

Biological Sciences

Biological Clocks. vol. 25 of *Cold Spring Harbor Symposia on Quantitative Biology*. Biological Laboratory, Cold Spring Harbor, N.Y., 1960. 524 pp. Fifty papers presented at the symposium which was attended by 150 scientists from 31 countries.

The Biological Role of Ribonucleic Acids. Jean Brachet. Elsevier, Amsterdam; Van Nostrand, Princeton, N.J., 1960. 144 pp. The 1959 Weizmann Memorial Lecture.

Dictionary of the Fungi. G. C. Ainsworth. Commonwealth Mycological Inst., Kew, Surrey, England, ed. 5, 1961. 554 pp. Illus. 30s. More than 5000 corrections or alterations have been made, new material added, and new illustrations prepared; 500 more generic names have been compiled—mostly from vol. 2, pts. 8–20, of the Institute's *Index of Fungi*.

Electrophysiological Methods in Biological Research. Josef Holubar and Josef Ipser, Eds. Translated by Petr Hahn. Czechoslovak Acad. of Sciences, Prague, 1960. 515 pp. Illus.

Evaluation of Drug Therapy. Francis M. Foster, Ed. Univ. of Wisconsin Press, Madison, 1961. 191 pp. \$4. Proceedings of a symposium held in May 1960.

Index-Handbook of Cardiovascular Agents. vol. 2, pts. 1 and 2 (1951–1955). Publ. No. 821. Isaac D. Welt, Director, Literature Project. National Acad. of Sciences–National Research Council, Washington 25, 1960. 1623 pp. \$15. Lists 13,400 scientific communications, each analyzed and annotated with reference to the various drugs involved. Chauncey D. Leake served as chairman of the advisory committee; the staff included Welt, James H. Defendorf, Carter Lee, Judith MacMillan, and Edgar C. Rich.

Mackie and McCartney's *Handbook of*

Bacteriology. A guide to the laboratory diagnosis and control of infection. Robert Cruickshank, Ed. Livingston, Edinburgh; Williams and Wilkins, Baltimore, Md., 1960. 991 pp. \$8.50.

Die Neuroendokrine Steuerung der Adaptationstätigkeit. K. Lissak and E. Endroczi. Akademie der Wissenschaften, Budapest, 1960. 171 pp. Illus.

Orthopedic Surgery of the Dog and Cat. Ellis P. Leonard, Saunders, Philadelphia, Pa., 1960. 308 pp. Illus. \$12.50.

Principles of Plant Breeding. R. W. Allard. Wiley, New York, 1960. 496 pp. Illus. \$9.

General

An Atlas of Africa. J. F. Horrabin. Praeger, New York, 1960. 126 pp. Cloth, \$3.50; paper, \$1.45. Graphic maps showing the geography, topography, and history of Africa. A section entitled "Tomorrow" shows problems of population, language, and transportation; distribution of mineral wealth, water, and water power; recent activities in the Sahara; and sites of the main archeological activities in recent times. The volume measures approximately 5½ by 8 inches.

Cacti. Walter Kupper and Pia Roshardt. Translated and edited by Vera Higgins. Nelson, New York, 1960. 127 pp. Illus. \$10. A description of the spines, flowers and fruits; written for the non-scientists. The 60 full-page illustrations (in color) by Pia Roshardt were painted from specimens selected from the Cactus House in Zurich.

God of the Scientists. God of the Experiment. Remy Chauvin. Translated by Salvator Attanasio. Helicon Press, Baltimore, Md., 1960. 159 pp. \$3.95.

Government Publications and Their Use. Laurence F. Schmeckebier and Roy B. Eastin. Brookings Institution, Washington, D.C., ed. 2, 1961. 487 pp. \$6. A description and evaluation of catalogs, indexes, bibliographies, and other sources of information; explanation of classification and titling systems, with new chapters on government periodicals and microfacsimile copies of government publications.

Klimadiagramm-Weltatlas. vol. 1. Heinrich Walter and Helmut Lieth. Fischer, Jena, East Germany, 1960. The first part (three volumes, with about 30 maps and their supplements, are planned) of a collection designed to represent the climate of the world in uniform graphic reproduction, each map showing climate regions and position of meteorological stations. Supplementary charts provide information about stations, altitude, years of observation, mean annual precipitation, and so forth. The authors are staff members of the Institut der Landwirtschaftlichen Hochschule.

The Mediterranean Lands. D. S. Walker. Methuen, London; Wiley, New York, 1960. 547 pp. Illus. \$6.75. Primarily intended for the sixth form in British schools, this book deals in some measure with all the countries possessing a coast line on the Inland Sea.

Man and Space. The next decade. Ralph E. Lapp. Harper, New York, 1961. 190 pp. \$4.95.