

the winter months in Lake Voettern while in some other lakes it occurred both in summer and winter. In Cayuga Lake, N. Y. gravid females occur primarily from June to October, but some may be collected in early spring.

In a brief description of the daily vertical migrations of *Mysis* (page 423) the author states, "Populations are confined to the meter of water just above the bottom during the middle of the day, and no amount of sampling above that depth will take specimens." Generally the sexually mature individuals do occur on the bottom or in the few meters of water just above it, during the middle of the day. The reviewer has collected sexually mature specimens on several occasions in Cayuga Lake, N. Y. near midday at depths of 6 meters or more from the bottom. Immature specimens were frequently encountered at these depths.

In the section on Simuliidae (page 647), the following statement is encountered, "Blackfly larvae are found in

the shallows of streams where the current is especially swift." The reader is given the impression that this is the only place they occur. No mention is made of those which occur in roadside ditches, deep rivers, and slow streams.

These and other similar statements encountered throughout the book constitute a weakness which could have been avoided through the use of qualifying words with no loss of meaning.

The format is attractive and the binding and quality of paper is very good. Despite its large size and relatively high cost it will be indispensable as a text and reference for invertebrate zoologists. It surpasses in quality and in usefulness other existing books dealing with the freshwater invertebrates of this country.

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AN ENGLISH TEXT ON ANIMAL ECOLOGY¹

The book under review is a text designed to give a broad treatment of the subject matter of animal ecology for use, by and large, in the first year of university. The wealth of examples, which Dowdeswell uses to illustrate principles, are purposely drawn from the United Kingdom. For this reason the book is decidedly local in content and will appeal more to English rather than American students. The first four chapters cover such topics as the scope of ecology, paleoecology of the Pleistocene in Britain, distribution, movements and interrelationships (epizoites, commensals, parasites) among animals. The presentation here is lucid and informative, but exhibits many gaps. The discussion of populations mentions nothing of theoretical and experimental approaches to the phenomena of population growth and species interactions. Migration is lightly touched upon, but the colorful theories of homing, which would surely incite the imagination of a beginner, are left unmentioned. The principle of the food chain is developed and exemplified. Chapter II on animal distribution is well written and probably is the best in the book, though it suffers greatly from the lack of biogeographic treatment on a world-wide scale.

The second quartet of chapters covers the terrestrial, marine, estuarine and fresh water environments. These chapters abound with examples of ecological relationships, but they are defective in that the *oikos* of the animal is poorly outlined. Marine ecology, for example, is abruptly terminated at a depth of 100 fathoms. In the chapter on terrestrial ecology there is no mention of soils in relation to plant and animal succession, but instead there are sections on mimicry and territory that might better have been placed elsewhere, since they are not peculiar to the terrestrial environment. One is barely led to suspect the

¹ Dowdeswell, W. H. 1952. *Animal Ecology* xv + 207 pp., 45 figs., 16 plates. London: Methuen & Co., 12s. 6p.

thermocline in the hydrosphere, and the name is not used. Diurnal migration of zooplankton is cursorily outlined and the problems of cyclomorphosis are overlooked.

The ninth and final chapter, entitled "Practical Animal Ecology" should not mislead the American reader for it is devoted to methods and apparatus: construction and use of nets for collecting insects and plankton, dissolved oxygen measurement, thermistors, pH and so on. There is also a section on sampling and statistical significance of samples.

Dowdeswell's text appears to have two main defects. First of all it is devoid of many of the theoretical and quantitative formulations which the science of ecology has espoused. The second defect, perhaps justifiable, is the non-use of ecological jargon. Territory and succession are defined and used, community is used but not defined, and the reader is denied such pleasantries as the ecotone, biocoenosis, biome, geobiont and the like.

To be greatly commended is the use of generic and specific names throughout, even though the text is intended for students at an elementary level. There are no references in the body of the text, but there is a good bibliography along with a glossary of terms at the end. Dowdeswell has covered the vast and expanding field of animal ecology as well as any other text that has been designed for the elementary student. The book is well worth reading, and does not seem to be overly burdened with errors. While it has been designed for English students, the reviewer believes that it may serve as a useful reference in American ecology courses.

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THOSE OF THE FOREST¹

Many professional ecologists as well as other persons who enjoy nature will obtain pleasure and profit from reading Wallace Grange's "Those of the Forest." The book tells the story of the seasonal and annual changes that take place in a forest in northern Wisconsin. The

¹ Grange, Wallace Byron. 1953. *Those of the Forest*. Illustrated by Olaus J. Murie. iii + 314 pp. Babcock, Wisconsin: Flambeau Publishing Company. \$4.75.

action centers around an imaginary sequence of snowshoe hares, but involves ultimately many of the plants, vertebrates, and invertebrates of the forest community. While the action is imaginary, the writing is based on the field observations and reading of an experienced and completely honest field naturalist. The point of view throughout is ecological. The interdependence of the numerous

associated species is stressed. The writing is sympathetic, but not sentimental. It is recognized that each individual organism ultimately must die and that death from attack by herbivore or predator is no more unnatural and not necessarily more painful than death from cold, heat, drought, starvation, disease, or old age.

The picture given is of a considerable amount of repose in the lives of wild animals, alternating with usually shorter intervals of activity and of the frequent occurrence of satisfaction as opposed to rarer episodes of pain.

Grange here is in pleasing contrast with some other writers about nature who depict wild animals as living in a nearly constant state of excitement and fear.

The book is interestingly written and is well printed on good paper. The sketches by Olaus J. Murie are, as always, excellent. It is highly recommended to all naturalists.

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HISTORICAL ASPECTS OF EVOLUTION¹

The author of this work states in his introduction that a "certain amount of personal bias is bound to creep in." Unfortunately the bias does not creep in but rather runs in. The bias appears to have two facets, one religious and the other anti-Darwinian.

A summary impression of the book indicates that the author grudgingly accepts evolution as a working hypothesis and, having done so, proceeds to champion all the various dissenters from the Darwinian and Neo-Darwinian schools. Apparently it matters little to the author that theorists such as Lamarck, Lotsy, Willis, and Goldschmidt cannot be made bedfellows by any Procrustean device. It is sufficient that they are dissenters.

This negativism is accompanied by the use of prejudicial words, misquotations of eminent scientists and simple omission of pertinent historical facts. Further, the book redounds in poor logic and misunderstanding of evolutionary terms. There is practically no discussion of modern statistical theories of evolution developed by Wright, Fisher, and Haldane. The ecological side of evolutionary study is omitted almost completely. No research work done since 1940 is discussed. Selection of material for discussion from work produced prior to this time seems rather peculiar. Anderson's work on introgressive hybridization is not mentioned while Kammerer's results are detailed without so much as a word on the sad history of this biologist and his work.

¹ Fothergill, Philip G. 1953. *Historical Aspects of Organic Evolution*. xvii + 427 pp. New York: Philosophical Library Inc. (Price not indicated.)

One particularly startling aspect of this book is that the author should feel it necessary to attack implicitly the character of Charles Darwin. One quotation will illustrate this: (p. 117)—after a quotation from Samuel Butler which implies that Darwin reaped the rewards of the labor of E. Darwin, Lamarck, and Buffon—"Darwin did this so expertly that he persuaded people that he had produced a new theory of creation at a time when the old one was much the worse for wear." This quotation is also a good example of the use of prejudicial words by the author.

One gets the impression from the book that Sonneborn, Jennings, and Sumner had quite favorable attitudes toward Lamarckian theories. Jennings is misquoted (p. 252) while all three are quoted out of context. The book is rife with this sort of thing.

From the historical viewpoint this is a bad book. Darwin is criticized for lacking a theory of heredity which did not appear until long after his death. Early theories are criticized in the light of later knowledge while later theories are criticized on the basis of earlier erroneous concepts. Scientifically the book is no better. It is replete with errors of scientific fact and rather than being critical is simply negative. The reviewer suggests that students refer to other sources for information and critical analyses of theories of evolution.

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DUNE AND DOWNLAND AUTOECOLOGY AND ECOSYSTEMS¹

Sir Edward Salisbury, Director of Kew Gardens and Fulleton Professor of the Royal Institution, has integrated extensive research of his own and former students at University College in this comprehensive account of the flora, vegetation and habitats of the English chalk downs, limestone belts and sand dunes. The book is based on two courses of popular lectures, supplemented by several chapters of "biological notes" on morphological and ecological traits of important species.

The author's approach is hard to "type," since it spans the nineteenth century tradition of "natural history" and several current research trends. On the organization levels of individual and species, taxonomic and floristic comments are supplemented by intensive data on gross morphology and ecological life history, which in turn suggest problems in physiology. On the level of a "larger

system," treatment of the vegetation complex includes the true naturalist's broad grasp of the significance of the whole landscape, and extends to detailed quantitative analysis of inter-relations between vegetation, substrate, microclimate and (in a few striking cases) animal populations, including man. Without using Tansley's term the author almost takes the all-inclusive *ecosystem* as his frame of reference, and analyses its structure and processes in some detail.

It is interesting to note how well his rambling (even quaint) style serves to develop complex ideas, quite free of the technical jargon and dogma of stereotyped approaches in the ecological literature. Although indispensable for attaining one stated objective of reaching "the general reader interested in the countryside," this policy benefits the scientist by defining the meaning of basic concepts instead of covering them up with ambiguous words. His interpretations of succession, for example, seem clear without benefit of Clementsian terminology or implications.

¹ Salisbury, Sir Edward. 1952. *Downs and dunes: their plant life and its environment*. 328 pp., 74 photographs, 93 line drawings and diagrams. 54 distribution maps. London, G. A. Bell and Sons, Ltd. 45s.