REVIEWS

EDITED BY JOHN WILLIAM HARDY

Birds of paradise and bower birds.—E. Thomas Gilliard. 1969. Garden City, New York, The Natural History Press. Pp. i–xxii + 485, 24 black and white pls., 4 col. pls., 50 text figs., 23 maps. $20.00.—For some 15 years prior to his untimely death, E. T. Gilliard was probably the most active ornithologist working in the New Guinea region and eventually led seven expeditions there. Among the array of birds he found there, apparently the birds of paradise and bower birds fascinated him most. In this book he puts together the information he compiled on these two fascinating families along with his ideas on the evolution of their courtship and nesting systems. Although at least four others (Elliot, Sharpe, Iredale, Marshall) have written volumes on one or both of these families, Gilliard's, besides being more up-to-date, is far more thorough in its coverage.

After a foreword by Ernst Mayr that includes a brief biography of Gilliard, the introduction, and the acknowledgments, the book starts with a short but highly readable chapter on the biogeography of New Guinea. The following chapter on the origin of animal stocks seems somewhat simplified and superfluous for this book. Three brief chapters discuss the discovery of birds of paradise by Europeans, the era of plume hunting, and finally, conservation of the birds. Somewhat surprisingly, Gilliard concludes that the birds are in no danger from local plume hunting, a different conclusion than some of his earlier papers implied. Chapters on the evolution of the two groups and the evolution of bower building follow. Chapter 8 lists hybrid forms, synopses of the 20 genera of birds of paradise and 8 genera of bower birds, and then separate and very useful synopses of the display and mating systems for each of the genera. Chapters 9 and 10 form the main body of the book with species accounts of 42 birds of paradise and 18 species of bower birds. Generally, the taxonomy follows Mayr in vol. 15 of Peters, although Gilliard recognizes an additional bower bird (*Ailuroedus melanotis*) and two additional birds of paradise (*Paradigalla brevicauda* and *Paradisaea raggiana*).

Generally the accounts include a description of both sexes and the immature, the species range, and the range and description of the subspecies known. Most accounts include some remarks on the nesting habits, eggs, behavior, food, or other items of interest and are a valuable compilation of information gleaned from Gilliard's personal knowledge of the birds, correspondence with others who have worked with them, and published records including much on captive birds. Each account is clearly presented so that it is easy to find out what is known and often what is not known about the species. Forty-eight of the species are identified by black and white illustrations taken from Elliot's or Sharpe's monographs and with the other plates, 54 of the 60 species considered are illustrated. Only four color plates provide a hint of the dazzling plumage of these birds. Twenty-one maps show the range for all the species although some include several genera and are hard to read. A detailed map of the Papuan Subregion inside the front and back covers is handy for reference.

In two appendices Gilliard describes his experiences with the introduced population of *Paradisaea apoda* on Little Tobago Island in the West Indies and then lists virtually all of the ornithological expeditions to the New Guinea region, chronologically for each of 27 subregions. This second appendix would be equally valuable to the earlier volume by Rand and Gilliard (Handbook of New Guinea birds, Garden City, New York, Natural History Press, 1968). A reasonably thorough bibliography on

birds of paradise and bower birds and an index end the book. Two notable omissions from the bibliography are papers by Ogilvie-Grant (Ibis, 47: 429–440, 1905) and Wagner (J. Ornithol., 86: 550–553, 1938) on the behavior of *Paradisaea minor* and *P. guilielmi* respectively.

Easily the most intriguing and perhaps the most controversial chapters are the ones on the evolution of the birds and in particular the evolution of bower building. Gilliard's novel idea that in bower birds the ornamentation of the bower is an external secondary sexual character that has led to the loss of colorful plumes in the male is described here in great detail. Some confusion in reading these chapters stems from the fact that in the species accounts he treats the two groups as separate families but in the chapters on evolution, which were written after the species accounts but appear before them in the book, he considers the two groups to belong to one family, the Paradisaeidae. He proposes that the founding stock radiated rapidly in New Guinea and, for unknown reasons, some adopted an arboreal promiscuous mating system. Strong defense of the arboreal arenas forced some species to revert to a monogamous mating system while others were displaced downward to the forest floor. Some of these ground-displaying birds then developed the habit of bower building and gave rise to the bower birds. Although his ideas tie in with some of Bock's work on primitive and advanced skull types, I wish he had discussed why the birds adopted the arena behavior in the first place.

The major deficiency of this book is the paucity of color plates, a somewhat ironic circumstance as Gilliard personally took some of the most striking photographs of these birds in the wild in existence. Though the text refers to the mating systems of arena birds as polygynous, perhaps promiscuous is more accurate as no pair bond is formed. Gilliard's use of Naked Tree (p. 402) would mean more to North American readers if he had identified it as the Gumbo Limbo tree common in southern Florida. The many workers at the American Museum of Natural History and elsewhere should be congratulated for their efforts in seeing this book to press. Although the price will prevent some ornithologists from owning it, the chapters on evolution and the summaries of mating systems in particular should be valuable to all those interested in avian behavior and breeding biology.—JAMES J. DINSMORE.

Birds of Guatemala.—Hugh C. Land. 1970. Wynnewood, Pennsylvania, Livingston Publ. Co. Pp. xvi + 381, maps, frontispiece and 43 col. pls. by the author and H. W. Trimm. $10.00.—The late Hugh Land completed the manuscript of this book and submitted it to the Pan American Section of the International Committee for Bird Preservation before his tragically early death at the age of 39. With the sponsorship of F. M. Smithe and final editing and proofreading by G. M. Sutton, the committee achieved publication.

There has been no summary account of the birds of this country since Griscom's "The distribution of bird-life in Guatemala" (1932), now long out of date and out of print although still valuable for its historical and zoogeographic sections. Land and his students and associates visited 19 of Guatemala's 22 departments, and he spent a total of 14 months there in the field. His records, combined with those of many earlier workers, provide a detailed picture of the distribution of species throughout the country. The format of the book is that of a field guide, and most of the pages are devoted to species accounts. For each species the author gives the range of the entire species, the subspecies and ranges of each (if more than one) within Guatemala, the status (rare to abundant), elevation and habitat, a brief description of appearance, and remarks on habits, vocalizations, or field marks. This is done compactly, with two to three species

covered per page, and for most species the range is given on a small outline map with degrees of abundance indicated by heaviness of stippling. Color plates by Land and those of H. W. Trimm for Smithe's "Birds of Tikal" are placed together near the center of the book. Land's paintings are highly stylized, designed to show many similar species together on the same page, and thus tend to be rather wooden in posture and sometimes too stiffly upright. The frontispiece of the Quetzal is much more representative of his talent. The familiar plates by Trimm are clearly and brightly reproduced, but unfortunately all of Land's are dull and muddy—so much so in some cases that their usefulness is impaired. Nevertheless the plates provide color illustrations of many Central American species not depicted in other books on this region and are a definite aid to identification.

A 28-page introductory section includes a discussion of the geography and climate of Guatemala, a division into Life Zones according to traditional usage and also the Holdridge system, and a listing of birds characteristic of each zone. Maps showing contours and the associated life zones illustrate the great complexity of the land forms other than in the Petén and Pacific lowlands, and these make understandable the frequently patchy and disjunct distributions of many species. There is a brief account of the history of ornithological work in Guatemala from Salvin's first expedition in 1857 to Land's last visit in 1968, and a map illustrates collecting localities. Terms used in the species accounts are clearly defined (a refreshing feature) and the book concludes with a short but useful section on bird-watching in Guatemala, a selected bibliography of publications dealing with Guatemala or adjacent areas, and an index.

There is no space for detailed discussions in this book, but the reader can use it as an up-to-date check list of Guatemalan birds as well as a field guide. Specialists will detect a few minor errors (for example, *Cyanolyca pumilo* does not range south into Nicaragua as stated), but these are trivial detractions. It is fortunate indeed that this part of Land's work on Guatemala has been published, and his friends, colleagues, and ornithologists in general can only regret many times over that his untimely death prevented completion of his more comprehensive studies. The present book fills a decided gap in the literature of Central American ornithology and makes certain that Hugh Land's work will be recognized and appreciated.—THOMAS R. HOWELL.

A checklist of the birds of Ethiopia.—Emil K. Urban and Leslie H. Brown. 1971. Addis Ababa, Ethiopia, Haile Sellassie I Univ. Press. Pp. ii + 143. No price quoted.—The publication of an up-to-date checklist for the birds of Ethiopia is a welcome event. Since Heuglin's (1869–1873) monumental "Ornithologie Nordost-Afrikas," no complete list of the Ethiopian avifauna has been published, despite the many important voyages of exploration there in the late 1800s and early 1900s. The present volume brings together information that has been scattered through an extensive literature, and provides a firm base for further ecological and zoogeographical studies of Ethiopian birds.

Urban and Brown's list follows the order of Peters' "Check-list of the birds of the world," and in general the nomenclature of White's "Revised checklist of African birds." Under each species heading are listed the subspecies, and for each of the latter are included the status (breeding, migrant, etc.), habitat, geographical distribution, and breeding records. By recording these data in a highly abbreviated form, a surprising wealth of information is condensed into a few lines. Unfortunately a dearth of information exists for many species; most of the data had to be taken from the notes of visiting collectors, for few ornithologists have been resident in Ethiopia. Even much of the published data used were secondhand; the bulk of the

German literature, including the works of Heuglin, Reichenow, Erlanger and Neumann, was not available to the authors. On the other hand, a great many original observations are included. The senior author has lived in Ethiopia since 1964 and the junior author traveled extensively in the country during the same period; they have found several species new to the Ethiopian avifauna and have contributed greatly to the life history and breeding records.

The publication of this list of the Ethiopian avifauna should stimulate studies of its zoogeography and distribution. The plateau area, above 1,500 m, is by far the largest continuous montane region in Africa, and much of it is covered with forest. Yet Ethiopia has only 19 species of montane forest birds compared to 43 in the Cameroons highlands and 47 in Kenya; even the Imatong mountains of southern Sudan, with only a few square miles of forest, have more species than the whole of Ethiopia (Moreau, The bird faunas of Africa and its islands, New York, Academic Press, 1966, p. 207). In contrast, the nonforest montane avifauna is the richest in numbers of any in Africa with 47 species, but is equally distinct in having 21 endemic species. Why the plateau of Ethiopa should have an avifauna less related to that of the adjacent Kenya highlands than the latter is to those of distant Cameroons and Angola, is a problem well worth pursuing.—MELVIN A. TRAYLOR.

Development of species identification in birds. (Subtitled: An inquiry into the prenatal determinants of perception).—Gilbert Gottlieb. 1971. Chicago, Illinois, Univ. Chicago Press. Pp. 176, 15 figs., 39 tables. $7.50.—The title of this book leads the reader to expect a broad-ranging review of the work traditionally included in the field of "imprinting," the phenomenon whereby young precocial birds come to form social attachments. Dr. Gottlieb's book, however, is a monograph with the more modest aims of presenting some original research on the selectiveness of the parental responses of newly hatched domestic chickens, Mallards, and Wood Ducks, and investigating the developmental origins of the selectivity.

The book begins with a short essay on the development of behavior, along the lines associated with the names of Kuo, Schnierla, Lehrmann, and Beach. The author argues that one should not only study the existence of species specificity in the behavior of newly hatched birds, but also investigate the possible prehatching determinants of posthatching behavior. This type of approach contrasts with that of Lorenz and his followers, where the demonstration of species specificity in behavior is considered an end in itself. The review of previous work in the field is, however, extremely sketchy, no reference being made to Lorenz's classic paper (J. Ornithol., 83: 137–213, 289–413, 1935) which deals in some detail with the selectiveness of the behavior of newly hatched young toward their parents in a variety of bird species.

The first experimental part of the book begins with a chapter on the methods used to investigate the selectiveness of the tendencies of young ducks and chickens to approach or follow maternal objects. Responses were scored towards visual replicas of the mother, tape recorded maternal calls, and combinations of the two stimuli. The results showed the young of all three species respond selectively to their own species, but that the selectiveness is greater in the tendency to follow than in the tendency to approach the maternal stimulus. Visual stimuli were found to be less effective by themselves than auditory stimuli, confirming Lorenz's (loc. cit.) hypothesis, but the "correct" audiovisual combination was most effective. The author then shows that the domesticated Peking duckling is in no way inferior to its wild conspecific, the Mallard, in its selectivity towards Mallard maternal calls. The Wood Duck, a hole-nesting species, which one might expect to be particularly dependent on auditory

stimuli, was not in fact superior to the Mallard or chicken in its selectivity towards maternal calls.

Having established that species specificity in responses to maternal stimuli does occur, Dr. Gottlieb goes on to examine the developmental origins of this ability in the most interesting section of the book. By recording the bill-clapping of Peking duck embryos prior to hatching, he is able to show that selective changes in clapping rate may occur in response to the Mallard maternal call as early as 5 days before the normal hatching date. He then demonstrates that the peeping calls of unhatched sibling embryos play a role in the development of the selective bill-clapping response. Finally, he shows that isolated Peking embryos that are prevented surgically from vocalizing 3 days before hatching can still make the "correct" parental choice after hatching, although they are less selective than embryos exposed to normally occurring sounds made by themselves, siblings, or parents. A brief concluding chapter discusses the results and argues the case that more studies should be made on the effects of prenatal conditions on postnatal behavior.

Although this book contains material of both general and specific interest and is, in the main, careful and meticulous in approach and method, the presentation fails on several counts to do the material justice. Far too little use is made of graphical presentation of information, while some of the extensive tables could profitably have been relegated to appendices. The photographs in the text are not all of high quality, and line drawings would have been more effective in several cases. The author is sometimes repetitive and prone to misuse the results of his own statistical tests (see e.g. the use of nonsignificant results to make claims on p. 46). The most serious criticism of the book, particularly in view of the all-embracing nature of the main title, is that the work is placed in too narrow a context to allow all but those prepared to do their own supplementary reading to assess the value of its contribution. There is an increasing trend for writers of scientific papers to provide only a minimum of introduction and discussion of their results, and this may perhaps be justified in the face of the current explosion of scientific information, but this does not excuse the author of a book on his own original research for failing to give his readers sufficient background information.—JAMES N. M. SMITH.

Infectious and parasitic diseases of wild birds.—John W. Davis, Roy C. Anderson, Lars Karstad, and Daniel O. Trainer (Eds.). 1971. Ames, Iowa, The Iowa State Univ. Press. Pp. ix + 344, numerous figs. and tables. $12.50.—This book is unique in that it represents the first attempt to compile and correlate the available knowledge on infectious and parasitic diseases of wild birds. It is part of a three volume set that also includes Parasitic Diseases of Wild Mammals and Infectious Diseases of Wild Mammals.

The 28 chapters by 28 authors are grouped under five general headings: Viral Diseases, Bacterial, Rickettsial and Mycotic Diseases, Parasitic Infections, Neoplastic Diseases and Toxins. Each chapter covers a disease or group of related parasites, with subsections on history, etiology, transmission and development, distribution, epizootiology, signs, pathogenesis and pathology, immunity, diagnosis, treatment, and control. In some cases the chapters do not represent a complete survey of the subject matter, but rather they provide basic information on the disease or parasite under consideration. Many of the chapters such as those on chlamydiosis and coccidia are extremely detailed with lengthy lists of references, while others such as those on fleas and lice and Q fever are sketchy and brief. With few exceptions the chapters are well-illustrated

with detailed drawings of many of the parasites and photographs of gross lesions and histopathology.

The coverage of viral, rickettsial, bacterial, and mycotic diseases is fairly complete, whereas the scope of coverage of parasitic infections is very poor. There are no chapters on ticks, mites, trematodes, cestodes, acanthocephalans, trypanosomes, *Plasmodium*, or *Sarcocystis*, all of which are important in various species of wild birds. Only the coccidia infecting Anseriformes, Galliformes, and Passeriformes are covered. Histomoniasis, a very significant disease in wild Galliformes, is mentioned only briefly in the chapter on nematodes, where its vector, *Heterakis gallinarum*, is discussed. The chapters on Neoplastic Diseases and Toxins, although valuable, are not consistent with the title of the book.

The format of the book is attractive and it is well-indexed. In spite of the poor treatment of the parasitic diseases, this treatise should be of interest to any ornithologist interested in the diseases of wild birds and represents a good initial step towards the summarization and coordination of knowledge on this subject. Although considerable information is already available on diseases in wild birds, the impact of these diseases, separately or in combination, on the dynamics of wild avian populations is poorly understood.—DONALD J. FORRESTER.

Louis Agassiz Fuertes & the singular beauty of birds.—Frederick George Marcham (Ed.). 1971. New York, Harper & Row, Publ. Pp. xii + 220, 87 black and white sketches and pictures, 60 col. pls., 11¼ × 14½ in. $29.95 + $.35 postage until January 1, 1972, then $35.00 + $.35 postage (have patience, it will probably be remaindered very shortly at half price).—Any book competently reproducing pictures and drawings as beautiful as these, publishing letters as well-written as Fuertes' were, and costing the immodest sums mentioned above should be irreproachable. This book is not. The abundant errors, nearly as many as the pages in the book, are clearly not the fault of a careless publisher. The misspellings and typos that printers and publishers inject into a manuscript and that remain when an author is not given the opportunity to check page proof and shop dummies are at a minimum in this volume, perhaps 10 or 12. More serious are inexact or incorrect ranges one after another and incorrect identifications of birds and mammals. To illustrate—in the caption for Burrowing Owl on page 26 "Western North America" ignores the large population in Florida and the possibility that the drawing could have been made on one of a number of Fuertes' Florida trips. On page 48 the range of Chuck-will's-widow is also given as western North America and on plate 11 the Eastern Kingbird's range is given as North America!

Plate 8, a painting of two woodpeckers, is labeled Golden Woodpecker, *Dinopium javanese*. The two birds are in fact sibling species—the Four-toed Golden-backed Woodpecker (♂) on the left and the Three-toed Golden-backed Woodpecker (♂) on the right. The toes show plainly.

On page 6 drawings of American Woodcocks are labeled Common Snipe. On page 86 Redheads are captioned Ring-necked Ducks. On page 5 Golden Plovers are captioned Black-bellied Plovers. On page 59 the terns are misnamed. I could go on for some time but will settle for one more gross error—plate 45 is correctly captioned in Fuertes' own hand "Texas Jack Rabbit/Marathon, Tex. 1901." The editor-author changed the name to Antelope Jack Rabbit. If this had been a true identification that fine zoologist, Vernon Bailey, who was with Fuertes in Texas, would have collected it when he found it so far out of its range. The explanation of the omission of black tips on the rabbit's ears is quite simple. Fuertes did not finish this water color sketch. He was meticulous

about putting whiskers on creatures that have them, and as this sketch has none, he probably intended to add them when he put the black on the ears—and never did either.

The plates and other pictures are assembled without order or continuity. The biographical essay on his life by the editor adds little, if anything, to the thirty-odd works on Fuertes' life and achievements that have been written before.

The only good I can say of the book is that Fuertes' pictures are beautifully reproduced in my copy, and his fine letters shine through the rough editing they have been given here—his daughter, Mary Fuertes Boynton, treated the letters much more completely and sensitively. Roger Tory Peterson's introduction is excellent and is, in my opinion, the only new material in the text. I wish he had edited the book too or that Dean Amadon had done so when he wrote the preface.—ELIZABETH S. AUSTIN.

Darwin's Islands/A natural history of the Galápagos.—Ian Thornton. 1971. Garden City, New York, Natural History Press. Pp. xiv + 322, many text figures and plates. Cloth. $7.95.—"The natural history of these islands is eminently curious and well deserves attention. Most of the organic productions are aboriginal creations, found nowhere else; there is even a difference between the inhabitants of the different islands; yet all show a marked relationship with those of America, though separated from that continent by an open space of ocean, between 500 and 600 miles in width. The archipelago is a little world within itself." Darwin wrote these words at the time of his visit to the Galápagos Islands. Two years later he was to write "In July opened first notebook on Transmutation of Species. Had been greatly struck from about the month of previous March on character of South American fossils, and species of Galápagos Archipelago. These facts (especially latter) origin of all my views."

Most of us, as biologists, have been taught almost from the first day of our professional training about the influence Darwin's visit was to have on the impending revolution in biological thought. Still I suspect most biologists, including myself, take the significance and historical importance of the Galápagos Islands somewhat for granted, especially those of us who have yet to visit them ourselves. Some of this problem should be alleviated with the publication of Ian Thornton's book, which is probably the best compilation to date on the natural history of these islands. Yet the book is more than that—it can serve as a good example of what natural histories should be like. Thus, Thornton also provides us with a good summary of current thinking about island biogeography from an introductory level that includes general observations to the more sophisticated theory of MacArthur and Wilson (e.g., even r and K selection come in for discussion).

The first nine chapters comprise a summary of most available information on the history, geology, flora, and fauna of the Galápagos. Three chapters deal with birds, one each on seabirds, land birds, and Darwin's finches. Perhaps the first thing that impressed me about Thornton's book is that he provides specific citations for his statements. This increases the value of the book manyfold, and puts it well above the level of most natural histories. This is why the book will be of importance even to the most theoretically minded scientist—documentation is readily available. In these descriptive chapters Thornton provides concise reviews of what is known about nearly all the vertebrates occurring on the islands. As far as I could tell he covers most of the important literature. A major shortcoming is that he devotes very little space to invertebrates and plants, which is somewhat peculiar for he is a specialist in insect ecology.

Despite the large amount of work on the Galápagos fauna, only a few vertebrates are adequately known in terms of their behavior and ecology. Of the birds, the seabirds (especially the bobbies, petrels, and Swallow-tailed Gull) have been studied the most, whereas Darwin's finches (Geospizinae) have been subjected to comparatively little detailed behavioral and ecological analysis. Thornton's book is particularly valuable in pointing out the gaps in our knowledge of the Galápagos fauna, and it is clear much more work is needed.

Following his descriptive chapters Thornton has three chapters summarizing current opinions on island biogeography. He discusses colonization, establishment, and archipelago evolution. He does a good job in relating the general theory of various workers to the specific situation in the Galápagos. Here as elsewhere Thornton contributes very little original data or ideas; in this book his role has been that of a compiler and interpreter.

The final chapter discusses the problem of preserving the biological integrity of the Galápagos. In fact, throughout the book Thornton is quick to call attention to various matters—past and present—that have concern for conservationists. One particularly disturbing event, and one with wider, more serious ramifications, was the extinction of the entire fauna of Baltra Island (including land iguanas, Galápagos Dove, and a species of mockingbird, among others) by *bored* U.S. servicemen during World War II. A relevant question might be to what extent is this still going on? Equally disturbing is the amount of collecting for "scientific purposes," which was instrumental in exterminating some of the fauna (e.g., the Giant Tortoise on Duncan). Now that the Galápagos are a national park of Ecuador, perhaps there is reason to hope for the best. However, the presence of goats and the money of American tourists (who have remarkably similar omnivorous demands to those of their four-legged counterpart) is a big question mark.

Hopefully Thornton's excellent book will help create the awareness that is necessary to save this "birthplace of modern biology."—JOEL CRACRAFT.

Avian biology.—Donald S. Farner and James R. King (Eds.). 1971. New York and London, Academic Press. Vol. 1, pp. xix + 586, 6 × 9 in. Cloth. $25.50.—"Avian biology" is a set of reviews of current knowledge and the edge of research in bird biology. It is labeled a descendant of Marshall's "Biology and comparative physiology of birds" of 1960. The new work is projected for three volumes, of which the first has appeared. "Avian biology" is not a revision of its forerunner (review volumes build on predecessors, but ought not "revise" them), although two chapters are, inexplicably, nearly unmodified holdovers from 1960. Thus, about 90 percent of the contents is strictly new. Most of the chapters are critical reviews and not merely summaries of literature, and some of these will be the best available starting points for pursuing ideas and literature of a number of biological subdisciplines. But I must warn you that Academic Press has done the authors, the editors, and the users a disservice: the usual heavy price for books from Academic Press is now combined with a paper cheaper than usual, and press capacity for adequate halftone reproduction has been almost completely lost (halftones appear only in one of the holdover articles, and anyone wanting adequate pictures will need to look at the Marshall volumes). But errors, real or typographical, are otherwise rare, and I feel it necessary to mention only that my friend Richard E. Johnson and I have been erroneously synonymized.

Farner and King briefly examine the merits of a set of reviews concerning a taxon-based discipline as opposed to a process-oriented one, and conclude that the volume

has nothing for which to apologize (about which I shall make some remarks beyond), and their conclusion is largely supported by the range and quality of the reviews. People working with birds have been receptive to the ideas and technologies of nearly all aspects of modern biology and have made substantial contributions to most such fields. The work reflects an interdisciplinary attitude and is exceptionally strong in its examination of recent and contemporary work in ecology. Of the 11 reviews, 7 concern avian ecology and are so identified.

In here noting briefly the topics and authors of chapters, I should concede that 8 of the 11 are basically ecologic, for R. K. Selander's review of systematics and speciation in birds is almost wholly ecologic in orientation. Selander examines the adaptive basis for avian diversity and differentiation at and around the species level, and is never very far from emphasis on organism-environmental interactions, whatever his particular subtopic may be. The extensive bibliography is notably up to date. P. Brodkorb provides an introduction to current thinking on origin and evolution of birds, spiced with a bit of rhyming verse and capped by an interesting estimate of the number of species of birds that have evolved through all time. R. W. Storer's chapters on classification and adaptive radiation are very nearly the same as those of the same titles in Marshall.

R. MacArthur presents an exceptionally clear and ordered exposition of the part of community ecology that we have come inevitably to identify with his name. N. P. Ashmole reviews the ecology of sea birds and includes a fine introduction to the literature of marine environments; D. L. Serventy does the same for arid lands and their birds.

L. von Haartman's review of population dynamics is remarkable; he covers nearly 60 pages without once using a differential equation. Yet his examination of natality, mortality, territory, and regulation is a scholarly one that critically reviews the topics, neatly introducing a European literature not otherwise readily accessible. M. Cody's chapter on ecologic aspects of reproduction approaches some of the same phenomena from a distinctly different angle, one that involves *a priori* modeling to obtain predictions against which life history data may be compared. It is fascinating to see how von Haartman and Cody can work over similar material and produce treatments and literature lists that have only marginal overlap. K. Immelmann also is concerned with avian reproduction, but his approach largely emphasizes the position of physiological ecology, and he works with a literature that von Haartman and Cody do not cover.

G. Orians writes on ecological aspects of behavior, remarking that other reviews (Selander's in this volume, and one by Hinde in a volume to come) are also concerned with behavioral phenomena, but in different ways. He rather specifically limits himself to examination of how well the theory of natural selection applies to ecological aspects of behavior, noting at the outset that if V. C. Wynne-Edwards is correct in his reliance on a generalized kind of group selection, the chapter is not necessary. The chapter in fact appears to be necessary, and it demonstrates rather diagrammatically the clarity stemming from theoretical modeling in assessments of selective pressures of ecology and behavior on the evolution of birds.

Ornithology, long a rich man's plaything and recently Everyman's avocation, has had review volumes before; Newton's "Dictionary" was the first comprehensive effort, and we can note the periodic A.O.U. summaries, special editions of the Ibis, the "Festschrift" for Stresemann, Marshall's "Biology," and Landsborough-Thomson's "Dictionary," in addition to formal textbooks undertaken by single individuals. These have tended to be serious and rigorous summaries of knowledge of the biology of birds. Today, with the Farner-King review, we have moved toward having a volume on biology, annotated by scientists working with birds. The distinction is not trivial, for it

actually says that biological knowledge is more important than mere knowledge of birds. That this can be said and, moreover, established, provides a substantial basis for the current relevancy of ornithology.

Since by relevancy I mean not merely anything that gets the field out of the backwaters of semiprecious birds-for-birds'-sake philosophies, I need to be more explicit in making the point. Thus of authorities cited in Farner-King, one R. A. Fisher appears no less than 8 times, and in 4 different reviews. This is all the evidence I need, but here is some overkill: people like L. C. Birch, L. Brower, D. Colless, P. Ehrlich, J. Farris, E. B. Ford, W. Fitch, W. D. Hamilton, G. E. Hutchinson, R. Inger, A. Kluge, R. Levins, R. Lewontin, E. Margoliash, A. Lotka, J. Maynard Smith, R. Skoal, D. Tinkle, B. Wallace, none of whom works with birds, can be found at various places in the book. And, people of substantive importance who have transcended ornithology while never working with other than birds are of course considered to be of consequence (e.g., David Lack is cited 88 times, and we have volumes 2 and 3 yet to come).

I suggest that this review marks a break with the past. Ornithology has changed, and the nineteenth century is slowly being left behind. It is very significant that this change has occurred, necessary to take note of it, and important that in this volume it is clearly documented.—RICHARD F. JOHNSTON.

Sound guide to the birds of Europe. Vol. 3, northern Europe.—Jean-Claude Roché. 1970. Institute ECHO, 04 Aubenas les Alpes, Haute Provence, France. Eleven 7-inch 33⅓ rpm phono-discs in boxed set; enclosed booklet of annotations in English and French. Price 110 ff.—This is the third in a series of boxed sets of recordings of European birds organized and largely recorded by Roché. Volume 3 was preceded by sets devoted to western Europe (vol. 1) and southern Europe (vol. 2). I reviewed the latter in Auk (86: 575, 1969.) I have not seen vol. 1 but am told that in contrast to vols. 2 and 3 it is more popularly oriented. Vol. 3 contains the voices of 129 species, 90 of them recorded by Roché. The remainder, contributed by 13 collaborators from 9 countries, include some rare or difficult to acquire species. Among the species represented are several "firsts" (considering only wild birds) including the Snowy and Hawk Owls. The geographic region covered is bounded on the west and north by the Atlantic Ocean and on the east (for political reasons) by the Finno-Soviet frontier and farther south by the West Germany-European boundary. The southern boundary is a line drawn from Nantes to Geneva and Vienna, which formed the northern limit for vol. 2. Except for some typically northern species that breed on Alpine or Pyrenean slopes, recordings are mostly of species that breed exclusively within the bounded area. A few species that occur regularly in northern Europe but do not breed there are included (e.g. Barnacle Goose). Following an introduction the booklet of annotations proceeds in phylogenetic order. Each species is numbered and listed by common and scientific names, followed by the name of recordist, place recorded, distribution in breeding season, and information about voice and behavior.

For 115 species only one recording usually of only one characteristic vocalization is presented. The nature of the vocalization (e.g. flight-display song, alarm calls, and male song) is given and should be generally helpful. As many northern European bird species are holarctic, this collection should be of use to North American ornithologists in their own study areas. The recordings are excellent, almost without exception, and represent an important publication in the growing world library of bird sound recordings by one of its foremost contributors.—JOHN WILLIAM HARDY.

Oiseau des Antilles. Vol. 1, The Lesser Antilles from Grenada to Guadeloupe.—Jean-Claude Roché. 1971. Publ. by the author, 04 Aubenas les Alpes, Haute Provence, France. One 12-inch 33⅓ rpm phono-disc in jacket. Album notes in English and French. Price 20 ff.—This disc, the author's first venture into bird sounds of the New World, treats 13 species of the Lesser Antilles from Grenada to Guadeloupe Island. Many of these undoubtedly appear on recordings for the first time. The ratio of species to recording time would lead the buyer to believe he is getting more extensive treatment of each than in fact is the case. Side one presents all 13 without commentary as in previous Roché records and is beautifully but almost hopelessly "mixed" to achieve the affect of naturalism. Side two proceeds through shorter treatments of each of the 13 species twice, first with commentary in French and then in English. Crickets, locusts, and frogs are also heard but not specifically designated in most cases. Each bird species is listed under the islands where it was recorded. The avian contents are as follows: Martinique—*Myadestes genibarbis*, *Cinclocerthia ruficauda*, *Coccyzus minor*, *Quiscalus lugubris*, *Zenaida aurita*, *Tyrannus dominicensis*; St. Vincent—*Catharopeza bishopi*, *Troglodytes aedon*; Grenada—*T. aedon*, *Turdus nudigenis*, *T. fumigatus*; Guadeloupe—*Troglodytes aedon*, *Cichlhermina l'herminieri*, *Melanerpes l'herminieri*, *Cinclocerthia ruficauda*, *Contopus latirostris*. Each species is represented by its characteristic song, drumming or call note.

The name of the English-version commentator on the second half of side 2 is not listed, but in his simply gorgeous thespian professionalism he is alone worth the price of the recording. (Irby Davis and Wesley Lanyon—take notice!)—JOHN WILLIAM HARDY.

L'oiseau musicien.—Jean-Claude Roché. Publ. by the author, 04 Aubenas les Alpes, Haute Provence, France. Twelve 7-inch 45 rpm phono-discs in jackets, each with col. illustr. and annotations in German and/or French and English. Price 10 ff ea.—This series of discs presents 24 species with more or less exceptional musical quality in their songs. Each is given about 7.5 minutes and an entire side of an extended play disc. Roché (pers. comm.) states that each performance is a continuous one by a single individual. All recordings are of highest quality and each is an absorbing ornithological experience. The raw materials are here for the beginnings of a detailed analysis of repertoire and its pattern in individual male songs. To my ear, efforts of three of the species are especially intriguing, scientifically and musically exciting. They are the Rufous-throated Solitaire, *Myadestes genibarbis* (disc 7); Bush Shrike, *Tchagra senegala* (disc 8); and Bifaciated Lark, *Alaemon alaudipes* (disc 9). Other species represented and their disc numbers are: *Turdus merula* and *Alauda arvenis* (1); *T. philomelos* and *Erithacus rubecula* (2); *Lullula arborea* and *Luscinia megarhynchos* (3); *Numenius arquata* and *Pluvialis apricarius* (4); *L. svecica* and *L. luscinia* (5); *Acrocephalus palustris* and *Ficedula hypoleuca* (6); *Turdus nudigenis* (7); *Oenanthe moesta* (8); *Sylvia nana* (9); *Cossypha malalensis* and *C. dichroa* (10); *C. caffra* and *Bessonornis humeralis* (11); *Telephorus zeilonus* and *Cossyphya heuglini* (12).

Of the three most interesting to me, the Bush Shrike sings in complex social groups. One bird initiates the bout, and others join in. In the resulting performance, it is said that what may sound like a contribution by one bird may in fact be begun by one and completed by another. The Bifaciated Lark sings while perched on a rock in the Sahara. He sings in peculiarly drawn-out pure tones that are exceedingly deliberate in rendition and ascend at approximately quarter-tone intervals.

This song must carry very long distances. It would certainly be a nerve-wracking experience for a person who hears comfortably only half- and whole-tone intervals! Finally, the Rufous-throated Solitaire sings pure-toned, equally deliberate themes in perfect half- and whole-tone intervals that are as exquisitely graceful as any human music. Moreover these are varied and elaborated in truly classic ways and changed from day to day. Roché informs me that residents of Martinique, Lesser Antilles drive to the bird's mountain habitat to hear it sing and (now here's where the ornithologically interesting part comes in) have discovered that one can by whistling provide the bird with new variations on its own themes which it readily accepts and incorporates immediately to the delight of its human audience!—JOHN WILLIAM HARDY.

Concerts d'Oiseaux. Vol. 1, Oiseaux de mer et d'Etangs; Vol. 2, Oiseaux Mediterraneens; Vol. 3, Oiseaux Familiers; Vol. 4, Oiseaux de forets ed de Montagne; Vol. 5, Oiseaux Scandinaves et Lapons.—Jean-Claude Roché. Dates ? Five 12-inch 33⅓ rpm phono discs in jackets. Annotated in English and other languages with col. front photo. Publ. by the author, 04 Aubenas-les-Alpes, Haute Provence, France. 20 ff. ea.—These discs are not recommended for ornithological purposes. Each is an uninterrupted series of species with other outdoor sounds appropriate to the habitat and with no commentary. The mixing of sequences is so perfectly done that it is difficult if you are unfamiliar with the voices of successive species to tell when one ends and the other begins. (The discs themselves have spaces between each featured species, but use of this method of determining what you are hearing is at best inconvenient.) Couldn't there have been a low test signal to inform the listener at each division? To make matters worse on Vol. 3, the disc labels are transposed—hopefully not on the entire press run! Anyway, for ornithologists the author's ECHO publications entitled "Sound guide to the birds of Europe" in three volumes (also without commentary but with each species carefully separated on the discs) is recommended. Incidentally I find that the present recordings, though excellent, wear poorly as background "music." There is just too much going on. I can take the sound of wind and a stream and some crickets and a few birds occasionally singing, but these things make you feel you are living in a zoo or pet shop.—JOHN WILLIAM HARDY.

Birds of the West Indies.—James Bond. 1971. Second ed. Boston, Houghton Mifflin Co. 256 pp., 9 col. pls., 186 line drawings, 7¾ × 5½ in. Cloth. $8.95.—The first American edition of this book was published in 1961 and reviewed by W. B. Robertson in Auk (78: 447, 1961). The two previous books by Bond on the birds of the West Indies are not officially considered earlier editions of the present work although the first of these (1936) had the same title. Practically the present volume can be considered the fourth edition. A brochure accompanying the new edition states that it is "thoroughly revised." The dustjacket of the book, however, accurately states that this is a "completely reset edition." The major difference between the new edition and the last is that Don Eckelberry who is responsible for the color illustrations has added one new plate, depicting mockingbirds, thrashers, orioles, a weaver, and a saltator. Earl Poole's line drawings are the same. I found some slight rewording of the introduction and occasional revisions in the text, but for practical field guide purposes and as a handy desk reference to West Indian birds, this is no more than a reprinting. Thus, if you have the 1961 edition you might wish to consider carefully before acquiring the new edition.—JOHN WILLIAM HARDY.

ALSO RECEIVED

Vogelfang und Vogelberingung.—Hans Bub. Teil IV. 1969. 207 pp., 15.20 M. Teil I. 1971. 224 pp., 15.20 M.—These two paperbacks, written in German, describe a wide variety of methods for capturing and marking birds. The 250 black and white drawings and photographs illustrate effectively many of the techniques described.—M.L.M.

Memories.—Julian Huxley. 1970. New York, Harper & Row. 296 pp., 22 black and white photos, 6¾ × 9⅝ in. Cloth. $8.95.—"In this volume, in addition to introducing the reader to the two immediately preceding generations of his family, Sir Julian recalls his youth, his experiences, and his accomplishments up to 1945 when he became head of UNESCO"—(from the dust jacket).

A preliminary survey of the occurrence of neossoptiles in South African passeriform birds, with special reference to natal pteryloses.—Miles Berkeley Markus. 1970. Ann Arbor, Michigan, Univ. Microfilms. 210 pp. Order No. M2297. $4.00 microfilm, $10.00 xerographic copy.—A comprehensive catalogue of reference to the natal plumage of South African passeriform birds is presented, the survey of the literature revealing the existence of contradictory statements concerning individual species, mainly with regard to the presence or absence of neossoptiles during the early nestling stages. This information is supplemented by the results of detailed microscopic examination of specimens representing 95 species (56 genera). Striking features are the infrageneric variation with regard to the presence/absence of nessoptiles in *Erythropygia* and *Estrilda*, a possible absence of capital neossoptiles in *Corvus capensis* and the unusual natal pteryloses of *Campephaga*, *Lanius* and *Zosterops*. The young of a number of species are without neossoptiles on hatching.—[Publisher's summary.]

The family life of birds.—Photographs and text by Hans D. Dossenbach, with the assistance of nine other people listed on a first and second title page. 1971. Maidenhead, England, McGraw-Hill Publ. Co., Ltd., and Lucerne, Switzerland, C. J. Bucher AG Publ. 185 + 7 unnumbered pp. Innumerable illus. and illuminated but not illuminating charts. $12.95.—The undesirability of this book will be amply described if I list a number of chapter headings and subheadings—all referring to birds: "Wives, sweethearts, concubines," "Long engagement—brief marriage," "Another Ostrich policy," "The married life of fowl," "The lady-killers' line-up," "It always takes two," etc., etc., etc. For a supposedly informative work, this is the last word in cute anthropomorphisms. The book is so poorly bound that two folios fell out as I read my brand new review copy.—ELIZABETH S. AUSTIN.