

ORNITHOLOGICAL LITERATURE

BIRDS OF SURINAM. By François Haverschmidt. Oliver and Boyd, Edinburgh, 1968: 8 × 11 in., xxix + 445 pp., 40 col. pls. and many figs. by Paul Barruel, 30 bl. and wh. photos, map. \$37.50 (available in U.S.A. from Livingston Publishing Company, Narberth, Pennsylvania 19072).

This monumental and long-awaited volume represents the culmination of many years of fieldwork by the author, and is based on some 8700 specimens and extensive notes taken on the ecology and natural history of Surinam birds. The book opens with a short discussion of the topography and climatology of the country and is accompanied by ten full-page photographs of selected habitats. This is followed by a detailed historical account of the ornithological exploration of Surinam and the repository for major collections of specimens. This section will be particularly useful to researchers planning future explorations in this country and in the analysis of their results. Following this account are sections on "Bird Migration in Surinam," "Future Ornithological Research in Surinam," and "Conservation in Surinam." The last section includes a description of the present forest reserves and a list of "game" species. In the section on migration a list of "Migrants Visiting Surinam" is presented. It is pretty much of a catch-all list of 61 species (not 60 as stated on p. xxii) which are not known to breed in Surinam. It includes such obvious migrants as the numerous shorebirds which breed in Arctic areas and the several species known to nest in southern South America during the austral summer and which move North of the equator during the months of the southern hemisphere "winter." Strangely, *Chaetura andrei meridionalis* is mentioned in the text (p. 171) as being such a migrant but is omitted from this list. The list of "migrants" also includes several species of casual or rare occurrence in Surinam—e.g., the Green Heron (represented by only two specimens collected during the last century), as well as species which occur during all months of the year and are known to breed both to the north and to the south of Surinam—but for which no evidence presently exists for their actually breeding in Surinam. Thus many of the species on this list are not migrants in the usual sense of the word. The inclusion of other categories for some of these birds (vagrants, wanderers, non-breeding residents, etc.) would have helped to clarify this section.

The bulk of the book is given over to the individual species account, in most cases accompanied by a color or black-and-white illustration. In addition to the name of the subspecies represented in Surinam and the local name of the species, each account provides information under the headings of "Identification," "Soft Parts," "Measurements," "Habitat and Habits," "Nesting," "Recorded Food," and "Range of the Species." (The range of the subspecies is included under the range of the species). In some cases these accounts are abbreviated and some headings are omitted due to a lack of information. This is not to be construed as a failing of the book but rather an indication of a need for further field observation.

In general the book is well planned and laid out and, although its size and weight (5 lbs.) will prevent its being used extensively in the field, it is the most complete and available source of information for the birds of Surinam as well as much of northeastern South America. It is unfortunate that the author chose to limit the scope of his book so strictly to Surinam, particularly in the bibliography, for in so doing he detracts from its usefulness over a wider area. In the species accounts valuable sources of additional life history information on Surinam birds, recorded mostly by the author in Surinam, are frequently cited. To my mind, the inclusion of still more such references to life

history studies, including ones done outside Surinam, would have been well worth the time and effort involved, particularly when little information is available for the species in Surinam. This was done in at least one instance—Sick's study of the Palm Swift in Brazil—and could easily have been done for many others. Reference to Schaefer's study in Venezuela (Auk, 70:403–460, 1953) would have been a very useful addition to the otherwise abbreviated account of the Swallow-tanager (*Tersina viridis*) and would have called attention to its seasonal populational movements in other parts of its range. If this should also prove to be true of Surinam populations, the Swallow-tanager could be a possible exception to Haverschmidt's view (p. xxiii) that no species which breeds in Surinam leaves the country when the nesting season is over. Similarly, the increased use of footnotes to explain unusual treatments in the text would certainly have improved the book's usefulness. Readers as yet unfamiliar with the findings of Junge and Voous (1955) may find the lumping of *Sterna sandvicensis* and *S. eurygnatha* puzzling, whereas a simple footnote citation of this paper, which is already listed in the terminal bibliography, would have easily explained this action. On rare occasions such footnotes are used very effectively to clarify some points (see page 19) and it is a shame that they were not used more frequently.

The sections on "Identification" and "Soft Parts" are for the most part brief and usable. The section on measurements is tantalizing at best. When available, the range of wing measurements and body weights are given, sometimes separately for each sex. At no time is the sample size recorded. The extra effort of presenting the sample mean, as well as the range, and also the number of values considered, would have converted this section into a treasure-trove of badly needed data. In its present form it is of limited usefulness at best. This need for a consistent presentation of data in a usable form is even more clearly shown later in the presentation of egg measurements. At least three different forms of presentation are used for these data, none indicating the sample size on which they are based. In many cases it is unclear whether entries—e.g., "Measurements: 35.2 × 25.6 mm" for the Scaled Pigeon (*Columba speciosa*) (p. 128)—are to be considered as the data for a single egg or, as is more likely and sometimes stated for other entries, an average value for an unknown number of eggs.

The sections on "Habitat and Habits" and on "Nesting" are excellent and often include much useful information about the species and its life history and behavior. In some of the species accounts—e.g., the Striped Cuckoo (*Tapera naevia*) and the Barn Owl (*Tyto alba*)—extra information is given on variation in clutch size, the distribution of clutches throughout the year, as well as notes on voice and incubation periods. Even notes on the method of head scratching are included in other species accounts. It is a shame that additional accounts could not have included more of this type of information, even if still anecdotal at the time of writing. Additional published accounts could have simply been cited when space was at a premium.

The section on "Recorded Food" is a welcome addition to a regional work of this sort, and the information it contains represents much hard work for little apparent reward. "Food in Surinam" would have been more appropriate for the heading since no use has been made of analyses made elsewhere. This section does not purport to be a summary of all food items ever recorded for the species and should not be mistaken for such.

The section on species and subspecies ranges is by and large correct and is a useful part of each account. Occasional errors of omission and commission can be found—an almost inevitable failing in a work of this sort, particularly when based on a heretofore poorly studied part of the world where new information seems to appear almost daily. Nonetheless, several errors must be considered rather flagrant and as such they detract

from the credibility of the book as a whole. For example, *Chaetura chapmani* (p. 169; "Range of the species: Trinidad, Surinam, French Guiana and Matto Grosso.") has been known to occur also in Panama, Colombia, Venezuela, and Brazil for more than ten years and has been recorded in Guiana since 1966. A more complete version of its range has been given in several major regional works on South American birds dating back to 1958, and at least two are listed in the bibliography of this book. Similarly, the range of *Chaetura spinicauda spinicauda* is still said to include "eastern Venezuela" although the populations of that area were recognized as being particularly distinct (*C. s. latirostris*) as long ago as 1952 and this was so stated in the major work on Venezuelan birds which appeared in 1958. Other errors—e.g., including Tobago as well as Trinidad in the range of *Leistes militaris*, and the frequent omission of Trinidad and/or Tobago from the listed range of species widely distributed on continental South America—are but minor irritations.

Paul Barruel's figures and color plates are a major contributing factor to the great usefulness of this book. Although they are not in every case the equal of the plates of some field guides to the birds of North America or Europe, they far surpass any presently available portrayal of the birds found in northeastern South America. As has been pointed out to me, however, the iris color of many birds shown in the color plates fails to be in strict agreement with the color listed in the text description of the species. In many cases this is simply the minor difference between a brown iris appearing distinctly reddish, a white iris appearing pale yellowish, or a yellow iris appearing quite orange-brown. In other cases it is in sharper disagreement. There seems to be little difference to me between the iris colors of *Myrmeciza ferruginea* and *Formicarius colma* in Plate 25 and yet in the text descriptions the former is said to have a "dark brown" iris and the latter a "reddish" iris. An even more striking error of this sort can be seen in Plate 13. There, the iris color for both *Ciccaba virgata* and *C. huhula* appears to be a distinct dark brown. In the text (p. 161) *C. virgata* is said to have a "yellow" iris while that of *C. huhula* is said to be "brown." The black-and-white figures are in general quite nice but there are a few cases where I would have suggested revisions—e.g., the neck length of the Solitary Sandpiper (p. 132) and the bill size of the Ruddy Turnstone (p. 108) and the Willet (p. 107). It is a shame that it was not possible, in at least a few cases, to show the birds, particularly the raptors, in flight. This would certainly have aided in the separation of such species as the Greater and Lesser Yellow-headed Vultures (not figured at all) and the Rufous-thighed Kite and the Bicolored Hawk which appear extremely similar when perched (Pl. 7). In the case of the vultures, *Cathartes aura*, *C. burrovianus*, and *C. melambrotus*, it would have been helpful to have drawings of even the heads alone, showing the amount and distribution of the yellow on the head (including the yellow nape patch present in *C. a. ruficollis* but not mentioned in the text).

Typographical errors are pleasantly minimal. The color plates are well reproduced although one (Pl. 26) in my copy is quite blurry. Without sounding unduly provincial, I would like to take issue with the editorial(?) changes made in the spelling of some of the common names. I do not feel it is necessary, or even correct, to make such changes in the common names of birds confined to the Neotropical Region simply to conform with contemporary usage in that part of the world where the book is printed. I cite two examples: "Tricoloured Heron" (p. 18) and "Bicoloured Hawk" (p. 54). In the case of the latter species, the name is correctly (?) spelled in the caption for Plate 7 (p. 80).

Despite the several criticisms here offered, this book is clearly a valuable addition

to the ornithology of Surinam and South America. The book's array of minor failings will unquestionably chip away at the confidence a reader will have in the mass of information presented. While this is certainly unfortunate, it should only slightly impair the overall usefulness of the book.—CHARLES T. COLLINS

ADAPTATIONS FOR LOCOMOTION AND FEEDING IN THE ANHINGA AND THE DOUBLE-CRESTED CORMORANT. By Oscar T. Owre. Ornithological Monographs No. 6, American Ornithologists' Union, 1967: 138 pp., 56 figs., 26 tables. \$3.50.

Based on over 500 hours of field observations and detailed comparisons of feathers, bones, and muscles, Oscar Owre's study of the Anhinga and Double-crested Cormorant describes the anatomical complexes associated with two rather different modes of environmental exploitation.

The book begins with a one-and-a-half-page introduction and ends with an equally short conclusion. The remainder of the text is divided into five main sections: aerodynamics and the wing, the tail, the leg, the head, and the food. Throughout the various sections and subsections, the Anhinga and Double-crested Cormorant are treated together, frequently in the same paragraph. This reduces to a minimum the amount of information which the reader must remember as he peruses the comparisons. The sections dealing with the wing, tail, leg, and head begin with field observations. These are followed by osteological comparisons, myological comparisons, discussion, and conclusions. The osteological comparisons are based on gross observations, measurements, and ratios calculated from the measurements. Approximately half the pages are devoted to the muscles. Comparable muscles in the Anhinga and Double-crested Cormorant are compared in terms of gross structure and per cent volume (volume of a muscle expressed as a percentage of the total volume of the group of which it is a part; the groups delimited include wing muscles, caudal muscles, leg muscles, etc.).

The less labored, frequently soaring flight of the Anhinga is correlated with lighter wing loading, greater slotting of the distal primaries, better development of the alula, and a total volume of wing muscles which is equal to that of the Double-crested Cormorant although the cormorant has a larger total body weight. Presumably the aerodynamic properties of the Anhinga's wing are adaptive to feeding in small ponds and water courses which are closely surrounded by trees. In such situations the vegetation minimizes wind action and prevents long unobstructed take-offs and landings.

Differences in tail structure parallel those seen for the wings. The surface area of the Anhinga's tail is approximately two and one-half times larger than that of the Double-crested Cormorant. Also, it is argued that the Anhinga's tail musculature is capable of producing more intricate and more laterally-directed motions of the tail. Owre concludes that these modifications facilitate soaring and maneuverable flight.

The hindlimb and head anatomy of the Double-crested Cormorant are consistent with its feeding by active pursuit of fish, culminating when the prey is seized between its mandibles. Conversely, the Anhinga is modified for slow, prowling underwater swimming in which the prey is approached with stealth and impaled on the mandibular tips by a rapid, forward thrust of the head.

A striking aspect of Owre's study is that, in spite of extensive field observations, many aspects of the underwater activities of the two species are unclear. Hopefully, it will eventually be possible to observe these birds foraging underwater in large tanks. Until then, uncertainty remains. The anatomical and observational evidence convincingly point to the Anhinga stalking rather than swimming rapidly after its prey. However, the exact manner in which either the Anhinga's or Double-crested Cormorant's legs,

neck, and head are used underwater is largely unknown. Until they are known, it seems that correlations between function and form must be tentatively assigned.

Also, the rather distant phylogenetic relationship between cormorants and anhingas raises serious questions regarding the functional interpretation of anatomical differences. Some differences are undoubtedly interpretable on the basis of the two species having evolved into their present niches from different ancestral forms. Owre's attempts to separate phylogenetic differences from those largely adaptive sometimes seem tenuous. For instance, Owre's assertion that the dissimilar proportions of certain skeletal elements are suggestive of phylogenetic separation seems arbitrary in view of the restriction of his study to two species.

By and large, Owre handles well the pitfalls inherent in such a study and must be commended. His work should be recognized as a valuable contribution to the study of morphological adaptations.—LOWELL SPRING.

HUMMINGBIRDS AND THEIR FLOWERS. By Karen A. Grant and Verne Grant. Columbia University Press, New York, 1968. $7\frac{3}{4} \times 10\frac{1}{4}$ in., vii + 115 pp., 30 col. pls. \$17.50.

It is normally a worthwhile occasion when two investigators who have been working in a particular scientific field distill their ideas and information into a single book. In producing the present book the Grants have drawn together information from a variety of sources, including much of their own published and unpublished work, to present an account of flowers pollinated by hummingbirds and the potential impact of the birds on the evolution of these specialized flowers. On the whole the book is very readable and highly informative, although there are very few data presented to document many of the ideas. It is unfortunate that lack of information forced them to restrict their analysis to western North America when it is possible, as they suggest, that characteristics of hummingbird flowers in tropical areas will show striking differences from those in temperate areas. On the other hand the book will serve as a useful guideline for analysis of the results from studies of tropical forms.

For people primarily interested in birds this book will be somewhat of a disappointment as the major emphasis (8 of 11 chapters) is on the biology and evolution of the hummingbird flowers. Discussion of the birds is mostly restricted to generalities about morphological features that adapt the birds for flower visitation and to aspects of the biology of the hummingbirds—e.g., migration routes and timing, that might be important to the flowers. Perhaps the book should have been entitled "Adaptations of Flowers for Hummingbird Pollination." However, even this title would be slightly misleading at this time as it appears that the authors are equating pollination with bird visitation to flowers that look as if they are adapted for hummingbird pollination. The Grants probably are generally correct that these flowers are more or less dependent on the hummingbirds, but there is little mention of other possible visitors or of any experiments to show that hummingbirds indeed pollinate the flowers or, in fact, that animal pollinators are essential for reproduction by the flowers.

If we accept their premise that these 129 species of flowers are in fact hummingbird pollinated, then the book has some interesting information on the morphological characteristics of the flowers and their distribution in time and space. Perhaps the most interesting chapter is the final one in which the Grants speculate on the co-evolution of the birds and flowers. It points up potential interactions of an organism and its food source that may influence evolutionary changes occurring in both.

Hopefully this book will be a stimulus for other workers to continue research in this field, at least in part along the lines determined by the Grants. It should be very evident

to any serious amateur who reads the book that much of the information could be gathered by bird watchers who are willing to spend the time making detailed observations of individual hummingbirds or an area of flowers. As the Grants point out, they have positive records for visitation for only about one-third of the flowers which they consider to be hummingbird flowers, and these are mostly representatives from the California flora. For persons interested in both birds and flowers, here is an excellent opportunity to combine interests in a productive way.

Perhaps the greatest shortcoming of the book is its price (\$17.50). I suspect that this will greatly restrict the audience to those who can afford to pay a rather high price for such a short book. Most of the expense of the book comes from the 30 color plates that appear at the end. In my opinion many of these color photographs could have been chosen with more care or eliminated from the book without detriment to the information content. For example, the habitat pictures would have told as much in black and white, especially since most of the important flowers pictured are shown in more detail in other plates. On the following plates—13, 14, 17, 18, 19, 21, 22, 23, 24, 25—one or more pictures could have been left out and we would still have learned as much from the book. This is especially true of pictures of sitting hummingbirds, of several pictures of the same birds at the same flower, and of pictures in which it is hard to locate and distinguish the bird. Finally, I do not think that compliments are at all in order to Columbia University Press for the quality of the color reproductions, at least in my copy. It is possible that this poor reproduction has reduced the value of some of the figures previously mentioned.—LARRY L. WOLF.

THE LOVELY AND THE WILD. By Louise de Kiriline Lawrence. McGraw-Hill Book Company, New York, 1968: $9\frac{1}{4} \times 6\frac{1}{4}$, 228 pp., drawings by Glen Loates. \$6.95.

To those of us who struggle to write clearly in our native tongue, it is humbling to find someone who writes both clearly and gracefully in English as an adopted language. Mrs. Lawrence is a member of that distinguished group.

After a childhood in Sweden and several years as an interpreter and nurse in missions to Russia, she sought out a new life in the wilderness of northern Ontario. Here she served in the outpost nursing service of the Red Cross, married, and settled on a forest homestead in the region of North Bay. This book is mainly about her experiences with birds near her home during the next thirty years.

Those who expect warm enjoyment from nature writing will find it in these pages. And those who are looking for solid information will not be disappointed. A quality that shines through all of Mrs. Lawrence's work is intelligence—the ability to sort out from a myriad of sights and sounds those impressions that are significant. She does not merely exclaim over the beauty of nature; she searches constantly for connections and explanations.

Although the style and format of the book invite recreational reading, students of the birds she discusses will not want to ignore these accounts. They are filled with original observations on many species nesting in the North Woods. A partial list of the birds discussed is as follows (in Check-list order): Ruffed Grouse, Whip-poor-will, Ruby-throated Hummingbird, Yellow-shafted Flicker, Yellow-bellied Sapsucker, Hairy Woodpecker, Downy Woodpecker (in 1967 she published an A.O.U. monograph on these four woodpeckers), Eastern Phoebe, Eastern Kingbird, Least Flycatcher, Black-capped Chickadee, Myrtle Warbler, Ovenbird, American Redstart, Evening Grosbeak, Red Crossbill, White-winged Crossbill, Chipping Sparrow, Slate-colored Junco, and White-throated Sparrow. Although the emphasis is on birds, one chapter deals with the red squirrel, which

Mrs. Lawrence finds not so single-mindedly in search of birds' nests as some people may think.

The pencil sketches by Glen Loates, numbering more than 30, are a pleasing embellishment to the text.

Apparently others also have thought well of this book. It earned for Mrs. Lawrence the 1969 John Burroughs Medal for the year's best book in the field of natural history. Here is a delightful gift for the armchair naturalist, and at the same time it may awaken some bird watchers to the excitement to be found in observation at the scientific level.—
HAROLD F. MAYFIELD.

PUBLICATION NOTES AND NOTICES

The Preservation of Natural History Specimens. Volume 2. Edited and compiled by Reginald Wagstaffe and J. Havelock Fidler. Philosophical Library, 15 East 40th Street, New York, 1968: 7½ × 10 in., xvi + 404 pp., 150 figs. \$17.50.

This volume consists of three parts: Zoology—Vertebrates, Botany, and Geology. The chapter on Aves (pp. 39–74) gives directional information under two main headings: Preservation and Storage—Dry; Preservation and Storage—Wet. Under the first heading are (1) detailed directions with drawings for preparing a study skin of a passerine bird together with methods for measuring, sexing, labelling, wrapping, drying and storing the specimen, (2) brief directions for handling large and very small birds, birds with long necks, long legs, large hoods, etc., and downy young, and (3) special techniques: refrigeration; injecting for temporary or permanent preservation; salting; removing fat, blood, and dirt; and renovating old skins. Under the second heading are directions for blowing eggs both fresh and incubated, preserving ova and embryos, and collecting and storing nests.—O.S.P.

A Dictionary of English and Folk-names of British Birds: With Their History, Meaning and First Usage, and the Folk-lore, Weather-lore, Legends, etc., Relating to the More Familiar Species. By H. Kirke Swann. First published by Witherby and Company, London, in 1913; republished by Gale Research Company, Book Tower, Detroit, 1968: 5½ × 8¼ in., xii + 266 pp. \$9.50.

Approximately 5,000 names are listed alphabetically.

Annotated Index to Some Early New Zealand Bird Literature. Compiled by H. C. Oliver. Wildlife Publication No. 106, Department of Internal Affairs, Wellington, 1968: 8 × 10 in., x + 222 pp. No price given.

A bibliographical undertaking that covers ten works published from 1843 to 1900. Included are the Transactions and Proceedings of the New Zealand Institute, vols. 1–33. Besides a general index to every species mentioned, there is an annotated index in four sections: systematic, geographic distribution, subject, and author.

An Extensive Bibliography on Falconry, Eagles, Hawks, Falcons, and Other Diurnal Birds of Prey. Part I. Falconry and Eagles. By Richard R. Olendorff and Sharon E. Olendorff. Privately printed, 1968: paper covered, 8½ × 11 in., 78 pp. \$4.00. Order from senior author, Aggie Village 7-D, Fort Collins, Colorado 80521.

Three other parts to follow, priced at \$3.00 each. Total bibliography will include