

REVIEWS

EDITED BY JOHN WILLIAM HARDY

The shorebirds of North America.—Editor and sponsor, Gardner Stout; text, Peter Matthiessen; paintings, Robert Verity Clem; species accounts, Ralph S. Palmer. 1967. New York, The Viking Press. 270 pp., 32 col. p's., line drawings, $10\frac{1}{2} \times 14\frac{1}{4}$ in., cloth, \$22.50.—This volume represents an ambitious attempt to produce a book of interest to a wide audience from the independent efforts of three authors. The main text, by Matthiessen, is an introductory essay on shorebird behavior and biology; detailed scientific information is left to the species accounts by Palmer. A folio of paintings by Clem graces the entire volume. The result is impressive. The book is well bound and printed, the reproduction of the color plates in my copy is generally good, and the format is excellent. Unfortunately the index is inadequate, stressing only Palmer's contribution. Because the book is aimed at a wide audience, it lacks the full ornithological impact and significance that might have been hoped for. Palmer's species accounts are a valuable reference for professionals, but they will not be of immediate interest to most laymen. On the other hand Matthiessen's text, which is essentially what appeared as "The wind birds" in *The New Yorker* for 27 May and 3 June 1967, may be informative for readers of that magazine, but will prove too uncritical and speculative for most readers of *The Auk*.

The reader should be forewarned that Matthiessen is not an ornithologist but a writer. His declaration (p. 131) that "reputable authority has been found for every statistic and statement and idea that is not clearly presented as my own" is hyperbole. Many of his statements are accurate, but so many are erroneous or are merely unsupported personal opinions that they undermine the credibility of the entire text. To document this charge fully would take much more space than is available. But what "reputable authority" contends (p. 22) that some shorebirds "*presently familiar to us*" (italics mine) existed 50 million years ago (cf. Brodkorb, 1967)? No supporting citation is given for the statement (p. 45) that some shorebirds have asymmetrical ear openings. In a brief review of the literature I could find no reference to that phenomenon, nor could I determine asymmetry in the skulls of eight North American genera on hand. The eggs of the Banded Stilt (p. 102) are not "salt white" but spotted (Glauert and Jenkins, 1931); it is the chicks that are whitish. Some errors could have been eliminated by closer cooperation with the other authors. For example, Matthiessen's statement (pp. 37–38) that the Surfbird's plumage shows little seasonal variation is contradicted by Clem's painting (Plate 30) and Palmer's text (pp. 255–256). The Buff-breasted Sandpiper (p. 59) never nested on the Great Plains (cf. Palmer, p. 213).

Clearly Matthiessen has spent time observing shorebirds, but it is not always evident whether the observations he presents are derived from personal experience or from the literature. From observations of Solitary Sandpipers both on the breeding grounds and in migration, I cannot confirm that this species "habitually catches insects on the wing" (p. 36) although Giraud (*in Bent*, 1929: 5) makes a similar statement. Nor can I confirm that the Stilt Sandpiper "commonly swings its bill back and forth through the water, straining out bits of food in a motion known as side sweeping . . ." (p. 34). This behavior, which is also reported by Moore (*in Bent*, 1927: 125), may be a rare response to unusual feeding opportunities, but certainly it is not a common method of feeding. More startling is Matthiessen's conclusion (p. 34) that "to make this technique more effective, the bill of the Stilt Sandpiper has become slightly broadened at the tip." How strange that a species which, at best, rarely feeds in this

manner should show such an adaptation, when the avocets, which commonly side-sweep, as Matthiessen notes, have among the most sharply pointed of wader bills.

Speculation is an integral part of the scientific process, but there is a point beyond which it becomes irrelevant and distracting. The reader can judge for himself the possible heuristic value of the following ideas. "The woodcock thumps its damp haunts with its feet, to lure worms upward to their doom; why thumping should hold this fatal attraction for the earthworm is not clear, but one recalls that rain will draw worms upward, and doubtless an inspired woodcock can drum like a local thunderstorm" (p. 36). "The bladder snail *Physa* has been found in both crop and plumage of certain migrant plover, encouraging the startling idea that these birds might deliberately place snails in their plumage before starting on a long voyage in order to provide themselves with at least one meal during the trip" (p. 52). The avocet is aposomatically colored to warn predators of its allegedly "poor flavor" (p. 37).

With careful attention to factual reporting and a more thorough review of the literature, Matthiessen might have turned this essay into an outstanding contribution. I regret that his implication (p. 131) that all specialists might not be satisfied with his accounts has in my case been realized.

The paintings by Clem are a high point of this book. Those familiar with his earlier work will not be surprised at the high level of competence he maintains here. Others should find that viewing these paintings, as Robert M. Mengel puts it, "is an exciting experience." (For an artist's appraisal of these paintings see Mengel, 1967.)

All of Clem's paintings are good and many are excellent, although they vary widely in appeal. In some cases, perhaps due to space limitations, he has used the traditional method of showing a species' full range of seasonal variation on one plate (e.g. Plate 31, Northern Phalaropes); in general, these are his least imaginative and least successful plates. More often he depicts assemblages of species normally associated during migration. Anyone who has watched migrating shorebirds along the east coast will appreciate the beauty and accuracy of his Sanderlings and Semipalmated Sandpipers (Plate 20) sleeping on the beach, waiting for the tide to change. However, it is in his portraits of single species, particularly plovers, that Clem is at his best. I continue to marvel at the beauty of Snowy and Wilson's plovers (Plate 8) on a glaring beach, the grace of his Mountain Plovers (Plate 10) and Buff-breasted Sandpipers (Plate 19), and the charm of his family of Spotted Sandpipers (Plate 18). There is no question that Clem knows his subjects well as migrants. I regret that he did not venture northward to paint the arctic and subarctic species on their nesting grounds.

Yet, it is not only Clem's representations of birds that makes his work notable, but his artistic boldness and imagination in the use of unusual lighting and shadows. Few others would have dared paint oyster-catchers (Plate 2) on a blinding shell bed, plovers (Plate 6) and fall-plumaged peeps (Plate 22) in the bleaching midday light of a coastal sand flat, or an incubating woodcock (Plate 27) in the subtly interrupted shadows of a deciduous woods. Fully one-third of his paintings, including many of his best, are set in the warm sunlight of late afternoon. Among these is his frontispiece. Though not the most ornithologically accurate of the paintings, the symbolic depiction of the single Eskimo Curlew (shot for market by the barrel a century ago) standing alone in an empty marsh, looking away into the twilight, conveys more eloquently than pages of text the plight of many species of shorebirds. Let us hope that lesson is well learned.

The species accounts by Ralph S. Palmer form the scientific backbone of this book

and are a significant contribution. Species occurring regularly in the United States are treated in a comprehensive up-to-date review that includes information on molts, plumages, habits, distribution, geographic variation, migration, habitat, and nesting; a carefully selected, categorized list of references is included for each species. Accidental species are treated cursorily.

Palmer's accounts show much evidence of original and critical thinking. For example, he correctly infers (p. 245), that both sexes of the Short-billed Dowitcher incubate (Jehl, unpub.), even though it has been repeatedly stated in the literature that only the female incubates. He questions (p. 158) that Nova Scotia served as a major staging area for southward flights of Golden Plover, and suggests other modifications in W. W. Cooke's interpretation of the migration route of this species. Strangely, however, he does not comment on the similar route that Cooke and others attributed to the Eskimo Curlew.

Particularly notable from Palmer's review is that basic information (e.g. roles of the sexes during incubation and rearing of young, incubation period) is still lacking for many common and easily accessible North American species, and that European workers have carried out the bulk of shorebird research in recent years. One could almost argue that American research stopped after the publication of Bent's *Life histories*. It is embarrassing that Palmer can cite only *one* reference (Bent, 1927) for the Marbled Godwit and American Avocet, that his sole reference to *Burhinus bistriatus*, a species whose downy young is still undescribed, is Slud's (1964) brief account, and that the most recent notable contributions for Least Sandpiper, Lesser Yellowlegs, Stilt Sandpiper, and Black Turnstone date from 1927, 1929, 1934, and 1943, respectively.

My only major argument with Palmer is on classification. Since P. R. Lowe's important studies many arrangements of the shorebirds have appeared, but Palmer, without comment, advances still another. In some respects—for example the placement of the Recurvirostridae next to the Haematopodidae and of the godwits next to the curlews—his classification is preferable to the current A.O.U. arrangement. Unhappily, Palmer makes no attempt to justify his innovations, nor even to mention that a new classification is used. Perhaps this sequence has been adopted for the forthcoming *Handbook of North American birds*, but its surreptitious inclusion here is a distraction for the professional and a potential source of confusion for the layman. In Palmer's arrangement the Burhinidae precede the Jacanidae (an implication of the former's alleged affinities to the family Otididae?). *Pluvialis* (including *Squatarola*) is placed before *Charadrius* (including *Eupoda*). The Arenariinae are placed in the Scolopacidae. "*Tringa*" includes *Tringa*, *Actitis*, *Heteroscelus*, and *Catoptrophorus*—a more extreme lumping than even the B.O.U. admits. *Philohela* is included in *Scolopax*, *Eurynorhynchus* in *Calidris*, and *Lobipes* and *Steganopus* in *Phalaropus*. I have no quarrel with the use of broad genera, but they should be employed consistently. One wonders why *Lymnocyptes* is maintained distinct from *Gallinago*, or why *Tryngites* and *Philomachus* and most obviously *Microfalama* are excluded from *Calidris*. Palmer's sequence of genera and species also differs from the current A.O.U. sequence. This is not particularly important, but if linear arrangements are intended to begin with the "most primitive" taxa, it is odd that (*Eurynorhynchus*) *pygmea* is placed first in *Calidris*, and that *Calidris* follows *Tryngites* and *Philomachus*.

A few minor discrepancies in Palmer's accounts should be mentioned. Not all chicks of *Haematopus palliatus frazari* are "nearly all dark" (p. 148); many are colored like those of *H. p. palliatus*. In the Avocet (p. 151) both sexes incubate (Allen, 1932: 210). The legs and feet of the Hudsonian Godwit (p. 181) are dark slate blue.

The incubation period of the Hudsonian Curlew is 22–24 days (Jehl and Hussell, 1966), not 27–28 days (p. 185). Downy Greater Yellowlegs cannot be separated reliably from Lessers (pp. 198–199) by an interrupted post-orbital stripe, for in the latter the stripe may be interrupted or incomplete. Further, in view of the difficulty in finding the nests of the yellowlegs, it is hard to believe that sufficient data exist to suggest that at a given latitude Lesser Yellowlegs nest somewhat later than Greater (p. 200); in fact from Palmer's accounts (pp. 199, 200), one could draw the reverse conclusion. I know of no evidence that the Semipalmated Sandpiper can be subdivided into three disjunct populations in the manner suggested (pp. 217, 221; see map in Godfrey, 1966: 160), although Manning *et al.* (1956: 76) suggest that the species may break down into three fairly *distinct* populations. The underparts of downy White-rumped Sandpipers are not white (p. 227) as in Baird's Sandpiper, but have a buffy wash on the chest. Young Dunlins can fly when approximately 18–20 days old (pers. obs.), significantly less than the 28 days reported. A slight lapsus occurs on page 168, where Palmer states "many Atlantic coast Piping Plovers have incomplete [complete is intended] breast bands" The normal winter range of the Rock Sandpiper (p. 231) extends only to northern California; the species' occurrence in Baja California is unsubstantiated. The coloration of Short-billed Dowitcher chicks (p. 244) is not as "snipe-like" as that of Long-bills. The flight song attributed to the Short-billed (pp. 244–245) is unlike any I have heard, although perhaps our differences stem from difficulties in transcription. The flight song attributed to the Stilt Sandpiper (p. 255) is clearly erroneous. This description is taken from Farley (1936) who, in spite of his claim to the contrary, described the flight song of a Lesser Yellowlegs. It is implied that only the female Common Snipe incubates (p. 253), but I have collected a male from a pipping egg. The bill length given for the Jacksnipe (p. 254) is 2 inches too long. The dorsum of young Ruddy Turnstones (p. 257) bears a patchy pattern.

Palmer's accounts are well-written, although a few confusing statements should have been rephrased. For example Palmer notes "possible hybrids of [*Pluvialis*] *apricaria* × *fulva*" (p. 157), but the reader is not informed that *fulva* is a race of *P. dominica*. His statement (p. 166) of the Wilson's Plover "legs and feet not black" leaves room for improvement. Citing Mme. Kozlova's opinion that our dowitchers should be considered "a single geographically varying species of 'American Snipelike Godwit'" (p. 244) is confusing because the Snipelike Godwit, *Limnodromus semipalmatus*, is not identified, and because it implies that godwits are closely allied to dowitchers. The description of snipe "winnowing" ("the humming vibration of the tail feathers causes a damping off . . . of wings . . .") (p. 253) could have been clearer. Further, it is not evident that winnowing occurs during a power dive, during which the wings are flapped vigorously.

Because this book will be used as a guide for future research, it seems appropriate to comment on some aspects of shorebird behavior that deserve more thorough investigation.

Semicoloniality.—This ill-defined behavior is reported for the Semipalmated Plover (p. 165), Lesser Yellowlegs (p. 200), and Dunlin (p. 255). I cannot confirm it for populations of these species nesting at Churchill, Manitoba, though for each it is easy to postulate how the idea may have arisen. To invoke semicoloniality one must show that high nesting densities result from the birds' preference to nest near others of the same species and are not secondary manifestations of the nonrandom distribution of favorable nesting habitat. I know of no such data for the species mentioned.

Division of the brood between the parents.—This behavior pattern is cited for the

Golden Plover (p. 159), Hudsonian Curlew (p. 185), and Common Snipe (p. 253), but in my experience it is not true of the plover and probably not of the curlew. In any event "brood division" implies an active and adaptive, not an accidental, phenomenon and its occurrence should be carefully documented. In view of the high rate of chick loss, even in species in which both parents remain with the entire brood, the mere finding of no more than two chicks per adult (as in the Common Snipe; Williamson, 1960: 65) cannot be accepted as proof.

Arrival of mated pairs on the nesting grounds.—The behavior is reported in several species (Palmer notes it in the Golden Plover, Baird's Sandpiper, and Dunlin) as an adaptation to cope with the short arctic summer. The usual "proof" is not courtship behavior during migration, but the observation that in late seasons pairs are encountered as soon as the species arrives on the nesting grounds. It may be unwarranted to discount this idea for shorebirds (proof exists for *Branta bernicla*), but extreme care should be used before invoking such behavior. My own unpublished data on Stilt Sandpipers, for example, in which year-to-year mate and territorial fidelity are high, indicates that the mates arrive independently in all seasons, but return immediately to the former territory where re-pairing takes place at once. In late seasons the mates arrive more nearly at the same time, which gives the appearance of an earlier pairing. Several workers have also found that mate and territorial fidelity are high in other species (including Dunlin; Soikkeli, 1967). In the Stilt Sandpiper females leave the nesting grounds before males. The hypothesis of en route pairing would have the mates meet and recognize each other somewhere during migration or on the wintering grounds, even though both were in vastly different plumage than on the breeding grounds. This is not an impossibility, but it is an unnecessarily complex explanation for a phenomenon that can be attributed to homing. Perhaps birds breeding for the first time may pair during migration, but I know of no evidence for that idea.

It should be clear that the above comments, in general, are not criticisms of Palmer's treatment, but of the often fragmentary literature available to him. Through his excellent synthesis Palmer has pointed out the gaps in our knowledge—which hopefully may be filled before the appearance of the forthcoming *Handbook* volume on shorebirds.—JOSEPH R. JEHL, JR.

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Oklahoma birds.—George Miksch Sutton. 1967. Norman, Oklahoma, Univ. Oklahoma Press. xlv + 674 pp., illus., col. frontis., $9\frac{1}{4} \times 6$ in. \$9.95.—In this volume Oklahomans can claim one of the most carefully documented and up to date state bird books and an important reference to the taxonomy, distribution, and ecology of birds of the southern great plains. Subtitled "Their ecology and distribution, with comments on the avifauna of the southern great plains," *Oklahoma birds* is indeed that, but it is also, like other Sutton books, a rather rambling and at times repetitious account of the author's opinions about, and life in, the world of birds. About half the contents fit well under the title and subtitle, but one-quarter should have been published in another of Sutton's adventures-with-birds volumes. The other one-quarter can be found in such comprehensive works as Austin's *Birds of the world* (1961) and Gilliard's *Living birds of the world* (1958), and a reasonable case might be made for not repeating it in *Oklahoma birds*.

The book pursues a standard format: acknowledgments, abbreviations of institutions, and persons cited as authorities for information and specimens are followed by a 25-page introduction, with two maps. An account of the ornithological history of the state ends with an outline of Sutton's own travels and studies therein. Dating from the 1930's, these became intensive in 1951 when he joined the zoology department of the University of Oklahoma. Following the introduction, each order, family, and species of bird actually or hypothetically occurring in Oklahoma is discussed. Characterization of orders and families reads as if it might have come from the author's lecture notes for a survey course on birds of the world. It is morphological, taxonomic, zoogeographic, and ecological, and is presented in informal conversational manner. Much of what does not fit under the title of the work, or need not have been republished, is in these characterizations. The species accounts begin with a statement of each form's status in Oklahoma (summer resident, transient, etc.), followed by a detailed documentation of that status. Supporting evidence in the form of records concerning status in adjoining states is often presented, where it serves to clarify the situation in Oklahoma. Finally for polytypic species, a taxonomic discussion includes comment on subspecies found in Oklahoma, individual migratory or other life characteristics of each, and often critical commentary on the races within the species in question based on comparison of specimens.

Sutton brings to taxonomic deliberation the studied and critical eye of the artist-scientist, who has made a career of closely examining freshly killed specimens of countless birds, and who has pored over thousands of museum skins. Especially in light of the soon-to-be-undertaken sixth edition of the *Check-list of North American birds* will his careful scouting of subspecies prove helpful.

The book accords 395 species full status; 33 hypothetical forms, based upon sight records of competent observers, are treated in regular phylogenetic sequence in the species accounts. The A.O.U. check-list is usually followed; deviations from it, noted

in the introduction and fully explained, include: use of Ralliformes for the rails, placement of the Shoveler in *Anas*, the Tree Swallow in *Tachycineta*, the "*Hylocichla*" thrushes (except the Wood Thrush) in *Catharus*, and the Cardinal in *Pyrrhuloxia*. Sutton quite properly, in my opinion, avoids formal taxonomic revisions in the book; instead he points out where reconsideration of current ideas might be in order (cf. Blue Jay), or where racial status is moot (cf. Rufous-crowned Sparrow). Some subspecific taxonomic problems that he deals with are largely academic and of little interest to modern systematists. Yet others are pertinent to studies of migration, behavior, or evolutionary problems in which exact determination of racial identity is essential. Attention to subtle details of subspecific determination might not be every biologist's cup of tea, but no one concerned with differential patterns of migration and distribution can afford to suggest that the use and refinement of techniques as practiced by men like Sutton should be abandoned.

Occasionally the gentle and conservative author does his own opinions a disservice by justifying them and then not honoring them, thus undermining our confidence in his views. He discusses the conspecificity of *Sitta pusilla* and *S. pygmaea* (Sutton, *Florida Nat.*, 22: 23-33, 1949) and reiterates his conviction that they are essentially the same birds and "that they will eventually be considered conspecific." Yet he retains both species in this work. After setting forth personal field observations suggesting the essential specific identity of the Snow and Blue Geese, he retreats to retention of specificity for them on the questionable grounds that no one summary concerning status and length of stay in Oklahoma obviously applied with equal force to both, [and that he continues] to suspect that two sets of genetic elements are involved." But regardless of occasional tentativeness, Sutton gives most forms of polytypic status really valuable analyses.

I am annoyed by several things in this book. Sutton is a master of or, if you will, is plagued by a penchant for setting down biologically interesting but irrelevant matter. The terms circumlocution, prolixity, and hyperassiduosity apply. The first two lend an amiable, informal atmosphere that will probably sell the book to many laymen not seriously or avocationally concerned with Oklahoma birds. (The book might serve or perhaps was intended to serve as many an Oklahoman's only book on birds, wherein he can find out much about birds in general as well as about Oklahoma birds.) Sutton is thus moved to discussions so remote from the title (or subtitle) as nesting habits of a Mexican swift (*Streptoprocne zonaris*) and the varieties of hummingbirds in South America. Prolixity leads to a disgraceful waste of pages such as in substantially overlapping discussions of the relationships and statuses of Black-capped and Carolina chickadees under *both* species, as well as in the family discussion. And hyperassiduosity results in the devotion of time, space, and text to exposition of the fact that Black-crowned Night Herons in Oklahoma represent the race *hoactli* rather than any of the other 10 races recognized by Peters' Check-list, none of which has ever been known to occur anywhere near to North America. Such attention to detail inadvisedly draws the attention of laymen to minor aspects of subspecies identification and even suggests that the problem is more than academic, that continued search might really turn up a European or Asiatic night heron blown far off course. It further suggests what I hope is not the case, that if Sutton did find a night heron in Oklahoma that had the measurements or color of an old World form, he would assign it to that race. Nevertheless, he does frequently emphasize that possibility. Under Cinnamon Teal he notes that besides the North American race there are two in Colombia, but that ". . . the only Oklahoma specimens available for measurement represent *septentrionalium*." In other cases where mensural analysis

has not been pursued, he states that Oklahoma specimens are *presumably* of the only race known to occur in the Western Hemisphere.

Devotees of Sutton's art will be disappointed that the only color plate is the head of a female Harlan's Hawk, used both as frontispiece and dust jacket figure). In partial recompense many line drawings in the text are reprinted from Pettingill's "Guides to bird-finding" (1951 and 1953). Some seem hastily done and lack the portrait-likeness that we expect from Sutton, at least in his wash drawings. The Osprey, Red-bellied Woodpecker, and Mockingbird are substandard to me, while the figures of magpie, loon, Black-head Grosbeak, and Scissor-tailed Flycatcher are fine indeed. One can only regret that money spent on the excess verbiage was not spent on a few more colored illustrations.

The volume is well printed on paper advertised in the front as having an effective life of 300 years. The binding is sturdy, but its pale blue color will easily soil. The book is essentially free of typographical errors or other technical faults of production. From a modern biological viewpoint it is somewhat short of Mengel's *Birds of Kentucky*, but it still ranks among the four or five best state bird books ever written.—JOHN WILLIAM HARDY.

Handbuch der Vögel Mitteleuropas.—Kurt M. Bauer and Urs N. Glutz von Blotzheim (edited by Günther Niethammer). 1966. Frankfurt am Main, Akademische Verlagsgesellschaft. Vol. 1 Gaviiformes—Phoenicopteriformes. Pp. 1-483, 70 figs., 6 tables. 48 DM (Subscription price 40.80 DM).—The publication of this volume opens a new handbook series on the birds of central (or middle) Europe designed to fill the niche left vacant by the long out-of-print and difficult to obtain *Handbuch der deutschen Vogelkunde* by Günther Niethammer. This new handbook has a far greater scope, both in geographical area and subject matter, than did Niethammer's earlier treatise, and must be regarded as an entirely new undertaking. The *Handbuch der Vögel Mitteleuropas* is to be published in 11 volumes; volume one covers the loons to the flamingos (inclusive), a total of 44 species. No attempt will be made to review critically the detailed contents of the species accounts (my knowledge precludes such an approach); such evaluation may be obtained by reference to reviews in European journals. Instead I shall concentrate on the general scheme and tone of the book.

The geographical area covered by this handbook cannot be defined by any simple political boundaries—central Europe is a vague but understandable term. The handbook will cover the species of birds found in the Netherlands, Belgium, Luxembourg, Germany, Switzerland, Austria, Czechoslovakia, and Hungary as mentioned in the discussion on distribution in central Europe on page 24 of the introduction. This information was found only after a long search and really belongs in the first paragraph of the introduction. The authors do not limit themselves rigidly to this area and treat fully many interesting aspects of distribution, breeding, or migration that may lie outside the geographical limits. However, discussion of these aspects of the biology of each species is given in the greatest detail for the region of central Europe. Birds accidental in central Europe, (e.g. albatrosses) are treated very briefly. The resulting approach is lean and balanced without extraneous material.

The classification is basically that of Wetmore and of Peters' Check-list, the species and subspecies following general works such as Niethammer, Kramer and Wolters' *List of German bird species* and Vaurie's *The birds of the palaearctic fauna*. A few problem species are discussed. Yet no strong position or undue worry is assumed concerning the exact classification and sequence to be followed in the handbook. A

key to the orders and suborders of central European birds is given using only obvious external features. Although the key appears to be accurate, easy to use, and inclusive (only a few exceptions are mentioned), it is rather extraneous since most users of the handbook would identify the birds found in central Europe directly to family if not to species. The overall distribution of each species is based mainly on the maps presented in Voous' *Atlas of European birds*. No attempt is made to include a distribution map for each species. Indeed, one of the most sensible decisions by the authors was not to duplicate the detailed material of recent and readily available sources, but to summarize the information and refer the reader to the source for further detail.

In species accounts worldwide distribution is given for the species followed by a list of the subspecies and their distributions. All detailed material on the biology of each species is given under the heading of subspecies found in central Europe.

Field identification characters given are limited mainly to special or peculiar features of age and sexual or seasonal variation, generally not covered in pocket identification guides. A detailed description of the plumage and other external features is given for each subspecies following the older system of breeding plumage, nonbreeding (= rest) plumage, immature plumage, etc., with the description of molts following the same system and starting with the first molt in the bird's life.

The description of the voice is based upon the usual phonetic representation. The comparison of the English (American) and German phonetic representations is most interesting; needless to say, a lot is lost in translation. One even wonders how successful this method is for German speaking people considering the range of accents from Helgoland to Neusiedler See. All phonetic methods have several limitations, and every effort should be made by authors to publish (or refer to) phonograph records or tapes of bird sounds to accompany handbooks. The problem has been eased greatly in this handbook by reference to Boswall's paper "A discography of Palearctic bird sound recordings" (*Brit. Birds*, vol. 57, special supplement, 1964).

A detailed account of the breeding region for the subspecies is given, including the extraregional area, followed by an account of the distribution in central Europe, the numbers and recent changes in numbers, colonies, etc. in central Europe and the migration and wintering grounds. All information on banding returns is given under the heading of migration. The habitat of each form is described with special attention given to the feeding habitat if it differs from the nesting grounds. The density, especially of breeding birds, is given in detail. The subspecies account continues with detailed treatment of reproduction including nest, clutch size, incubation and care of the young post-fledgling (all with the necessary dates), of nesting success, general life table and maximum age, of behavior including courtship and maintenance activity, and of food. Considerable attention is given to description of locomotion, methods of feeding, and other activities of birds that are essential for the student of morphology and other laboratory branches of ornithology, but which are seldom included in regional books. I, for one, urge the authors to further the excellent start they have made in this aspect of their handbook.

Literature citations are handled in several ways. Some citations are given within the text of each species account; most references are listed at the end of the species account or are listed at the end of the introduction; the last references are marked with an * in the text. The general bibliography in the introduction covers 26 pages and is divided into broad categories, such as weight, molt, voice, migration, etc. or according to geographical area. The references grouped in geographical areas cover the entire world, making this bibliography most useful.

Illustrations are used sparingly and only to illustrate more important and interest-

ing points of distribution, migration and behavior. No colored illustrations are used, which does not detract from the value of the book because the included species have been illustrated many times in color.

Doubtless this work contains errors, and specialists will catch obvious ones that I have overlooked, but I doubt that these will seriously detract from the value of the handbook. Anyone interested in probing deeper into the biology of any species found in central Europe will find the handbook an excellent guide to the pertinent literature. It is always tempting to compare the *Handbuch der Vögel Mitteleuropas* with the *Handbook of North American birds*, a temptation that I can easily resist because I do not have the knowledge to do so. These handbooks cover about the same scope of material, but do differ in several ways. Bauer and Glutz are its authors (it is not clear how great a part Niethammer has) while the *Handbook of North American birds* is a multiauthored work with Palmer having a real editorial task. I would like to make one general observation and comment. Partly because of the particular species covered in the first volume of each handbook, the duplication is extensive. Moreover, I am impressed with the large amount of information taken from papers published in English. Although the duplication will decrease greatly in volumes covering land birds, I really wonder about the value and sense of many different handbooks on the holarctic birds in view of the long time and great labor involved in these multi-volumed works. Many such projects have been started and never finished by the original author (if at all) not to mention the years an ornithologist must wait for the last volume to reach him. Moreover the thought of a number of handbook volumes covering "loons through flamingos" and nothing else is a bit unnerving. It would seem more sensible and even more practical for the authors and editors of handbook series (current and potential) to cooperate in dividing the task of producing a single handbook of holarctic birds (or any subdivision) which could be translated and published in several languages. Such a procedure would allow some of us to witness the publication of the volume covering the finches—or is it the crows, I forget—before our ornithological careers are over.

The *Handbuch der Vögel Mitteleuropas* is an important work for anyone interested in European birds, or birds in general. It is a work that should be in every library used by students of avian biology, although the price and extensive duplication with the *Handbook of North American birds* will preclude purchase by most individuals. I would urge every ornithologist to insist that the library of his institution obtain this work. I would also like to call attention to the reduced subscription price of 40.80 DM (about \$10.00 U.S. currency) per volume compared to the price of 48 DM (\$12.00) for volumes purchased separately).

No mention is made of the time required for completion of this volume nor of how much work has been completed on future volumes, but any reasonable calculation will put the completion date close to the end of this century. Dr. Bauer and Dr. Glutz are dedicated and energetic ornithologists well suited for the task they have set for themselves. All ornithologists will be indebted to them and to Professor Niethammer for undertaking this monumental task. They are to be congratulated for this outstanding opening volume.—WALTER J. BOCK.

The birds of Chile and adjacent regions of Argentina, Bolivia and Peru. Vol. 2.—A. W. Johnson. 1967. Buenos Aires, Platt Establecimientos Gráficos S. A. Pp. 447, 104 col. pls. (by J. D. Goodall), 68 photos (some in color), several maps. 6 × 9 in., cloth. \$22.50, available from Pierce Book Co., Winthrop, Iowa.—This volume, Laridae to Fringillidae, completes the Chilean handbook (for review of vol. 1, see *Auk*, 83:

490-491, 1966). The "adjacent regions" outside of Chile, as defined in accompanying maps, comprise the contiguous areas of high Andean avifauna, mainly above 12,000 feet but descending in southern Argentina to near sea level. Only 74 forms not yet recorded in Chile are added by including these areas; many of these forms are conspecific with Chilean ones. Chile is a country of seacoast and mountains, a narrow strip 2,600 miles long facing the Pacific, blocked off to the east by the Andes and to the north by the Peruvian desert. Despite a mild oceanic climate, these barriers have prevented entry by most of the characteristic tropical families and genera, which in Argentina extend into south temperate latitudes. The isolation of Chile has promoted endemism. Chile is the main center for the Rhinocryptidae, and is rich in Furnariidae and certain Tyrannidae, such as the ground-tyrants and tit-tyrants (*Muscisaxicola* and *Anaeretes*), and Andean Fringillidae, including the yellow-finches and sierra-finches (*Sicalis* and *Phrygilus*). The siskins (*Spinus*), presumably of Old World ancestry, are represented by five species.

The format follows that of volume 1, but for the passerine species and subspecies a brief diagnostic description is provided; for nonpasserines identifying field-marks or other characteristics are mentioned in the general account. The text, informal and readable in style, reflects a lifetime of experience in the field with the birds of Chile, which makes this work (and its predecessor, *Las Aves de Chile*) of unique usefulness among the South American bird books so far published. The author gives information not only on distribution and ecology, but on relative abundance, migration, general behavior, and especially nesting. For most Chilean species he supplies data on nest and eggs (illustrating a total of 88 in the two volumes). Color pictures of birds, usually in their habitats, depict at least one species of almost all genera. Although as a bird artist Mr. Goodall is an amateur without pretense of professional polish, he knows the Chilean avifauna. The midwinter torper of *Sephanoides sephanoides*, the commonest Chilean hummingbird, is described and supported by photographs. An addenda section contains additional information on members of the non-passerine groups treated in volume 1 (1965), notably on the flamingos, the parasitic duck, *Heteronetta*, and two birds of prey, *Buteo poecilochrous* and *Falco peregrinus cassini*.

In the interest of uniform usage, Mr. Johnson has generally adopted in this volume the English species names selected in de Schauensee's *The species of birds of South America* (1966); the addenda includes a list of name changes from those used in the earlier volume. To avoid confusion by a reader, it should be noted that, as seems inevitable of a work in English published in South America, a few names have been misprinted or suffered orthographic alterations (e.g. "Black-bellied" for Black-billed Shrike-Tyrant, and in the addenda list "White-Rumped" for Wedge-rumped Storm-Petrel and "Black-Necked" for Buff-necked Ibis). The scientific names suffer occasional misprinting or transposition of letters, usually self-evident except possibly in the case of *Idiopsar brachyurus*. These are very minor matters in a book of exceptional value. Visitors to Chile, as well as ornithological students elsewhere, can be grateful to Mr. Johnson for this fine account of the avifauna.—E. EISENMANN.

Of predation and life.—Paul L. Errington. 1967. Ames, Iowa State Univ. Press. Pp. i-xiv, 1-227. 6 × 9 in. \$6.95.—In this book Errington summarizes 33 years of work on the Bobwhite, the muskrat, and their predators. His major conclusions are that intolerance of crowding, such as is evident in territoriality, forces animals above some threshold number to occupy inferior habitat. These are the animals, few or many, that are likely to be taken by predators while the rest of the population lives in virtual security. Populations, then, are self-limited by social interactions and

are not limited by predation. The factors by which populations increase and decrease show, to use Errington's word, intercompensations: heavy predation may not mean the decimation of a population, but merely that few of its members die of starvation; heavy losses of eggs may result in reneating that otherwise would not have occurred.

In chapter 8 appears a sentence that by its content tells something of Errington's methods and by its flavor suggests the pleasure he took in their practice: "Then when year-to-year figures are down on paper—tabulated, worked and reworked, statistically refined, plotted against each other on coordinate paper, spread out to ponder over—some results may turn as expected and some might be a surprise." It is not always easy to follow the process of working, refining, and pondering by which Errington's conclusions emerged from his data. One might suppose that on the 4,500-acre Prairie du Sac study area the numbers of Bobwhite at the end of the winter would be rather constant, reflecting fairly faithfully the threshold of security. But the spring numbers varied from 39 to 339. Errington's explanation is first that *threshold of security* refers to the number of animals that can live safe from predators when the situation is not "complicated by weather emergencies." Severe weather might result in deaths from starvation or predation that reached far below the threshold. Second, the threshold changed; in fact, there appeared eventually to be three thresholds, one extremely low that occurred during the years of the cyclic lows that are said to be shown by grouse and hares in the north-central region of North America.

Even if one disagrees with Errington's conclusions or, agreeing with them, is uncertain that they provide a fundamental understanding of the processes determining the size of populations, the book is well worth reading. There are not many publications that present as this book does, in a context of accurate knowledge of population size, what actually happened to real animals.

The book deserves and was written in the evident expectation of an audience wider than professional students of populations. Before proceeding to the author's work on Bobwhite and muskrats, it deals with such topics as how predators catch their prey and how food habits are studied. Three chapters discuss predation on grouse and pheasants, waterfowl, and mammals other than muskrats. In the last chapter Errington writes of the place of predation and predators in nature and in the life of man. Errington's writing is not often verbally memorable, but it does sometimes evoke scenes that stick in the mind, such as young muskrats dying of a fungus disease, heard whimpering in their lodges by a passing mink, or the author as a small boy resolving not to go out alone in the countryside after seeing a coyote-mutilated sheep.

The text is attractively spaced with vignettes and full-page drawings by Dycie Madson.—RICHARD BREWER.

Birds of the Niagara frontier region.—Clark S. Beardslee and Harold D. Mitchell. 1965. Bull. Buffalo Soc. Nat. Sci. **22**: 1-478. Available from the society, Humboldt Park, Buffalo, New York 14211. \$10.00 (paperback, \$9.00).—If ever an account of the avifauna of any North American area was well prepared and neatly produced and could be cited as a model for efforts of its kind, this is it.

Beardslee (who died in 1957) and Mitchell, veteran Buffalo ornithologists, have produced a detailed and carefully documented summary of the ornithological picture that should long stand as the authoritative work for the region. The Niagara frontier extends about 95 miles south from the south shore of western Lake Ontario and embraces at least parts of eight New York State counties, and three counties in the province of Ontario. From east to west, the region varies from 70 miles in width in the north to 104 miles in width in the south.

The authors give full status to 375 species for the region, including unfortunately many that remain to be confirmed by a specimen. Of the 375, 178 are considered to breed there. Chapters dealing with the history of ornithological work in the area, the life zones and selected habitats, the places of particular interest to the student of birds, a bibliography, map, and an index, supplement the main text (pp. 79-451), which consists of the well-annotated list of species and their statuses, seasons of occurrence, average and peak dates of abundance, maximum daily totals, and breeding records. Of the rarer species, photographs of either the birds in life (Smew, American Oystercatcher, Black-headed Gull, Black-legged Kittiwake, Thick-billed Murre, Hawk Owl, Boreal Owl) or of the mounted specimens (Ruff, Lesser Black-backed Gull) are included.

In criticism, I would have preferred to see the various subspecies occurring in the region included under a single specific heading, rather than under separate headings as the authors have done. It also is unfortunate that the Slender-billed Curlew (no North American record) was included, on the basis of an unlabeled mounted bird. The specimen was allegedly shot at Crescent Beach on the Ontario shore of Lake Ontario one fall day about 1925 by Dr. I. L. Terry (since deceased), but subsequent investigation has apparently shown the record "unsatisfactory" (Palmer, in *Shorebirds of North America*, 1967, p. 189).

Finally, the Worm-eating Warbler collected at Morgan's Point, Ontario, in 1949 does not constitute the "first specimen from Ontario"; the Royal Ontario Museum has a skin from London, Ontario, taken in 1908. These slight faults do not detract seriously from the overall excellence of the book. Ornithologists are heavily indebted to the authors for a splendid contribution and to the Buffalo Society of Natural Sciences for making it available.—JAMES L. BAILLE.

ALSO RECEIVED

Enjoying birds around New York City.—Robert S. Arbib, Jr., Olin Sewall Pettigill, Jr., and Sally Hoyt Spofford, for the Laboratory of Ornithology, Cornell University, Ithaca, New York. 1966. Boston, Houghton Mifflin, 171 pages. \$4.50.—Since most of my bird observations for 30 years were concentrated around New York City, I was naturally eager to see this book. It exceeded by expectations. The presentation throughout is well planned; the beginner will find it indispensable, the more advanced very helpful. The entire volume is so well executed that I had difficulty singling out the following sections as the most valuable:

(1) *Where to Find Birds Around New York City.* The first section stresses the habitat preferences of various birds, which must be well understood for success in bird finding. The second part listing the better birding spots will be invaluable to all visitors and newcomers, as well as to trip leaders for the many bird clubs in this populous area.

(2) *A Checklist and Calendar Graph* outlines the time of year when each of 300 species may be found.

(3) *A Birdwatcher's Calendar* is a valuable month by month outline of what to expect during the ornithological year. Everyone who owns this book will find himself repeatedly referring to this section.

(4) *Calendar For A Big List of Birds* outlines a flexible week by week plan for seeing the greatest number of species around New York City, where keen birders average 240 to 275 annually.

Enjoying birds around New York City is an exceptional area bird guide—the first book all birding newcomers and visitors to New York City should possess. The Cor-

nell Laboratory of Ornithology and the authors and illustrators must be congratulated for producing a handsome and down to earth book that is slated to become indispensable to the New York region birder, and a standard for other regions to follow.—
ALLAN D. CRICKSHANK.

Hawaii's birds.—Hawaii Audubon Society (revision by Michael Ord and John Bowles). Honolulu, Hawaii Audubon Society. 1967. 88 pp., 72 color photos, 3 maps, paper cover. 5×7 in. Available in continental United States from the Society, P. O. Box 5032, Honolulu, Hawaii 96814. Price \$2.00.—This highly attractive little book should prove an excellent supplementary field companion to one's regular field guide in Hawaii. This edition of an out-of-print work entitled *Hawaiian birds* (1951) first discusses and illustrates 74 species (only listing another 41 migratory forms considered casual or accidental—mostly water, shore, or wading birds). The second section lists and gives the general status of an additional 33 species, game birds of galliform or columbiform type, that have been introduced and vary from "locally established" to "failed, no recent sightings." Finally a list of "other introduced birds" includes the Barn Owl, established on Hawaii and Kauai, the Guam Swift, introduced but considered to have failed on Oahu, plus ten ploceids and the Indian Hill Mynah, all illegally released and variously common at Diamond Head and Kapiolani Park.

In the main species accounts, each form is illustrated by a color photograph (most are by Ord and of excellent quality) of the bird in the wild, or, in the case of rare Drepanidids, as depicted in color plates in books by Wilson and Evans and Rothschild). Color maps of the four large Hawaiian Islands contain directions for reaching the most accessible birding areas on each island, and are accompanied by lists of birds that one can expect to see there. For each species the English common name and when available the Polynesian name are given plus the scientific name. Then distribution, description, voice, and habits are treated. Each species is confined to one page or less.—J. W. H.

Australian birds in colour.—Keith Hindwood. 1967. East-West Center Press, Honolulu, Hawaii. 112 pp., 52 col. pls. $6\frac{7}{8} \times 7\frac{3}{8}$ in. \$3.95.—Members of 52 species of Australian land birds are shown in full page color photographs, beautifully reproduced. Each plate is accompanied by a page of basic information, mostly on the natural history of the species. Many of the birds are shown at their nests, and all are identified by common and scientific names. A handsome little book for the bird lover's library.—M.L.M.

Les Échassiers.—Paul G  roudet. 1967. Delachaux et Niestl  , 32 Rue de Grenelle, Paris. 228 pp., 24 col. pls. (by P.-A. Robert), 12 photographs, 53 drawings, 5×7 in. No price given. This book is in French and covers the ciconiiforms, gruiforms, and charadriiforms of France.—A field guide, nicely illustrated, and with rather more extensive text on the natural history of the various species than one is accustomed to in a pocket book.—J. W. H.

Guide des Oiseaux d'Europe.—Roger Peterson, Guy Mountfort, P. A. D. Hollom, and Paul G  roudet (editor of French adaptation). Delachaux et Niestl  , 32 Rue de Grenelle, Paris. 447 pp., illus. in col. and black and white, with range maps. No price given.—The French edition of the recently revised and well known "Peterson field Guide to the birds of Britain and Europe."—J. W. H.