

ORNITHOLOGICAL LITERATURE

HANDBOOK OF NORTH AMERICAN BIRDS. VOLUME 1, LOONS THROUGH FLAMINGOS.

Edited by Ralph S. Palmer. Yale University Press, New Haven, 1962: 7¼ × 10¼ in., x + 567 pp., 6 col. pls., numerous maps and figs. \$15.00.

This is the first of a projected series of about ten volumes which will concisely summarize the natural history of the avifauna of North America, exclusive of Mexico. Volume 1 of the Handbook includes much of the data contained in the earliest two volumes of Bent's classic "Life Histories of North American Birds," in addition to a considerable amount of information which has accumulated since that work was begun over forty years ago. The format of the Handbook is markedly different, however. Lacking is the emphasis on subspecies, the lengthy quotations, and the chatty informality that characterize Bent's work and which, while making for entertaining reading, often obscure important material and make quick reference an impossibility. In contrast, the style of the Handbook is stark and crisp, almost telegraphic, with the subject matter rigidly compartmentalized, permitting the prompt location of specific information.

Twenty-five collaborators have contributed to the volume. Their command of the subject matter is varied. Some, such as A. J. Meyerriecks, whose special field is the behavior of herons, have made valuable original contributions. Others have presented pedestrian summaries of published material. In spite of the variability in coverage, R. S. Palmer, the dedicated and conscientious editor, has achieved great uniformity in style and treatment throughout the volume; his elutriating touch is evident down to the smallest detail.

Palmer's concern for consistency and his carefully laid groundwork are apparent in the Introduction, where the scope of the Handbook is precisely delineated and methods, concepts, and terms are defined and standardized. For example, various egg shapes are illustrated and named; there is a brief discussion of avian survival and its specialized terminology; and there are three pages of outline drawings illustrating the topography of birds and how various measurements are made. There is, however, no section on anatomy. While internal morphology is lightly treated in the Handbook, there are paragraphs which will be nearly incomprehensible to readers who are not anatomists. This is demonstrated on the two pages following the Introduction, where ordinal characters for the loons through the ducks are summarized in a table. It is the rare reader who will fully understand what is meant by the diagnosis, for instance, that the Ciconiae have holorrhinal or schizorrhinal, pervious (in ours) nostrils; a desmognathous palate; thigh muscles with the formulas of $AYX\pm$, $XY\pm$, or $ABYX+$; type 1 deep flexor tendons; A-1 (in ours) carotid arteries; and no basiptyergoid process. If we may have the formula (p. 14) for a bicone ($L(R_B + R_p)/B^2-1$), even though the editor believes (p. 1) that the simple statistical measures of standard deviation and standard error "usually are beyond the scope" of the book, it would not seem inappropriate if we were told a little about A-1 carotid arteries and $ABYX+$ thigh muscles.

Of serious consequence is the editor's decision to adopt, with minor modifications, Humphrey and Parkes' recently introduced nomenclature for plumages and molts (*Auk*, 76:1-31, 1959). The system attempts to assign uniform names to homologous plumages and molts in all groups of birds, leading to the wholesale replacement of familiar terms, developed and used by several generations of ornithologists. If it were merely a matter of name-changing to achieve ultimate uniformity, a strong case could be made for adopting the Humphrey-Parkes terminology in the Handbook. However, the evolutionary premises on which the system is based have been sharply criticized and may be incorrect. The virtual imposition of this nomenclature on American ornithology seems premature. Its adoption

is especially surprising in view of the conservative approach of the editor in other areas, such as his choice of the Wetmore taxonomic sequence, which Palmer explains (p. 1) is being used because "Rather than substituting other uncertainties for a widely used classification, it seems better to begin with the latter and make departures where warranted."

Another notable innovation in the Introduction, and one which is welcome, is a color chart, prepared by J. Villalobos, which will probably become the new standard, replacing Ridgway's classic, and now virtually unobtainable, "Color Standards and Color Nomenclature" (1912).

The emphasis of the Handbook is on the species rather than on higher taxa. However, a brief characterization introduces each order and family. Morphology, especially in the discussion of the orders, is usually the central theme, but behavior, distribution, and the fossil record in North America are touched upon.

Each species account is preceded by a paragraph succinctly describing the bird in non-technical language, giving its measurements in the English system, noting whether it is sexual dimorphic, and similar information. This is followed by longer accounts, in staccato style, falling into the following categories: description; subspecies; field identification; voice; habitat; distribution; migration; banding status; reproduction; survival; habits; and food. Key words (e.g., territory; copulation; clutch) are in boldface type, facilitating quick reference. These accounts vary greatly in length, depending on the complexity of the subject and the information which is available. The section on survival frequently is omitted and the section on banding often is reduced to such biologically useless statements as (p. 200), "Through 1957, total of 386 banded, with 2 recoveries and returns; banded in W. Indies." The distribution map which accompanies each species' account is good; details not readily mapped are noted in the text. The extraterritorial ranges are broadly sketched, both on the map and in the text, and occasionally are slightly inaccurate. Measurements and weights, given under "Description," are sometimes based on the literature but more often were purposely taken from museum specimens for the Handbook. The samples are rather small; only ranges and averages are given, whereas for eggs (under "Reproduction") one specimen from each of twenty clutches has been measured and the mean and standard deviation of the length, breadth, radius of curvature of each end, and elongation are presented, as well as the measures for bicone and asymmetry.

There are six color plates in the book; two by Roger Tory Peterson and four by Robert M. Mengel. Those by Peterson (Northern Fulmars; heads and legs of herons) are precise and almost photographic, while those by Mengel (frigate-birds and pelicans; heads of cormorants; herons; and ibises) are less detailed and almost crude by comparison. The two plates depicting soft parts are useful adjuncts to the text. The other four are embellishments and wasted opportunities to provide illustrations unavailable elsewhere.

Scattered through the book are black and white drawings by Mengel. Some are purely decorative (e.g., a shearwater shown with a lizard; Black-crowned Night Heron on pilings) and informative only in the widest sense, but the majority illustrate physical features (e.g., head of Red-necked Grebe in three plumages) or ethology (e.g., Gannets; Western Grebes) and are useful.

Eleven pages packed with references and an index, mainly to scientific and vernacular names, conclude the volume.

There is not the slightest doubt that the appearance of the first volume of the Handbook marks an important milestone in American ornithology. However, since the Handbook is "sponsored" by the American Ornithologists' Union, there is the strong, unfortunate, possibility that many users will come to look upon this work as the *ultima ratio*. It should be emphasized that while the Handbook is sponsored by the AOU, there is little formal

scholarly support from that organization and that the content and organization of the book are the responsibility of the editor. The Handbook does not necessarily represent the consensus of the AOU in the same manner as the Union's "Check-list of North American Birds," which, for better or worse, is the product of a committee's deliberations. In the present volume the editor's prejudices and prerogatives are much in evidence, as they should be when he bears sole responsibility for the book. In a sense, therefore, this is not the AOU's Handbook but rather "Palmer's Handbook."

In the initial stages of any mammoth undertaking there are bound to be errors in judgment and some ineffective groping. It is also certain, no matter what efforts are made, that not everyone will be entirely pleased with the results of any attempt to summarize all the available information on a topic. I have stressed those areas which seem less satisfactory to me, but this should not obscure the fact that the Handbook is a valuable work which, perforce, will be the core of any library on North American birds. In spite of what this reviewer believes are a few errors of decision, which might not have occurred had there been an editorial board, accolades are due Dr. Palmer for a difficult task skillfully done.

—RAYMOND A. PAYNTER, JR.

CHECK-LIST OF BIRDS OF THE WORLD. A Continuation of the Work of James L. Peters. Volume 15. Edited by Ernst Mayr and James C. Greenway, Jr. Museum of Comparative Zoölogy, Cambridge, Massachusetts, 1962: 6½ × 9¼ in., x + 315 pp. \$7.50.

As mentioned in my review of Volume 9 of this check-list (1960. *Wilson Bull.* 72: 415-419), a combination of circumstances has made it necessary to publish the volumes out of numerical sequence. Thus, although the present volume is the last numerically, six others remain to be published.

Several statements in my earlier review (*q.v.*), covering such matters as indispensability of the work as a reference, controversial sequence of families, inevitability of taxonomic disagreement in particular cases, attractive format, and general excellence of proofreading (this volume, like Volume 9, was printed in Denmark), apply equally to the present volume and need not be repeated.

Several shortcomings of Volume 9 have been corrected in Volume 15; one notable improvement is the addition of the names of the authors on the title page and table of contents. Authors in this volume and the families for which they were responsible are as follows: E. Mayr (Grallinidae, Artamidae, Ptilonorhynchidae, Paradisaeidae); D. Amadon (Sturnidae, Callaeidae, Cracticidae); C. Vaurie (Dicuridae, Old World Corvidae); J. C. Greenway, Jr. (Oriolidae, Palearctic and Indian Ploceidae); R. E. Moreau (African and Indian Ocean Ploceidae); E. R. Blake (New World Corvidae).

The introduction states that "the authors and editors have attempted to solve the vexing problem of the application of English names by employing those used in the following publications—and in these only: American Ornithologists' Union's Checklist of North American Birds, Fifth edition (1957); Peterson, Mountfort, and Hollum's Field Guide to the Birds of Britain and Europe (1954); Royal Australasian Ornithologists' Union's Official Checklist of the Birds of Australia (1926); The Ornithological Society of New Zealand's Checklist of New Zealand Birds (1953); and Vincent's Check List of the Birds of South Africa (1952)." This solution appears to this reviewer as both arbitrary and unsatisfactory. As mentioned in my review of Volume 9, standard reference books in English are available for virtually all parts of the world's avifauna, and selection of an English name for use in the Peters Check-list would help greatly in stabilizing usage where several alternative English names exist. The arbitrary nature of the present arrangement is nowhere

illustrated better than among African birds, for which the political boundary of South Africa determines whether or not a species shall have an English name. And even then the "policy" is not followed consistently. Thus we have 16 species of *Euplectes*, of which only four are allotted English names, although an additional five species occur in South Africa and are given English names by Vincent. Only one of the six species of *Spreo* occurs in South Africa, so *Spreo bicolor* alone rates an English name (although each of the other five species is found in at least one former British colony). The U.S.-Mexico border forms another arbitrary division, so that *Aphelocoma ultramarina*, which occurs in the U.S., may be known as "Mexican Jay," while *A. unicolor*, which does not, gets no English name (although English names for it are available in the literature). I repeat my previous conclusion that English names should be applied to all species or to none in a check-list in the English language.

No new taxa appear to be proposed in this volume; the only new nomenclatorial matter I found was the designation for the first time of a type species for *Ploceolus* Reichenbach, a synonym of *Ploceus* Cuvier. A two-page section of addenda lists two species of Cisticolidae inadvertently omitted from the main section, plus seven recently described subspecies, three of which were published after the manuscript completion date of 31 December 1960. I have already indicated (op. cit.: 417) my reasons for believing that a closing date should be faithfully observed once set.

It is interesting to note that the taxonomy of certain families in this volume, especially at the generic and specific level, would probably have been handled quite differently had the manuscript been prepared a decade or two ago. The Sturnidae, for instance, were reviewed twice by Amadon (1943. *Am. Mus. Novit.*, No. 1247:16 pp., 1956. *Am. Mus. Novit.*, No. 1803: 41 pp.). In 1956 he admitted four genera not recognized in his 1943 paper, while synonymizing one previously recognized genus. His treatment of the starlings in the Check-list follows his 1956 paper, except that he has replaced "*Coccycolius*" *iris* in *Lamprotornis*, where he had listed it in 1943, rather than retain a monotypic genus as in the 1956 paper. He has also somewhat rearranged the sequence of the mynah genera *Basilornis*, *Streptocitta*, *Sarcops*, and *Mino*, now placing *Mino* first instead of last in this group.

The same tendency away from "lumping" can be seen in the Corvidae. Blake and Vaurie admit the following genera not considered separable by Amadon in 1944 (*Am. Mus. Novit.*, No. 1251:21 pp.): *Aphelocoma*, *Cissilopha*, *Cyanolyca*, *Urocissa*, *Dendrocitta*, *Temnurus*, and *Pseudopodoces*. On the other hand, when comparing Mayr's present treatment to that in his "List of New Guinea Birds" (1941. *Am. Mus. Nat. Hist.*:260 pp.) we find the same genera of birds of paradise, and one less genus of bowerbirds (*Xanthomelus* now included in *Sericulus*). In other cases, recent monographs or reference works are followed closely. Greenway adapted his list of Indian ploceids from an unpublished manuscript by Salim Ali and the Palearctic ploceids from Vaurie's 1959 Palearctic check-list. Vaurie's treatment of the drongos follows his monograph (1949. *Bull. Am. Mus. Nat. Hist.*, 93:199-342) very closely, except for the suppression of three subspecies and the addition of one described in 1952. This reviewer was pleased to see that the editors did not accept the alphabetic "classification" of the African ploceids originally announced for the Peters Check-list by Moreau (1960. *Ibis*, 102:467-468).

It seems to this reviewer that a particularly large number of subspecific names are relegated to synonymy in this volume. Paynter (1962. *Wilson Bull.*, 74:302) commends Ripley for the frequent use in his Indian check-list of footnotes explaining differences of opinion, the reasons for changes, etc., a commendation with which I heartily concur. In the case of the large number of names appearing in synonymy in the Peters list, a significant aid to the taxonomist reader would be the use of symbols as employed by Vaurie in his

check-list of Palearctic birds, to indicate which names were synonymized on subjective and which on objective grounds. A consistent symbol, also as used by Vaurie, to indicate weakly marked but separable races would eliminate the occasional text statements (cf. *Petronia petronia exigua*, p. 25—"A poorly marked subspecies") which have been employed most inconsistently.

Detracting scarcely at all from the usefulness of the present volume are several other inconsistencies of usage. Altitudes of type localities are frequently given in modern descriptions of new forms; these are sometimes quoted in the present check-list (*Cyanocorax dickeyi*, 5,200 feet; *Perisoreus canadensis bicolor*, 3,000 feet) and sometimes not (*Cyanocorax violaceus pallidus*, [100 meters]; *Perisoreus canadensis connexus*, [6,800 feet]). An error in spelling of the type locality in the original description of *Cyanocitta cristata cyanotephra* is duly transcribed, adding "(sic)," while a similar error in the original description of *Corvus sinaloae* was overlooked. Amadon explains fully in a footnote (p. 75) his reasons for using the spelling *Aplonis* rather than *Aplornis*, whereas Mayr (p. 188), although correctly using Lesson's original spelling *Seleucidis*, does not explain that the literature of the birds of paradise and of New Guinea birds virtually unanimously uses Gray's invalid emendation *Seleucides*; readers without access to Lesson's original (1835) description may wonder at the unaccustomed spelling.

The number of references to important papers covering birds of the families treated has been greatly increased, and the scope of these references usefully expanded to include life histories as well as purely taxonomic and distributional papers. In most cases, general and regional papers are listed at the head of the family, while papers on particular genera and species are listed under the appropriate generic heading. In the case of the Oriolidae, however, all references are listed under the family heading, even though some papers cover only a few species, or even only part of a single species. This arrangement is less useful than the placement of the references near the species concerned.

As mentioned earlier, typographical and other errors seem gratifyingly uncommon. I append a list of a few errors I have found, not in a spirit of criticism, but as a service to those who may wish to make corrections in their copies.

P. 15, line 26—for Ab, el Kuri read Abd el Kuri.

P. 18, line 36—for Transvaall read Transvaal.

Pp. 21-22—overlooked name: *Passer montanus manillensis* Hachisuka (1941. *Tori*, 11:88. Manila, Luzon, Philippines), which should be a synonym of *P. m. saturatus*, the race introduced around Manila (*P. m. malaccensis* is, as correctly stated, the race introduced in Cebu). See Parkes, 1959. *Ibis*, 101:243-244.

P. 74, line 20—for description read designation.

P. 209, line 11—for "near Summerhaven, Santa Catalina Mountains, Carter County" read "Carter Canyon, near Summerhaven, Santa Catalina Mountains."

P. 210, line 11—for 1955 read 1954.

P. 229, line 2—for *lancelatus* read *lanceolatus*.

P. 269, line 21—for *IMPERATUS* read *IMPARATUS*.

P. 276, last line of footnote—for homonym read homonym.

P. 284—names in the addenda are listed in the index under the page number of the main text where these names would normally appear, rather than under the page number of the addenda. There are footnotes on these text pages referring the reader to the addenda. However, two names (*hercules*, *Cracticus* and *rosa-alba*, *Strepera*) appear only in the addenda, and are not referred to on the pages under which they are indexed.

In my review of Volume 9, as well as in my review of Vaurie's list of Palearctic birds (1959. *Wilson Bull.*, 71:286-288) I gave a summary of differences from AOU treatment

for the benefit of interested readers of the *Wilson Bulletin*. In the present volume, other than the two introduced species each of Sturnidae and Ploceidae, the only North American birds are the Corvidae. Blake's treatment differs from that of the AOU as follows:

1. Subfamilies are not recognized within the Corvidae.
2. *Perisoreus* is placed not as the first (presumably most primitive) of the genera of jays, but between the Old World jays (*Garrulus*) and the Blue Magpies (*Urocissa*).
3. *Perisoreus canadensis sanfordi* and *P. c. barbouri* are considered inseparable from *P. c. nigricapillus*.
4. Subgenera are not recognized within the genus *Aphelocoma*.
5. *Aphelocoma coerulescens oocleptica* includes *A. c. "superciliosa"* of the AOU Check-list (not of Strickland).
6. *Aphelocoma coerulescens cactophila* is considered inseparable from *A. c. hypoleuca*.
7. *Corvus corax clarionensis* is considered inseparable from *C. c. sinuatus*.
8. *Gymnorhinus* is placed at the head of the New World jays instead of between the nut-crackers and the crows (see Amadon, 1944, *Am. Mus. Novit.*, No. 1251:8).
9. The incorrect spelling *cianocephala* (in *Gymnorhinus*) is given, following the AOU Check-list, but see Wetmore, 1962, *Auk*, 79:494 for correction.

The authors, editors, and printers of the continuation of the Peters Check-list are to be commended for the general excellence of the latest volume. It is hoped that they will take into consideration the constructively meant criticism and suggestions by this and other reviewers as each of the remaining volumes approaches publication.—KENNETH C. PARKES.

THE MALLEE-FOWL: The Bird That Builds an Incubator. By H. J. Frith. Angus & Robertson Ltd., Sydney, 1962: 5¾ × 8¾ in., xii + 136 pp., 34 photos., 4 figs. 35s. (about \$4.20).

This well-written popular account of the remarkable Australian Mallee-fowl (*Leipoa ocellata*) summarizes nearly a decade of ecological analysis by Frith and reviews pertinent information for other species of megapodes. Topics include incubation of the eggs in mounds, behavior of adults in regulating mound temperatures, social relations, territories, breeding seasons, eggs, chicks, predation, evolution of the reproductive habits, and conservation. A wide variety of techniques was employed, ranging from soil analyses to spotting mounds from aircraft. The accuracy with which the Mallee-fowl and its habitat are portrayed is impressive to this reviewer who spent about eight weeks in the mallee region in 1960. My only disappointment was the poor reproduction, at least in the review copy, of a few photographs. The book is the first ever devoted exclusively to megapodes and is an excellent contribution to the literature of natural history.—GEORGE A. CLARK, JR.

FUNCTIONAL ANATOMY OF THE FEEDING APPARATUS IN WATERFOWL. (Aves: Anatidae).

By Donald C. Goodman and Harvey I. Fisher. Southern Illinois University Press, Carbondale, 1962: 6 × 9 in., xi + 193 pp., 11 figs., 40 tables. \$6.50.

Professors Goodman and Fisher have made another fine contribution to the literature of avian anatomy in their latest joint work. Their book presents a thorough analysis of the feeding apparatus and the feeding habits of 17 species in 14 genera of anatids (*Cygnus*, *Branta*, *Dendrocygna*, *Anas*, *Spatula*, *Aythya*, *Bucephala*, *Clangula*, *Melanitta*, *Oxyura*, *Lophodytes*, *Mergus*, *Cairina*, *Chloëphaga*).

The anatomical features discussed in detail include: epidermal structures of the bill, osteology of the skull, muscles of the jaws and anterior third of the neck, extrinsic tongue muscles, pertinent ligaments of the skull, and the kinetics of the upper jaw. The 40 tables

in the text present a wealth of data both on measurements of the basic anatomical features and on ratios among them. The most significant aspect of this book is the emphasis throughout on functional anatomy and the adaptive significance of differences found among the various species. Of special interest are the tables that present indices of the total effective forces of the individual jaw muscles.

Goodman and Fisher's book contains so much detailed information that summarization in a short review is impossible. A few of their conclusions, however, will be of general interest to ornithologists:

"There appears to be a direct correlation between the total effective force of the functional muscle groups and the differences in feeding behavior in the family Anatidae. The grazers (*B. canadensis*, *B. nigricans*, and *C. hybrida*) all have a relatively large total effective force of adduction and of retraction. A forceful closure of the bill is necessary to hold grass firmly in the bill so that when the head and neck are drawn down and backward, the grass will snap off rather than pull out of the bill" (p. 169). "The canvasback has the greatest potential ability to close its jaws of any of the known strainers. . . . The shoveler has the least potential ability to adduct and to retract its jaws. However, its extreme specialization for straining food from the water, as demonstrated by the large amount of plankton in its diet, does not require strength for the closing of the jaws" (p. 170).

"Those anatids that are highly specialized for straining, as the shoveler, green-winged teal, and ruddy duck, are small in size. This type of food habit probably will not support a large body size. (The whales are a notable exception.) The canvasback, mallard, and surf scoter are larger in size and therefore have a stronger functional potential in their jaws. They can eat more difficult-to-obtain foods than the other ducks in the straining group" (p. 172).

In general, the grazers have the smallest amount of kinetic action (the movement of the upper jaw around the frontonasal hinge); "the fish-eaters have the largest potential movement of the upper jaw, and the straining anatids are intermediate between these two feeding groups in degree of kinetics. . . . In general, the trend appears to be an inverse relationship between relative bill height and degrees of movement of the upper jaw" (p. 176).

"The manner of feeding of the anatids can be divided into two major functional types. The grazers (Canada goose, black brant, kelp goose, and mute swan), the sea-diving ducks (surf scoter, goldeneye, and oldsquaw), and the fish-eaters (the mergansers) use a powerful adduction of the jaws, the *grasping-action*, to secure the major portion of their food. The dabbling-strainers (mallard, green-winged teal, and shoveler) and the diving-strainers (lesser scaup, canvasback, and ruddy duck) use a less powerful, but rapid opening and closing of the jaws, the *straining-action*, to obtain most of their food. The Muscovy duck and the black-bellied tree duck seem to be functional intermediates between the grazers and strainers" (pp. 177-178).

"The pattern of the jaw muscles in the members of the family Anatidae is quite homogeneous. Only in *M. merganser* and *L. cucullatus* are there major anatomical variations that alter the muscle pattern" (p. 181). The mergansers share certain osteological and myological characters "in common and distinct from the other anatids."—ANDREW J. BERGER.

A FIELD GUIDE TO WESTERN BIRD SONGS: Western North America and the Hawaiian Islands. Arranged to Accompany, Page by Page, Roger Tory Peterson's A Field Guide to Western Birds, 2nd Edition. By William W. H. Gunn and Peter Paul Kellogg. Houghton Mifflin Company, Boston, 1962: album, 12½ × 12½ in., with table of contents; 3 12-inch vinylite records, 33⅓ r.p.m. \$12.95.

Superlative statements are risky, but surely "A Field Guide to Western Bird Songs" contains the largest collection of bird sounds ever gathered into one phonograph record album. Vocalizations of 512 species are announced. A few more birds heard only in the background add to this impressive total. The region covered is also large: all of North America north of Mexico and west of the 100th meridian. The marginal areas of the Lower Rio Grande Delta of Texas and the Hawaiian Islands are included as a bonus.

Dr. Arthur A. Allen clearly announces a vernacular name for each continental species and refers the listener to the approximate page number in Roger Tory Peterson's 2nd edition of "A Field Guide to Western Birds" where the species is discussed. Peterson makes similar announcements and referrals for the Hawaiian birds.

Since over 500 birds are introduced and presented on only three discs (six sides), each species is allowed only a short time in which to recite its repertoire. The editors have attempted to place the most "typical" song of each bird on the discs, but some call notes are lacking or poorly represented. This lack occasionally renders the records less useful for instruction in bird finding. For example, when I want to locate Verdins in central or southern Texas, I go to a patch of brush and listen for a rapid chipping note. Adult and immature Verdins of both sexes give their characteristic chipping throughout the year. Vocalizations similar to those on the record usually are voiced too seldom to be of much use in a Verdin census. The chipping, though frequent through the day, is difficult for the sound recorder to capture because of its irregular starting and stopping times.

Representation of White-winged Dove calls in "A Field Guide to Western Bird Songs" is unbalanced. The *ooo-uh-cuck'-oo* is repeated several times, but the one *who cooks for you*, which in nature is about as frequent, is almost blotted out by loud wing-beats.

Beginners in field identification by ear could become confused when counterpart notes of closely related forms are missing. For the Yellow-shafted Flicker the sound track gives one type of call and bill drumming; three types of calls represent the Red-shafted Flicker. Both flickers winter together on the Southern Great Plains. Both make winter woods echo with call type Number 2 as presented under Red-shafted Flicker; yet a literal interpretation of the record would indicate that this sound is absent from the Yellow-shafted's vocabulary.

Data printed beside species names on the record jackets often indicate activity of the birds when they were recorded (call in flight, pair display, feeding calls, song, etc.). Locality and time of year are also given for most species. Months and states (or provinces) are the smallest time and geographic units recognized.

It is unfortunate that lack of space prevented more precise statements of localities. To say that the Golden-cheeked Warbler was recorded in "Tex." is of little help to the bird finder who is trying to locate the species. Even though Texas has been demoted to only the second largest of the United States, it still contains 263,513 square land miles, most of which have not furnished a perch for a Golden-cheeked Warbler within historic time. Admittedly "the song of this male bird was recorded along Wildcat Hollow in juniper-oak clad hills in the western outskirts of Austin, Travis County, central Texas" would have been overlong, but "c. Tex." or even "cent. Texas" could have been printed on the jacket with room to spare.

In some instances the geographic designation is even larger than state size. The Bristle-thighed Curlew call came from the "South Pacific." The South Pacific Ocean, with its more than 35,000,000 square miles, is a rather large place in which to look for a curlew that nests in a very small part of Alaska and winters to a considerable extent on the leeward Hawaiian Islands in the North Pacific Ocean!

Captives are usually labeled as such, but there are slip-ups. The Black Brant and Emperor Goose were each recorded in "England." These two species are of course unknown as wild birds in the British Isles.

The present album, unlike its eastern counterpart, "A Field Guide to Bird Songs," omits scientific names. This omission is likely to reduce its value for foreigners. Even some Americans may find "Elepaio," "Apapane," "Iiwi," and "Palila" a bit strange. "Rice-bird" without a technical name could mean any one of a number of species. Clearly, a purchaser of the record album should also buy the 2nd edition of "A Field Guide to Western Birds" to insure correct identification of sound track species.

The inclusion of Hawaiian birds in a North American book and album is a bold, unprecedented stroke. Those who object to this association of the Islands with the mainland might do well to consider the following: (1) All the common regular migrants—Pintail, Shoveler, American Golden Plover, Ruddy Turnstone, Bristle-thighed Curlew, Wandering Tattler, Sanderling, Pomarine Jaeger—to and from Hawaii are North American; (2) 57 of the 62 species listed as rare migrants, casuals, and accidentals are in the AOU Check-list; (3) not counting the single doubtful element (the genus *Pennula*), 11 of the 13 natural colonizations of Hawaii by fresh water and land birds probably came from North America (see Ernst Mayr, 1943. *The Zoogeographic Position of the Hawaiian Islands*, *Condor*, 45: 45-48). It is true that among the pelagics and the introduced birds North American species do not show majorities, but zoogeographers customarily do not include these categories when they are determining the faunal affinities of land masses.

The sound track of "A Field Guide to Western Bird Songs" is notably free from background noise. The Wandering Tattler and the Dipper are exceptions. Here the noisy background is an asset. Separation of the Tattler from its roaring surf or of the Dipper from its rushing trout stream would have constituted a most unnatural amputation.

"A Field Guide to Western Bird Songs" is a magnificent introduction to many of the bird sounds of the great West. Now that high spots in this huge area have been hit, future albums can concentrate on a more complete repertoire and fuller data for each species.
—EDGAR KINCAID, JR.

SILENT SPRING. By Rachel Carson. Houghton Mifflin Company, Boston, 1962: 6¼ × 8¾ in., xvi + 368 pp., illus. \$5.00.

Neither Rachel Carson, nor her latest book, "Silent Spring," needs any introduction to the readers of *The Wilson Bulletin*. Portions of this exciting new work first appeared in *The New Yorker* in June 1962. The immediate response was a ferment of controversy which boiled even more briskly when the book itself appeared on the market in late September. A wide array of reviews has appeared in leading newspapers and magazines. Responses ranged from highly favorable in *The New York Times* and *Saturday Review* to airy dismissal by *Time*.

Those who have read "The Sea Around Us" or "The Edge of The Sea" will note that Miss Carson again displays the same amazing talent for weaving massive amounts of factual material into a highly literate work. The reader will, however, be startled to note that the author has brusquely dropped her former stance of nicely balanced detachment. Miss Carson is indignant with man's arrogant abuse of nature. She has assumed the role of prosecutor and the pesticide industry stands accused.

The book begins with a vivid description of spring in a town in middle America which becomes blighted with mysterious maladies and complaints. The birds of field, marsh, and woodland fall silent; streams are lifeless; there are no bees among the apple blossoms. The scene is reminiscent of Nevil Shute's "On The Beach." "Silent Spring" moves on to a statement of charges; i.e., that we are in danger of fatally polluting our environment with an accumulation of lethal materials.

Successive chapters contain discussions of the chemical composition of pesticides ("Elixirs of Death") and their effect on living systems. Case histories of the contamination of surface and ground water by pesticides are next presented. The incredible history of control operations on Clear Lake, California, is included among these examples. In this case the pest species is an abundant but harmless gnat which annoys resorters and fishermen. The results of this control program create an ecological disaster in which DDD residues are concentrated as they pass along the aquatic food chain from plankton to fish to grebe. At the end of nearly ten years of intermittent treatment, a local population of over 1,000 pairs of Western Grebes had been reduced to a remnant of unsuccessful breeders. It is significant that the sportsman of Clear Lake is no longer willing to accept hardship or even slight annoyance as a Spartan value of the outdoor experience. His counterpart in the east complains of midge swarms overhead as he cranks up his outboard to cross a quiet pond.

Succeeding chapters take up herbicides and their overuse on roadsides and right-of-ways, as well as material on pesticide abuses in suburb, countryside, and forest. Miss Carson also presents examples of biological control measures which suggest alternatives to rigorous chemical treatment.

Some of the most interesting material in this book is contained in the later chapters which deal with energy transformations and metabolic cycles in the cell. Miss Carson relates pesticide function to cellular physiology and builds a fascinating hypothetical relationship between cancer and pesticides. Some of these chapters are among the best science writings that this reviewer has been pleased to read. Sandwiched in between this background material are carefully assembled arrays of fact which build a devastating argument against our continued emphasis on chemical rather than biological control of insect and plant pests.

While the reader of "Silent Spring" would be likely to overestimate the extent of pesticide spraying, Miss Carson's critics have been quick to point out that 95 per cent of the land and water surface in the United States does not receive pesticides under current annual spraying programs. Those of us concerned with wildlife values are nevertheless alarmed by the trend toward massive use of toxic chemicals. The wholesale value of pesticidal chemicals has increased from \$40 million in 1940 to \$245 million in 1953 to approximately \$301 million in 1961. The rosy predictions of the agricultural chemical industry indicate that this trend can be expected to continue.

It would be regrettable if alarmist reaction to "Silent Spring" would result in pesticide and herbicide regulations which were unfair to the responsible farmer, forester, or orchardist. We should hope, however, that the controversy will encourage a careful review of research needs with greater emphasis upon biological control studies as well as increased support for studies on the ecological effects of chemical control methods. A review of regulatory procedure is also in order. Indeed the agricultural chemical producers are already ruefully admitting to themselves that they should have taken vigorous action long ago to encourage a uniform code of certification for professional pesticide applicators.

In closing, I do not wish to suggest that Miss Carson could have achieved her aims with anything less than the dramatic presentation which she has constructed. "Silent Spring" makes fascinating reading and provides an excellent background to a problem which should concern every thoughtful citizen.

Those of us who are committed to the cause of wildlife conservation should be deeply grateful for the services of so eloquent an advocate as Rachel Carson.—DANIEL Q. THOMPSON.

MEN, BIRDS, AND ADVENTURE: The Thrilling Story of the Discovery of American Birds.
By Virginia S. Eifert. Dodd, Mead & Company, New York [1962]: 6 × 9½ in., xiv + 273 pp., illus. \$4.50.

"Americans are mad about history," an English woman told me recently. Although I resented her slightly derogatory tone, her statement was probably true. We Americans do enjoy history, especially history presented in the style of Virginia Eifert. This book, as the title indicates, is concerned with the adventures of the men who discovered and described the birds of North America. Each of the twenty chapters, written in a clear, narrative style, stands alone as a tale of romance and adventure, yet each is bound to the other by a central theme—birds—against an unfolding background of historical events.

The first chapter deals with the excavation of a burial mound in southern Illinois where, in 1954, archaeologists found two stone pipes, one accurately carved to depict a raven, the other a falcon. These pipes, estimated to be about 2,500 years old, may be examples of the earliest known American bird art. The last chapter is contemporary (possibly dangerous in a basically historical book), describing the discovery of Sutton's Warbler (still in question as a species), the rediscovery of the Ivory-billed Woodpecker, and the detection of two invasion species, the Cattle Egret and the Spotted-breasted Oriole.

Columbus recorded birds on his first expedition and sent specimens back to Europe. Other explorers and early settlers did the same and a few left brief notes on the wildlife encountered. In a short time, wherever a path opened into the great wilderness of North America, there was a botanist or zoologist or naturalist ready to follow it and to collect, preserve, name, and label every new living form that came within view.

Some of these men had sufficient energy, courage, and funds to travel alone for the study of natural history, but the majority were attached to expeditions bent on acquiring territories, surveying boundaries, or constructing railways. Many times these naturalists had other duties so that the collecting and preserving of specimens was secondary, done in off hours under conditions that were unbelievably primitive. Even when a man's position was officially that of botanist or zoologist with an expedition, he was often barely tolerated by an unsympathetic leader who considered the collections a burden and refused to linger in the best places for birds. But whether natural history was their chief aim or not, everywhere the naturalists pressed on—collecting, possibly painting, and describing birds. Their names live on in Steller's Jay, Franklin's Grouse, Wilson's Warbler, Clark's Nutcracker, Lewis' Woodpecker, and Baird's Sparrow, just to mention a few.

This is not a comfortable book. One suffers frustration with Georg Wilhelm Steller who, after only a few hours on an island offshore, stood on the deck of the Russian ship, *St. Peter*, and watched "Alayshka" vanish in the mist. Alaska, the land he had labored so hard to reach! One is tired and hungry and cold while crossing the mountains with Meriwether Lewis and William Clark, and terrified by the alligators that surrounded William Bartram in a Florida swamp; one grieves over the collections and paintings of Prince Maximilian of Wied that were lost when the Mississippi River steamer ran aground and burned. Yet despite all the tribulations and setbacks, one feels the forging ahead and the gradual triumphs—in the paintings of Catesby, Wilson, and Audubon; in the collections of Say, Baird, and Cassin; in the gradually developing appreciation of the wilderness in the writings of Thoreau, Muir, and Burroughs; and in the appearance of "tools" for bird study—binoculars, cameras, and bird guides, the first of which was a modest volume by Chester A. Reed.

Mrs. Eifert is a competent historian as well as a trained naturalist. Her material, based on sound fact, is written with such a verve and touch of the dramatic that the reader may

stay up too late just to "finish the chapter." The photographs are excellent. A good map, as is always the case, would have been an asset.—ELEANOR RICE PETTINGILL.

SUBANTARCTIC CAMPBELL ISLAND. By Alfred M. Bailey and J. H. Sorensen. Proceedings No. 10 of the Denver Museum of Natural History, 1962: $7\frac{1}{4} \times 10\frac{1}{2}$ in., vi + 305 pp., 232 photos., 2 maps. \$7.00 (soft covers, \$5.50).

Campbell Island, lying south of New Zealand in the low fifties, has all the usual characteristics of a windblown, subantarctic outpost—bold, rocky coastline and mountainous terrain, treeless landscape with dense scrub on sheltered slopes and tussock grassland. Though unsuited to a permanent human population despite an above-tide area of some forty square miles, Campbell Island has been visited for varying periods by parties of sealers and of numerous expeditions since its discovery in 1810. On the Island during the war years, 1941–45, the New Zealand Government based coastal watchers, among whom was a talented New Zealand naturalist, Mr. J. H. Sorensen. Later the Government established a permanent meteorological station with several men on duty continuously. Beginning 7 January 1958 a seven-man expedition under the auspices of the Denver Museum of Natural History spent six weeks on Campbell Island. Members of the party included Dr. Alfred M. Bailey, its leader, and two New Zealand naturalists, Dr. Kaj Westerskov and Mr. Robert Street.

The text of this book deals in turn with the geology, vegetation, mammals, and birds of Campbell Island. Much of the information about the birds, to which well over half the text is devoted, comes from the junior author's experiences and studies during his four years on the Island, but it also includes many observations by the senior author and other naturalist-explorers and draws upon, or makes reference to, the already considerable literature on subantarctic ornithology.

Each bird species is treated separately and, in the case of the commoner breeding seabirds, at great length. The presentation under each species I find poorly organized and the information generally uncoordinated. This is due to the method of the authors in quoting field notes, their own and those of others, verbatim and often in full, paragraph after paragraph, sometimes without regard to the relevancy of certain subject matter. Little attempt is made at synthesizing data. The total result is a collection of observations and facts loosely strung together. My criticism of the method of presentation, however, must not be taken as belittling the value of the work. The authors have given us a wealth of information which cannot be ignored by anyone doing research on subantarctic ornithology. Perhaps their method, which I have taken to task, was to give the researcher the observations and facts as they are and let him do what he wants with them. On that score there is virtue in their method.

Three species of penguins, three gulls, eight passerines, one shag, one duck, and the Skua breed on Campbell Island, but the distinguishing ornithological feature is the procellariiform representation—no less than five nesting albatrosses together with four procellariids. Quite appropriately, many pages are devoted to the albatrosses, particularly the Wandering and Royal (*Diomedea exulans* and *epomophora*), with respect to behavior, nesting activities, duration of the young's dependency, age when young birds first return to breed, and so on, but all the breeding species come in for a reasonable share of attention.

I doubt that there is any natural-history treatise on a subantarctic island that was ever more extensively and handsomely illustrated than this one. It has altogether 232 photographs, many full page, and not an inferior one in the lot! One hundred of the photographs

have to do with albatrosses—always rewarding subjects for the camera.—OLIN SEWALL PETTINGILL, JR.

THE COMPLETE BOOK OF NATURE PHOTOGRAPHY. By Russ Kinne. A. S. Barnes and Company, New York [1962]: 7¼ × 10¼ in., 191 pp., many photos. by the author. \$7.50.

Any book which professes by title or otherwise to be complete is opening itself to immediate challenge, but this book seems to be reasonably secure in its claim. Cameras, lenses, and accessories; the care and transportation of photographic equipment; the techniques for photographing plants and flowers, birds and other wild, land vertebrates, insects, animals in zoos and aquaria, under-water life, even rocks and minerals—there is pertinent information and advice here on all these topics, presented in non-technical language for the beginner or advanced amateur. The author, himself a free-lance photographer, is an “old hand” at camera work in many parts of this country, in the arctic and tropics, above water and below. In giving suggestions and admonitions he is able to speak from personal experience and is not averse to the light touch when expressing himself. Thus his book is almost as entertaining as it is instructive.

It should be pointed out that this is a complete book of *still* photography, the problems of motion-picture photography not being considered. While reasonably complete now, it may not be so next year or the year after at the rate new refinements in equipment and film are appearing. Nevertheless the basic materials and methods in nature photography will not change hurriedly. From my viewpoint the day is indeed far away when, for pictures of birds, the reflex camera, the blind, the long-focus lens, and the strobe light will be obsolete and the key to successful pictures will not be unlimited time, an immunity to frustration, and that much-too-rare attribute—patience!—OLIN SEWALL PETTINGILL, JR.

THE NATURAL HISTORY OF THE LEWIS AND CLARK EXPEDITION. Edited, with an introduction by Raymond Darwin Burroughs. Michigan State University Press, East Lansing [1961]: 5¾ × 9½ in., xii + 340 pp. \$7.50.

This is essentially a compilation of all the notes on the mammals, birds, reptiles, amphibians, and fishes from the journals of Meriwether Lewis and William Clark on the famed 1804-06 journey to the Pacific. Heretofore, the complete notes, verbatim and unedited, were available only in R. G. Thwaites' “The Original Journals of the Lewis and Clark Expedition,” altogether eight volumes published in 1904 and long since out of print. The notes were scattered through the entire work, appearing in the chronological order in which they were written. In Mr. Burroughs' work the arrangement is by species and thus we have under each species, again verbatim and unedited, exactly what the two explorers wrote about it. This makes most interesting reading. The ornithologist with an historical bent will right away turn to the collection of passages under such species as the Western Grebe, Sage Grouse, Lewis' Woodpecker (named for Meriwether), American Magpie, Steller's Jay, and Western Tanager, because here are the first written descriptions of these species and the basis on which Lewis and Clark were credited with their discovery. Mr. Burroughs has been very careful to let Lewis and Clark speak precisely in their own words but at the same time he has, in a very scholarly way, welded the notes into a satisfactory whole through his introductory (and occasionally concluding) remarks and through his interpretations and evaluations.

The introduction to the book is Mr. Burroughs' narrative of the Expedition, how it came about, the journey itself, and what it accomplished. To anyone wanting a brief story of this remarkable feat, for an evening or two of reading, I heartily commend it. The writing is excellent, the pace is brisk, and the narrative, while giving the highlights and pointing up many of the hardships and disappointments, is not overly dramatized. My only criticism is the lack of any sort of map. Since many of the place names mentioned are not shown on modern maps, one has difficulty following the route and determining exact locations of stops and other events along the way.—OLIN SEWALL PETTINGILL, JR.

NEW LIFE MEMBER



Paul Eugene Belcher, of Akron, Ohio, an active member of the Wilson Ornithological Society since 1938, is now a Life Member. He received his A.B. from Ohio

University, his LL.B. from American Extension University, and his J.S.D. from Lake Erie School of Law. As Senior Vice President and General Counsel of the First National Bank of Akron, Dr. Belcher has lectured and written a newspaper column on economic and business subjects, has authored a bank economic publication for 10 years, and has published on avian subjects; and he usually gives 20-30 talks/year on some phase of bird life. He is a member of the American, Ohio, and Summit County Bar Associations, American Marketing Association, and many bankers' associations; he is a life member of the American Ornithologists' Union and a member of the Cooper Ornithological Society. His principal interests in ornithology include scientific aspects of worldwide ornithology, field work and photography, and his extensive ornithological library.