

REVIEWS

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The following reviews express the opinions of the individual reviewers regarding the strengths, weaknesses, and value of the books they review. As such, they are subjective evaluations and do not necessarily reflect the opinions of the editors or any official policy of the A.O.U.—Eds.

The birds of Africa. Volume I.—Leslie H. Brown, Emil K. Urban, and Kenneth Newman; illustrated by Martin Woodcock and Peter Hayman. 1982. London, Academic Press. xii + 521 pp. 28 color plates, 4 black-and-white plates, numerous maps and line drawings. \$109.00 (current U.S. price; publisher's price listed as \$99.00 in England).—This is the initial member of a four-volume set designated as the "first comprehensive guide to the bird life of the continent as a whole," including North Africa, which was not encompassed by the only other extensive recent work on African birds. The dust jacket also tells us that all resident species are "described in full detail, with sections on their range and status, description, field characters, voice, general behaviour, food and breeding biology." Nonresident species "are also given extensive coverage with emphasis on their status and behaviour within Africa."

This sumptuous and imposing tome (310 × 240 mm) inevitably invites comparison with the well-known "African Handbook of Birds" (C. W. Mackworth-Praed and C. H. B. Grant, 6 volumes, 1952–1973)—recently reprinted but now outdated and woefully deficient in terms of information on many aspects of bird biology. The two works are, in fact, utterly different. In terms of coverage and style, the present volume is more reminiscent of volumes I and II of the "Handbook of Birds of Europe, the Middle East and North Africa" (S. Cramp chief Ed., 1977, 1980).

The book opens "flat" and remains thus, facilitating reference. It is printed with an excellent choice of easy-to-read type on good-quality, nonglare paper (far easier to study under artificial light than the pages of *The Auk*). Still, the book is larger than necessary and more difficult to read comfortably than either the Praed and Grant or Cramp handbooks. My impression of production quality was rendered decidedly negative when, at my initial opening of the review copy, four pages fell to the floor. A subsequent check revealed pages 227–242 to be missing altogether. A friend in South Africa informs me of at least two similarly defective copies delivered to persons there. Additionally, the binding seems somewhat weak for the book's size. I don't think it will hold up to heavy use, unlike my sturdy old Praed and Grant volumes, some of which have endured years of hard use in the field, as well as at home, with not so much as a loose page. This volume is stated to be "prepared by field ornithologists mainly for field ornithologists" but its unwieldy size obviously precludes much use in the

field and suggests that perhaps marketing concerns outweighed utilitarian ones.

The 31-page introduction, attributed largely to Leslie Brown, was in fact substantially modified by Emil Urban, Hilary Fry, and Stuart Keith, who are responsible for its present praiseworthy form. It includes useful sections on prehistoric African biogeography, present-day climate and vegetation (with fine maps and diagrams), major bird habitats, African bird diversity, migration (to and from and within the continent), breeding seasons, numbers of birds and census data, pesticide effects, suggestions for further research, and a commentary on the plan and scope of the text. This section contains worthwhile brief discussions and a wealth of facts and short summaries. For example, the reader learns here that, of Africa's ca. 1,850 bird species, 18 have been described in the past two decades (the newest a honeyguide in 1981) and that there may be "70,000–75,000 million" birds in Africa today—including perhaps 1,400 pairs of Sokoke Scops Owls and possibly as many as 500,000 Tawny Eagles, to name a few of the species commented upon. Gaps in existing knowledge frequently are indicated, and a point is made of mentioning areas in which contributions may be made. The introduction concludes with two full pages of references and two more showing 22 separate drawings to illustrate the external parts of birds.

The main text includes brief statements concerning each avian order represented, plus nontechnical family diagnoses covering characters, general habits, displays, etc. Some subfamilies also receive extensive treatment. Following a comprehensive discussion of each genus, the species accounts occupy from 1 page or less (for little-known birds such as the Congo Serpent Eagle) to 3 or 4 pages for well-studied species. Useful in these times of increasingly unstable English names is the inclusion of several alternate ones. These for the most part are well-chosen, but they do not always agree with those in other recent works (e.g. Britton et al. "Birds of East Africa," 1980). Some may have been too hastily selected. Black Sparrowhawk seems misleading for *Accipiter melanoleucus*; Great Sparrowhawk was quite satisfactory. And whereas the new A.O.U. Check-list inexplicably has converted our familiar Green Heron to Green-backed Heron, authors of the present volume, not to be outdone, have chosen the reverse course! "Green Heron" now is established in the literature of a continent where *Butorides striatus* has long been known as Green-

backed Heron. It is satisfying to witness real progress in our quest for global uniformity!

A French name is likewise provided for each species, and there are separate indices for these, the English, and the scientific names. These indices, incidentally, are carefully done and easy to use, with the main reference in bold-face type, a much-appreciated feature.

All of the species accounts, we're told, were read and critically commented upon by various experts. The material presented is well-chosen, highly informative, quite current, and the most complete that is available for the truly Ethiopian species covered. Those North African birds also dealt with in the Western Palaearctic handbook by Cramp et al. tend to be given much less extensive treatment in "The Birds of Africa." Some very rough comparisons of randomly selected species show the Ostrich given 3 pages by Brown et al., 4½ pages in the handbook, Great Egret 2 and 5 pages, Gray Heron 2 and 10 pages, Purple Heron 2 and 5½ pages, respectively.

The telegraphic style of the lengthy "Habits and Breeding Habits" sections detracts somewhat from the fine assemblage of information and renders these much less absorbing than they could be. In a few places slight ambiguities have resulted. "Sentences" without subjects and/or verbs become wearying after a time, and an evening in one's easy chair with this volume is in no way comparable to one spent with the older works of Chapin or Jackson for example. The authors admit in the preface that they have produced "not a leisurely, discursive piece of ornithological literature but a compressed compendium of essential facts." Earlier they indicate that it was "necessary to cut wordage to a minimum." It seems sad that we must move ever further from *interestingly* written accounts of birds. Had economy of space really been a major factor in the production of this book, it could have been accomplished through reducing both the unnecessarily wide margins (where only plate references appear) and the space between various paragraphs and sections. The range maps, too, are larger than necessary. The plate captions appear to be designed with neither economy of space nor ease of use in mind. Despite ample blank areas near all figures, no numbers are printed on the plates themselves. Instead, these appear on a quarter-scale silhouette facsimile on the facing page. Beside this is a semi-columnar listing, by number, of the species and plumages. Thus one must examine the plate, adjust the eye to the smaller reproduction, find the number there, and then locate it once again in the often crowded lines of print. This is annoyingly time-consuming when one is checking the identity of numerous figures. Explanations for each of the four black-and-white plates occupy an entire page, two of which are one-quarter blank.

But there is little quarrel with the text itself. Even the experienced student of African birds will find

much that is new or unfamiliar. Throughout, the emphasis is on living birds. Nevertheless, plumage descriptions are for the most part both adequate and accurate. Systematics are not stressed, but neither is the subject ignored. There are few major departures from the taxonomy to which most workers are accustomed. However, *Phalacrocorax coronatus* is considered specifically distinct from *P. africanus*, the African Darter is treated as a race of *Anhinga melanogaster*, and the Tawny and Steppe eagles are deemed conspecific. On the other hand, the Barbary Falcon is merged with the Peregrine (following Brown and Amadon 1968), although specific status represents the consensus (e.g. Cramp et al. 1980, Voous 1977, Vaurie 1965, and most recent African regional works).

Close examination of the distribution statements and especially the range maps reveals numerous errors, some of them surprising: the Rufous-bellied Heron is not a "resident" in Kenya, where it is known from only one or two records, but it *is* resident in southwestern Uganda, a fact not made clear in this volume. The map for the Swallow-tailed Kite (*Chelictinia*) reflects neither the disjunct Kedong Valley birds near Nairobi nor the Isiolo-Samburu region where the species is known. Northeastern Kenya is included in the range statement in the text, but only extreme northwestern Kenya is shaded on the map. Also inadequately mapped in that country is the Bat Hawk, regularly encountered on the north and central coast and at certain inland localities (e.g. Kericho, Samburu). Dickinson's Kestrel is not attributed to Kenya despite a few recent records. The Secretary Bird is mapped throughout Tanzania, whereas it actually is "unrecorded in most of the east and northwest" (Britton et al. 1980). The preface indicates that all three authors commented on all the species accounts, excepting those for the water fowl, and Brown, I am told, had completed those of the raptors before his death. I suspect, however, that he had not seen the distribution maps.

Some errors of omission surely are the result of observers' failure to publish their observations, and I admit to a degree of guilt in this category myself. The authors tell us there are no records of the Imperial Eagle (*Aquila heliaca*) in West Africa "south of Morocco where not recently recorded," although D. A. Turner and I closely studied a perched adult *A. h. adalberti* in Waza National Park, northern Cameroun, 14 January 1978.

Some inclusions are not current. On the basis of nearly annual visits since the 1960's, I would not consider the African Hobby "relatively common" in western Kenya, although it evidently was, at least locally, years ago. The Hooded Vulture is stated to have apparently decreased in much of the Sudan, but no mention is made of the great reduction in numbers of this once almost ubiquitous bird in Kenya, where it now is comparatively scarce.

Nothing is said of the Gray Kestrel's crepuscular

habits such as I noted briefly in western Kenya (Bull. Amer. Mus. Nat. Hist. 149, 1972) and as Jackson (op. cit.) once reported from Uganda. The present volume remarks "observed pairs in nests were always at roosts in nests well before dark," but the species nevertheless is "reported to take bats." This falcon's general habits are termed "Little known," but its breeding habits "very well known." Terms like these seem to be used too loosely at times, and terminology associated with frequency or visibility sometimes is confused with that relating to abundance. The Marabou, for instance, is considered "locally abundant or very abundant near large colonies and in towns," a gross exaggeration of actual status. The word "abundant" normally implies very large populations, and I would expect "very abundant" to be reserved for queleas or other birds present in truly enormous numbers. Marabous are highly conspicuous but hardly more than common or fairly common. The entire Uganda population of the species was estimated at only "4000-5000 in 1971."

The paragraphs on distinguishing field characters are carefully written and many constitute improvements over those in the field guides. Some cases (e.g. the giant petrels) are over-simplified, and the authors have erred by stating that immatures of both chanting goshawks (*Melierax*) have barred upper-tail coverts. These feathers on the young Pale Chanting Goshawk (*M. c. poliopterus*) of East Africa may be slightly mottled but are never darkly barred. This was pointed out long ago by Jackson (op. cit.) and reiterated by Brown and Amadon (Eagles, Hawks and Falcons of the World, 1968: 408), who referred to it as "the most reliable diagnostic feature between the two in both adult and immature plumages." Furthermore, the color of the cere and bill base of adult *poliopterus* is typically yellow, not orange, red-orange or pink. In their East African ranges the two species are readily distinguished. This underscores a shortcoming evident at intervals throughout the book, namely Urban's and Newman's limited East African experience. Brown, of course, resided in Kenya, but much of his knowledge clearly was not transmitted to these pages. The text's shortcomings must be viewed in light of difficult circumstances following the senior author's death. Urban deserves much credit for salvaging what I gather was a foundering operation. So do the individuals who rendered considerable assistance.

The separate sections on voice describe various vocalizations most satisfactorily and also indicate references to any published recordings of the species. This material is of considerable use to the field student and is without equal in existing guidebooks.

Throughout the species accounts, and the introduction as well, runs a strong thread of conservation sentiment. For most birds there is some comment on current status. We learn that certain raptors (Augur Buzzard in Ethiopia and Great Sparrowhawk in South

Africa) actually may be increasing through establishment of plantations. For some (e.g. Verreaux's Eagle) about which there might be some concern, numbers appear to be stable. Expectedly, the news is grim for numerous others. It is disquieting to read that the reduction of Pallid and Montague's harriers continues, probably as a result of the persistent pesticides still widely used in Africa, that the Secretary Bird is decreasing in most of its range, that the Cape Vulture is "threatened with extinction unless intensive conservation efforts succeed," and that the spectacular Shoebill or Whale-headed Stork is perhaps down to 1,500 individuals and these are "severely threatened" by water diversion schemes, agricultural development, and the capture of young for zoos. Many of Africa's larger birds clearly are declining. It would be reassuring to believe that the commendable inclusion of such material would somehow prompt influential officials to act on meaningful conservation measures, but I fear this to be a vain hope.

The many text drawings, primarily illustrating display postures, are of widely varying quality. Some are redrawn from those in other publications. A few (e.g. Black-necked Grebe, storks) are meticulously and handsomely executed; and even some simple outline drawings, like those of the Waldrapp, are realistic and artistic. Others (numerous waterfowl, particularly) are so unfinished-looking as to be downright crude. They appear to have been done in a great hurry. One of the Common Shelduck is so poorly done that I cannot determine which plumage parts are indicated. Some, like that of the flying Osprey, although more refined in appearance, nevertheless are awkward and somehow show no feeling for the species represented. Too many are substandard from any artistic viewpoint, and, although they may satisfactorily represent the intended points, they nevertheless detract greatly from the professional caliber of the accompanying text. There are some slips, too. The drawing allegedly of a Southern Pochard on p. 277 appears to be of a male Goldeneye. Under the latter species, reference is made to a picture of the male's head-throw display, but a female bird is shown.

The great disappointment in this volume is the series of color plates, but, as they are of uneven quality, it would be unfair to treat them all together. Of the first 17, by Peter Hayman, those of the *Procellariiformes* are excellent. Plate 4, of petrels and prions, is a beautiful piece of work. The storm-petrels on Plate 5 correctly show the subtle differences between wing shapes of, for example, Wilson's Petrel and the *Oceanodroma* species, and the plate generally pleases the eye. Most of the herons and waterfowl also are well done. Certain plates suffer from the numerous figures being too small, particularly in view of the considerable remaining empty space. The unimaginative inclusion of birds of greatly disparate size together, with no division into separate scales, makes for displeasing composition and inevitable tiny fig-

ures of minimal value. This is entirely unnecessary given the large page size provided.

Hayman does less well with the purely African species. His Secretary Birds are too thick-necked and generally not quite slim enough. The Shoebill is almost blackish rather than pale gray. The Hammerkop, storks, and certain ibises are not convincing. Indeed, the Hadadas are virtually unrecognizable with their odd coloration, "wrong" posture, shortened legs, and incorrectly shaped heads and necks.

Martin Woodcock's color plates (18-28) contrast markedly in style with Hayman's. They are mostly well designed, the composition fairly good, the figures bold and large. But I share the opinion of Wiens (1981, *Auk* 98: 648) that some of Woodcock's birds appear "stiff" and "flat." They tend to have a rather glazed or enameled look, reminding me more of porcelain or ceramic birds than of feathered creatures. Too many are poorly shaped and inaccurately proportioned. Distinctive shapes seem almost routinely ignored, resulting, for example, in a Rough-legged Hawk of much the same outline as an Augur Buzzard (Plate 24) or a Harrier-hawk that could not be recognized were it not for the colors present.

A few birds are shown in such a way as to lose or distort prominent field marks. The upper breast of the young Pale Chanting Goshawk (stressed in the text as diagnostic) is concealed as the bird is shown in dorsal aspect. The perched Little Sparrowhawk is shown with its rectrices unnaturally spread, changing the normally observed pattern of circular white spots down the tail center to one of broken horizontal bars. Most of the falcon figures (especially on Plate 28) are superior in all respects to those of the other birds of prey.

The black-and-white plates of flying raptors are an improvement over those otherwise available for African birds only owing to the nearly complete coverage. (I note the omission of three falcons, however.) Unfortunately, few of these figures are done with care. Indeed, they appear to have been executed in some haste. Many of the falcons' wings are too stiff and heavy, those of the Lammergeiers are too rounded, and the rear wing-edges of the White-headed Vulture (and various other species) are unnaturally straight. These plates are not in the same league with the exquisite sophisticated ones of flying raptors in Volume II of Cramp's Western Palearctic handbook. "The Birds of Africa" should have been the place for similar treatment of the Ethiopian Region's many splendid Falconiformes. Instead, we have had provided mediocre and sometimes inaccurate illustrations. I am informed that Woodcock was assigned the task of doing the raptor plates more or less at the last moment, after another artist's labors were deemed unacceptable. He was thus obliged to produce at a pace surely inconsistent with optimal quality.

Nevertheless, such things as the inadequate atten-

tion paid to soft-part colors is disturbing. It may be excusable for an artist to make errors when he's called upon to paint with undue haste birds he does not know and the models for which are only typical museum skins (with their missing or inadequate color data). Less excusable is the apparent lack of close liaison between the artists and the authors, who should have caught these mistakes. The dark irides of the Greater or White-eyed Kestrel constitute a glaring error. The heads of the two giant petrels (*Macronectes*), here considered separate species, represent *hallii* as a light-eyed bird, *giganteus* as dark-eyed. This is misleading as no age labels are provided, and iris color of adults of *both* forms is pale gray; young of both are dark-eyed. The streaks on the Great White Pelican's bill are decidedly pale bluish, not dark dull gray. The entire bill base and cere of the immature Crowned Eagle are shown as yellow, but these actually are gray or black, with yellow confined to a narrow gape line. The brilliant eye-ring and cere of Dickinson's Kestrel are so restricted as to almost lose the characteristic appearance of the species. Similarly, the yellow facial skin of the Gray Kestrel is not extensive enough. The bill and cere coloration of the northeastern Pale Chanting Goshawk is discussed above. The eye of this bird is very dark-looking in life, *contra* the impression created by the plate. Thus, the figure looks disturbingly unlike birds of this species one sees in East Africa. The light-phase Ovampo Sparrowhawk is correctly stated in the text to have brown eyes and an orange cere and bill base, but the pictured bird has definite red eyes and a yellow cere. Other examples could be cited.

Despite such errors, the plates will enable people to identify most birds, albeit with less certainty than otherwise would be the case. This book is not a field guide, but much of its avowed emphasis is on living birds, and considerable attention is given to their recognition. Bird illustration has evolved to a point where we should no longer have to tolerate inferior art in first-rate publications. The authors' introduction states their feeling "that the time has come to try to draw together what is known of the living bird." Their text adheres quite well to this, but the illustrations reflect little of the progress made in field recognition during the past two decades or so and exemplified by such publications as "Flight Identification of European Raptors" (Porter et al. 1974) which deals with many African species.

As a group, the plates just are not up to the standard expected in a regional work of this quality (or in this price range). They suffer, I'm sure, from lack of familiarity with the birds. No artist can be expected to know intimately every species of a large foreign avifauna. Nevertheless, many of those covered in this volume are much-studied, frequently-photographed birds for which much reference material exists—and some of the poorest figures are those of well-known birds such as the Osprey. In view of the

disappointing results here, I foresee major difficulties in subsequent volumes in which tricky cisticolas, confusing greenbuls, obscure illadopses, and other truly challenging groups presumably are to be pictured. Among these, species distinctions are subtle and require not only real knowledge of the living birds but a more punctilious approach to illustration than has been evident thus far.

Despite recognizing the problems thrust upon the editors and surviving authors, I cannot escape the conclusion that what appears to have been undue haste in preparation and production has robbed this book of its full potential. With its numerous positive features, it is unquestionably useful, but it is not in a class with other volumes in its price range. Most major university and museum libraries and all serious students of African birds will require it, but overpriced, and with barely adequate plates, it probably will not appear on many personal library shelves. These factors, its unwieldy size, and the limited coverage in this first volume, will preclude much use by birders planning African visits. Until the work is more complete, "Praed and Grant" and the often inadequate field guides will continue to be in demand.—DALE A. ZIMMERMAN.

Bird migration in Africa: movements between six continents.—Kai Curry-Lindahl. 1981. London and New York, Academic Press. **Volume 1**, xxiii + 444 + xlili pp. \$99.50. **Volume 2**, xxiii + 251 (i.e. pp. 445-695) pp. \$49.50.—For those of us who spend our winters waiting for spring migration and our summers waiting for fall migration, these two volumes will provide a temptation to study migration in Africa, if only we could afford to go or, for that matter, afford to buy these books. Birds seem to be continuously on the move in Africa, and they are moving between Africa and five other continents.

Considering that R. E. Moreau's landmark book, "The Palaearctic-African bird migration systems," was published little more than 10 yr ago, one may wonder whether another lengthy review of bird migration in Africa is justified. I think so. Curry-Lindahl offers a different perspective based on his 30-years' experience in Africa. Much more is known about migration in Africa than was known only 10 yr ago; of the 676 citations, 236 (35%) date from 1972 or later. Moreover, the earlier book was not completed by Moreau at the time of his death, and thus aspects of migration in Africa, especially the migration of African birds, were not discussed. Whether the publication of this particular book is justified is another matter, which will be considered later.

I think it desirable to describe the book's contents.

Chapter 1 (14 pages), "Africa as a bird continent," provides a brief overview of the distribution of migrants in various sectors of Africa and the diversity of habitats available to migrants now and in the past.

Chapter 2 (5 pages), "Migration to and from Africa," discusses the patterns and routes of migration between Eurasia and Africa. Some migrations are truly impressive. Fifteen species travel 9,000-10,000 km twice a year between eastern Asia and Africa, and even from eastern North America. The Wheatear (*Oenanthe oenanthe*) crosses the Atlantic and passes through Europe before reaching its winter quarters. Curiously, the Pectoral Sandpiper (*Calidris melanotos*) is listed as a Palearctic migrant rather than as a Nearctic vagrant because Curry-Lindahl believes that the Pectoral Sandpipers in eastern Africa migrate from recently established populations in eastern Siberia, even though those in western Africa are probably vagrants from North America. Unfortunately, he does not explain why Wheatears should return to their ancestral winter range and Pectoral Sandpipers should not.

Chapter 3 (10 pages), "The migration of Eurasian birds within Africa," is another introductory chapter in which Curry-Lindahl discusses the movements of Eurasian migrants within Africa, especially noting the scarcity of migrants in the lowland rain forest of the Congo basin, the stepwise migration of birds between several different winter quarters used in sequence, and the loop migration of birds using different routes between their southward and northward migrations. These subjects get greater treatment in later chapters.

Chapter 4 (167 pages), "Eurasian (chiefly Palearctic) migrants to Africa," is essentially an annotated list of the 479 species and subspecies of Eurasian birds regularly visiting Africa, augmented by 179 maps. Some of these repeat the maps found in Moreau, but some differ in detail, and in some cases the authors mapped different species.

Chapter 5 (22 pages), "Timetable of Eurasian migrants to and from Africa and within Africa," includes a 14-page table giving the latest dates of departure from Zaire and other parts of Africa and dates of arrival and departure in Sweden, many of these data from Curry-Lindahl's work. Patterns are discussed for various races of European birds (e.g. Yellow Wagtail *Motacilla flava*) in different parts of Africa. These patterns become more complex for species with stepwise or loop migrations.

Not surprisingly, Chapter 6 (3 pages), "American (chiefly North American) birds found in Africa," is short. Except for the Sooty Tern (*Sterna fuscata*), the species listed here are strays. Excluded are North American migrants of Holarctic species, which were thus treated in previous chapters.

Chapter 7 (8 pages), "Non-palaearctic seabirds visiting Africa or occasionally found there," is a list of species giving the breeding range and the area visited in Africa.

Chapter 8 (215 pages), "African migrants within Africa," consists mainly of various lists outlining the migrations of African birds: transequatorial mi-

grants, migrants north of the equator, migrants south of the equator, migrants between Africa and the Indian Ocean islands, and a list of probable migrants. The lists provide information on the breeding area and season and on the nonbreeding area and season, with remarks and 73 maps. This chapter may well be the most important contribution of this book, as it summarizes what is known about the migrations of African birds. Of the 532 migratory species breeding in Africa, 444 are of the Afrotropical region, the remainder being of Palearctic origin. I found it fascinating to examine the maps and to see the diversity of movements. Searching for pattern in these movements presents a challenge.

The remaining chapters are in volume 2. Chapter 9 (4 pages), "Diurnal and nocturnal migrants," is a brief accounting, mainly, of what little is known about the nocturnal and diurnal migrations of African species. Except for the work at Ngulia in Tsavo National Park in Kenya, most observations of nocturnal migrants are of birds entering lighted houses at night. As Curry-Lindahl emphasizes, much remains to be learned about nocturnal migration in Africa.

Chapter 10 (11 pages), "The causation of migration in African birds," seems mistitled. Little is known regarding the physiology of African migratory birds, although apparently premigratory fattening seems to be rare. This chapter is concerned mainly with those factors affecting migratory behavior, such as food availability, alternating wet and dry seasons, fire, and molt. There is a list of species that are known to undertake vertical migrations. The insertion in this chapter of 32 photographs taken by Curry-Lindahl of various African habitats is unexplained.

Chapter 11 (8 pages), "The ecogeography of bird migration in Africa," discusses the distribution of migrants, emphasizing the diversity of habitats available and their seasonal changes. Most interestingly, most migrants inhabit what humans recognize as inhospitable environments, such as the Sahelian region during the dry season.

Chapter 12 (14 pages), "'Distribution' of Eurasian migrants in Africa," provides two rather interesting observations. First, most species and subspecies of Eurasian migrants are found in the dry Sahelian zone, arriving at the end of the rains and fattening up for the long northward migration toward the end of the dry season. Second, Eurasian migrants almost completely avoid the rain forests of Africa, in contrast to Nearctic migrants in the Neotropics. Curry-Lindahl considers several reasons why this ecological difference between Eurasian and North American migrants exists, but finds none of them convincing. The problem remains something to think about.

Chapter 13 (4 pages), "Recurrence (faithfulness) of Eurasian migrants at their African winter quarters," lists the 49 species represented by individuals returning to points in Africa where they were origi-

nally banded. There is evidence that at least some individuals have returned to points en route.

Chapter 14 (15 pages), "Step migration between double or triple winter quarters," reviews evidence for certain species establishing residence for several weeks before moving to a second residence and, in some cases, a third. In some cases, migrants re-establish themselves at their first residence for several weeks before departing for their breeding range. These shifts are probably the result of changing ecological conditions.

Chapter 15 (5 pages), "Changes in numbers and winter ranges of Eurasian birds in Africa," recounts the trends in population sizes and distributions of several species. Changes in numbers in Africa are not always the same as changes in Europe. Shifts may result from pollution or other environmental change.

Chapter 16 (40 pages), "Ecology and behaviour of Eurasian birds in Africa," compares the life of migrants in their breeding and wintering ranges with respect to climate, day length, habitat, food, and energy requirements. Some species show extraordinary elasticity of response to these variables. Also discussed are variations in territorial, courtship, feeding, flocking, and singing behavior of migrants while in Africa.

Chapter 17 (20 pages), "Interspecific relations between Eurasian birds and African vertebrates," makes several interesting points. Palearctic migrants rarely join mixed feeding flocks of Afrotropical birds, again in contrast to Nearctic migrants in the Neotropics. Migrants do respond to the warning calls of African residents and vice versa, and lizards (!) respond to the warning calls of the migrants. A 10-page table outlines relationships, such as predation and competition, between African and Eurasian birds and other animals. Apparently the influx of Eurasian migrants has little effect on African communities.

Chapter 18 (4 pages), "Problems of evolution in Eurasian migrants in Africa," points out the consequences of migrants spending more time in their wintering ranges than in their breeding ranges with regard to, for example, Bergmann's rule, adult survival rates, and geographic variation.

Chapter 19 (17 pages), "Physiological factors releasing migration in Eurasian trans-equatorial migrants in Africa," presents a rather general review of photoperiod and internal rhythms on molt, fat deposition, and development of the gonads in relation to migration.

Chapter 20 (11 pages), "Eurasian birds remaining in Africa during the European summer," presents lists of Eurasian migrants occurring in Africa during June, July, and August. Although some of these records may refer to late departures and early arrivals, some Eurasian birds (mainly shorebirds) do remain in Africa throughout the northern summer, and several species even breed in Africa.

Chapter 21 (21 pages), "Migratory birds and man

in Africa: conflicts and advantages," reviews the status of various habitats with respect to man's impact through fire, agriculture, and other destructive habits. Although destruction is rampant and steps must be taken to preserve some habitats, the avifauna of continental Africa has not suffered the extinction of a single species in over 300 yr. The "advantage" in the title of this chapter must refer to the notion that environmental change in Africa often seems to benefit Eurasian migrants.

In summary, Curry-Lindahl has given us a broad overview of the status of our knowledge of bird migration in Africa. Much certainly needs to be done, and this book explicitly and implicitly provides many clues for further research.

This book is not without its frustrations for the reader. Tables III, IV, V, VI, and associated maps take up 210 consecutive pages with the print rotated 90°, that is, running from the bottom to the top of the page. Many of these pages contain much blank space. A greater waste of space is the printing in *both* volumes of 62 identical pages for Preface, Contents of Volume 1, Contents of Volume 2, list of Tables, list of Plates, Additional Data, Taxonomic Index, and Subject Index. What is not printed in both volumes is the Bibliography (34 pages), the one section that would have aided the reader in being in both volumes. As it is, when reading Volume 1, one is forced to turn to Volume 2 for references. Finally, as might be guessed from the chapter titles, the organization of this book is loose, with much repetition.

Considering the cost of this book, one must question the wisdom of publishing it in this form. After all, much of it covers material already presented in Moreau's 1972 book. I think the scientific community would have been better served had Curry-Lindahl focused on the migration of African birds and updated our knowledge of the migration of Palearctic species in Africa. I have no doubt that a narrower focus, better organization, tighter writing, and redesigned tables would have resulted in a more useful book at an affordable price.—BERTRAM G. MURRAY, JR.

The Oxford companion to animal behavior.—David McFarland (Ed.). 1982. New York and Oxford, Oxford University Press. 657 pp. \$29.95.—In compiling "The Oxford companion to animal behavior," editor David McFarland has sought to provide lay readers with "a guide to current scientific thought on all aspects of animal behavior, and to aid further study by means of bibliographical references" (Introduction, p. vii). I have a mixed reaction to the finished product. The "Companion" succeeds admirably in providing up-to-date, concise, readable, easily indexed and cross-referenced entries with a surprisingly consistent literary style (considering the 70 or so contributors) that are accessible to educated lay read-

ers without being overly dry or condescending. The concessions made in the scholarly domain, however, were greater than I would have thought necessary for a work of this nature, marring its usefulness somewhat as a reference work for interested nonbehavioral scientists or introductory course undergraduates.

The over 200 entries making up the "Companion" range in subject matter from ecological-evolutionary concepts (such as habitat, function, evolution) to anatomical-physiological mechanisms (i.e. breathing, vision, thermoregulation) to applied considerations (wildlife management, welfare of animals) as well as the ethology, behavioral ecology, and behavioral science in general implied in the title. There are also short biographies of behavioral scientists that include Darwin, von Frisch, Lorenz, Tinbergen, and Skinner. Contributions vary in length from a paragraph to well over 10 pages. There are separate indexes of English and scientific names of animals, and a very short and general (146-entry) bibliography.

Perhaps the greatest challenge in constructing this volume was the choice of the scope of material to be covered by its entries, and how this material should be categorized. Although there is the discernable stamp of the Oxford Animal Behaviour Research Group's major interests reflected in both of these areas, I found the breadth and its divisions laudatory. More psychologically-oriented behavioral scientists may feel that their interests are slightly under-represented; I feel the balance of evolutionary biology and "psychological" influences is good.

A major proportion of the articles explain concepts and give examples, or simply define what is meant by terms. Others seek to make general points about a given subject in a more partisan fashion. Avian examples of general phenomena and articles dealing with what are primarily avian phenomena are very well represented.

Granting that readers' opinions about the data/speculation ratio of information given as fact in individual articles will undoubtedly differ, I found some articles to be models of encyclopedic presentation (for example, H. C. Bennet-Clarke's contributions on Flight and Song) in terms of an "acceptable" dilution of factual information; others I thought could be improved upon [for instance, R. Passingham's long article on the Brain, where I felt emphasis was drawn to the wrong things, i.e. the difference between human and animal brains; I also differed with his assessment of factual information; statements like "No good evidence has yet been found that in animals the functions carried out by one hemisphere differ from those carried out by the other" (p. 48) are particularly galling to an ornithologist]. This uneven mix of fact and opinion is my main reservation about the content of the text. I feel that a little more care could have been taken to achieve a balanced view in many of the individual contributions.

Two other problems that mar the book's usefulness in both academic and popular contexts are the lack of an index of entries and the decision to include only a minimal set of references ("... no attempt has been made to justify assertions by argument or by references to the scientific literature ...," Introduction, p. vii). It would cause no discomfort to a lay reader to have authors refer arguments to an expanded set of references in the back of the book; such an addition would exponentially increase the scientific value of the "Companion."

Caveats aside, I strongly commend the "Companion" to interested amateur naturalists, bird watchers, high-school students, and lay readers in general because of its exceptional accessibility. I would recommend it as background reading but not as a primary factual source to undergraduates and interested scientists in other fields.—EVAN BALABAN.

The birdwatcher's companion: An encyclopedic handbook of North American birdlife.—Christopher Leahy. 1982. New York, Hill and Wang. 917 pp., 6 color plates, 25 composite figures. \$29.50.—Ideally, the aspiring ornithologist or birdwatcher should seek detailed knowledge about all subjects relevant to birds. An array of circumstances, however, deter most of us from achieving this goal. A frequent obstacle to our search for concise answers to spontaneous queries about historical personages in ornithology, terminology, methodology, and concepts has been the lack of a convenient, readable, economical, and factual compilation of relevant information. "The birdwatcher's companion" is an encyclopedic reference that was designed to resolve this type of problem for North American birders.

About 777 pages of text are devoted to defining or explaining terms or subjects common to ornithology arranged alphabetically from "aberrant" to "zygodactyl." Entries range in length from thumbnail sketches of one or two lines (e.g. congeneric, pullet) to lengthy essays (e.g. bird houses, 8 pages; bird-feeding, 10+ pages; flight, 8 pages; migration, 11+ pages; nests, 17+ pages). The accounts are readily comprehensible and generally instructive. Many will stimulate readers to search out supplemental sources of information listed in the bibliography, thereby further expanding the knowledge and appreciation of the subject by serious birdwatchers, students, and para-ornithologists. Perusal of this volume during lunchtime discussions by graduate students and professors could provide, for example, succinct biographical information to accompany names we use or encounter regularly in the literature (e.g. J. Cassin, M. Catesby, F. Chapman, W. Clark, W. Cooper, C. B. Cory, L. M. P. Costa, E. Coues, and F. Craveri—and these from "C" only!). In addition to essays on a long list of subjects and definitions of terms common to the discipline, family accounts provide information

on diagnostic morphological and behavioral traits of North American birds; egg, nest and voice characteristics; information on distribution; and derivation of the English family names. Other subjects covered include name definitions and etymology, colloquial bird names, falconry terms, bird-finding localities, and a listing of periodical literature.

Three appendices (total of 48 pages) follow the text, providing a "Phylogenetic List of North American Birds," a "List of Vagrants," and a "Birdwatcher's Calendar." The volume concludes with a 74-page bibliography listing works cited in the text and also providing a selection of references intended to expand upon the author's coverage of various subjects. Ninety-one species representing 45 North American bird families are illustrated in black-and-white and color drawings by Gordon Morrison. Although the drawings of birds are attractive, they do not appear essential to the text, as most readers likely will have field guides available.

Leahy obviously undertook a monumental task in attempting to adequately define or describe such an array of subjects. He is to be complimented on a valiant attempt at so doing. Much useful information is contained in the volume and it appears free of typographical errors. Unfortunately, however, the effectiveness of the text is compromised by several factors. My primary criticism surrounds the infrequent use of recent literature, particularly in the case of subjects that have benefited from modern techniques. A preponderance of the references are pre-1970 and for some subjects (e.g. migration) this has resulted in a somewhat outdated perspective. Of the 122 references listed for five subjects I selected because of personal interest or out of curiosity (navigation, migration, population, song, and territory), 88 (72%) were published in or before 1970. Only 13 (17%) of the references were published after 1975 and just 8 (7%) after 1979. With the exception of some popular subjects, such as "bird-finding," many of the entries fail to reflect adequately the advances that have occurred during most of the last decade. This is unfortunate, as it reduces somewhat the size of the audience that the book might benefit. There are, however, many subjects listed in "The Companion" for which there is little if any recent literature, and others where emphasis on the "classics" is appropriate. Also, it is unfortunate that the name of the publisher of books is not given, as the city of publication is of limited value if one desires to order a book.

I was initially impressed by the inclusion of "A Birdwatcher's Code of Conduct" under "Etiquette for Birdwatchers" (pages 242–244). The discussion begins with mention of the departure of Common Black Hawks that once nested along Sonoita Creek in Patagonia, Arizona, apparently because of harassment by birders. After this introduction, I expected a list of ways birders might avoid undue disturbance to species (particularly sensitive ones such as endan-

gered species) they were trying to observe, photograph, or study. But instead what follows are instructions of how to handle oneself while birding on private lands and how to avoid irritating other birders. While these ideas (which appear paraphrased from similar codes aimed at sportsmen) are important, the omission of recommended procedures for reducing possible observer impact on birds is unfortunate.

The attributes of this comprehensive reference for birders greatly exceed the weaknesses listed. It is recommended to those desiring to expand their knowledge about the field, but it should not be considered as the latest word on many subjects, nor was it intended to be by the author.—WILLIAM E. SOUTHERN.

The birds and birdlore of Samoa.—Corey and Shirley Muse. 1982. Seattle, Washington, University of Washington Press. ix + 156 pp., many photographs and paintings, 4 maps. \$15.00.—In my most recent book review (1983 *Auk* 100: 543), that of Dick Watling's excellent "Birds of Fiji, Tonga, and Samoa," I mentioned as the only drawback the possibility that the book might not achieve its goal of developing an awareness of birds among the people of these islands. The present book treats part of the same avifauna and takes more explicit aim at this same goal. In the authors' own words, "For some years we have felt strongly a need for the book—first, by the Samoan people and, second, by those who visit the Islands of Samoa From the outset we have considered the purpose of this book as twofold. First, we wanted to provide an accurate up-to-date guide with photographs and illustrations of the birdlife in the Samoan Islands so that even untrained individuals could easily identify the birds. Second, we wished to preserve a record of the relationship of the birds to the Samoan culture for the Samoan people so they, too, might realize and appreciate the special role the birds have played in their Island culture."

The introduction and conclusion of this small book provide a brief account of Samoan geography and ornithological history, Samoan language terms useful to a visitor interested in birds, and suggestions how to behave and travel in Samoa. There are scattered mentions of places to observe birds, but a more detailed account gathered in one section would have been more useful. Most of the text consists of 1-page accounts of each bird species recorded from Samoa, with a color photograph or painting and with the Samoan name (where known) as well as English and scientific names. Each family or group of species is preceded by a short discussion. First records are given for two vagrants to Samoa, the Common Sandpiper (*Tringa hypoleuca*) and Laughing Gull (*Larus atricilla*).

Both for Samoan and western readers, the most distinctive and successful feature of the book consists

of the numerous Samoan proverbs and legends about birds. Two short examples for the Reef Heron (*Egretta sacra*) will give the flavor of this vivid and appealing material:

"'Ua fa'afaiva o matu'u. It is like the fishing of the heron. The Samoans say that the greedy heron eats all of the fish it catches and brings nothing to its family.

'Upu faifai. The heron is compared to an egotistical person who refuses to share his belongings with his fellow men."

For Samoans this material is probably the best way to reawaken an interest in native birds, as part of their traditional culture rather than as something irrelevant in the modern world and of concern only to westerners. Without such awakening, it will be difficult for bird conservation to find local roots in Samoa.

Native peoples of the Pacific initially possessed remarkably detailed knowledge of their local fauna and flora. This knowledge is captured well in a book by Ian Saem Majnep and Ralph Bulmer entitled "Birds of my Kalam high country" (1977, Auckland University Press, Auckland), in which a New Guinea highlander (Saem) and New Zealand ethnozoologist (Bulmer) collaborated to record the highlands avifauna as it was known to Saem. Saem's lengthy accounts of about 160 bird species describe seasonal variation in diet and habits, as well as behavioral differences among sibling species so similar that museum workers occasionally misidentify them in the hand. Even though Samoa has a much simpler and poorer avifauna than the New Guinea highlands, modern Samoan knowledge of birds as it appears through the Muses' book is much scantier than Saem's. This difference undoubtedly reflects the decay of traditional knowledge and culture in the centuries of western influence on Samoa. For instance, Samoans use one name for both species of frigatebirds and one name for all three species of boobies. In contrast, the people (Polynesians like the Samoans) of Rennell Island in the Solomon Archipelago, where western contact began in earnest only a few decades ago, have at least ten different names for frigatebirds (a different one depending on the species, sex, age, and breeding status), and also have different names for each species and plumage of booby (T. Wolff 1973, *Nat. Hist. Rennell Isl., Br. Solomon Isls.* 7: 7). Equally surprising, modern Samoans use the same name for the Crested Tern (*Thalasseus bergii*) and Common Noddy (*Anous stolidus*), although David Lewis in his book "We, the navigators" (1972, University Press of Hawaii, Honolulu) has described how traditional Polynesian and Melanesian navigators used their knowledge of differences in foraging range among tern or booby species to estimate distance from land.

Of the species accounts, about half the space in the Muses' book is devoted to a detailed description of

plumage as seen through binoculars. This seems to me a poor use of space, as all species are illustrated in color. Better would have been to devote the space to field characters. The paucity of field information is for me the greatest disappointment in the book. Descriptions of behavior are very brief and unhelpfully vague, even for birds of distinctive behavior: e.g. no mention of the tail-quivering of the Samoan Broadbill (*Myiagra albiventris*), nor of the posture of the Samoan Fantail (*Rhipidura nebulosa*). Descriptions of voice are equally vague or absent, even of birds that are heard more often than seen or that have distinctive voices: no mention of the duet of the Wattle Honey Eater (*Foulehaio carunculata*), nor of the loud voices of the Pacific Pigeon (*Ducula pacifica*) and Samoan Whistler (*Pachycephala flavifrons*) and Samoan Starling (*Aplonis atrifuscus*), nor of the vocal differences between the two similar-plumaged species of fruit doves (*Ptilinopus perousii* and *P. porphyraceus*) and tattlers (*Heteroscelus brevipes* and *H. incanus*). The months of residence in Samoa are not given for the wintering New Zealand cuckoo (*Urodynamis taitensis*), nor are the ecological and social differences between the two fruit doves mentioned.

In short, while the traditional Samoan stories in the section of species accounts are a delight, I think that the technical accounts will please neither of the two intended readerships. Samoans without binoculars will find little about how the bird appears, sounds, and moves. Western visitors will be disappointed in their hopes that a specialized book on Samoan birds would contain more useful field information than Watling's book of broader geographic coverage. This deficiency is puzzling, since Samoa has few species and most of them are easy to observe.

The photographs and paintings are generally adequate for identification but undistinguished. Many of the photographs were taken at a distance or in poor light [compare the many excellent photographs in another recent small book on a Pacific island avifauna, Don Hadden's "Birds of the North Solomons" (1981, Wau Ecology Institute, Wau)]. The paintings by Norman Adams tend toward unlikelike shapes and postures, especially chunkiness, as in the paintings of the Samoan Broadbill, Samoan Whistler, Samoan White-eye (*Zosterops samoensis*), and Fiji Shrikebill (*Clytorhynchus vitiensis*).

At present, visitors to Samoa can choose between this book and three books with broader geographic coverage: Watling's book, John duPont's "South Pacific birds" (1975, Delaware Museum of Natural History, Greenville), and Ernst Mayr's "Birds of the Southwest Pacific" (1945, Macmillan, New York). The convenient small size of "The birds and birdlore of Samoa," and its Samoan stories and vocabulary, make it worth taking. However, I also recommend taking Watling (first choice) or duPont (second choice) for their better illustrations, and Watling or Mayr for

their better although still very terse accounts of habits.—JARED M. DIAMOND.

Birds of tropical America.—Alexander F. Skutch. 1983. Austin, Texas, University of Texas Press. 305 pp. \$29.95.—Spanning a career that now exceeds half a century, Skutch is clearly the most prolific contributor to knowledge of the natural history of neotropical birds, especially their nesting habits. He has accomplished this task through long and patient observation at hundreds of nests of many species. This volume, despite a more inclusive title, presents information on 34 species of nonpasserines. The major taxa included are tinamous (2 species), pigeons and doves (6), cuckoos (2), trogons (6), kingfishers (2), motmots (5), toucans (4), and one each of chachalaca, wood-quail, ani, potoo, jacamar, puffbird, and barbet. All of these life histories have been published before, most in *Auk*, *Wilson Bulletin*, *Condor*, and *Ibis* between 1937 and 1971.

The stated goals of this volume are to update those life histories and make them more generally available in book form. I checked only a few of the originals and came away with the impression that changes were mostly of an editorial nature. In addition, Skutch notes that, with this volume, he hopes to convey both the "science of ornithology" and the "poetry of birds."

On the plus side, Skutch conveys the excitement of field study of birds, of discovery of facts about the birds and their environments. Less positively, this is done with little presentation of data to support his conclusions except nest and egg dimensions and attentive periods. Further, Skutch continues his strong negative tone about snakes and other predators that feed on birds and their eggs or nestlings. That perspective does not reflect ecological and evolutionary reality. I feel that the tropical forest that I enjoy so much would be diminished as much by loss of snakes and other predators as by the loss of birds.

Treatment among the species is variable (2–22 pages) with most containing sections devoted to the nest, eggs and incubation, and nestlings. Other sections are scattered among the species accounts. For species with special life history attributes, such as the communal nesting of anis, sections are devoted to those subjects. For the trogons, a classification of trogons by nest type is provided. Short postscripts of recent information are provided for selected species.

Skutch's basic natural history information provides tantalizing glimpses of ecological and evolutionary pattern. The reader learns, for example, that the Resplendent Quetzal, Mountain Trogon, and the Blue-throated Green Motmot develop feathers faster as nestlings than their lowland cousins, presumably due to the need for more thermoregulatory control in the cooler highlands. Or, the white eggs of Squirrel Cuckoos are stained by fresh leaves in the nest, a

fact that may reduce their visibility to predators. But much information is anecdotal [a "surprisingly large" insect fed to a day old nestling (p. 132)—how large?] or anthropomorphic [flights of male quetzals that "spring from sheer exuberance" but are not used "in courtship" or "finding food" (p. 150)].

Editorially, the book could have been improved by several actions. Presentation of nearly all quantitative data in both English and metric units seems a waste of space. Skutch mentions plants used for food or nesting substrates but gives only English or Spanish common names. Why not include the scientific names to improve the value of the text?

All 34 species are illustrated with drawings by Dana Gardner. These are of variable quality, with the Common Potoo almost unrecognizable. In many cases, the birds are provided with a vegetation substrate or background that conveys something of the birds' environment. Selected photos of the birds and their habitats are a valuable addition, although some are not in sharp focus.

In summary, Alexander Skutch continues to be the primary contributor to neotropical ornithology with publication of yet another book of life histories. Although I find it difficult to sit down and read them, these and his other life histories will be the primary source of natural-history information for many years to come.—JAMES R. KARR.

A coded workbook of birds of the world. Vol. 1: Non-passerines. Second edition.—Ernest P. Edwards. 1982. (Available from the author, Sweet Briar, Virginia 24595.) xxi + 134 pp., 10 maps, plastic binding. \$10.00 + \$1.00 handling.—With a slight change in title, this is the second edition of Edwards' (1974) Coded List, from which it differs significantly. First, it covers only nonpasserines instead of all the birds of the world; presumably a list of the passerines will follow soon. The code is different, the format is expanded, and the information content is greater (3,798 species are listed as opposed to 3,656). This edition is clearly a new entry in the world-list field.

A relatively brief introductory statement notes improvements from the first edition, explains how to use the book and gives the rationale for certain portions, and discusses the geographic treatment of range. This is followed by a list of orders, families, and subfamilies treated. The body of the book is the 85-page list of species (compared to 64 pages in the comparable portion of the first edition). This is followed by an index of genera, including unused synonyms, a new index of scientific names at the species level, a new index of important subspecific taxonomic units mentioned, an expanded index of English names, and a list that cross-references the codes used in the first edition to those used here. The two species-level in-

dices might better have been combined, to avoid the need for making taxonomic decisions before consulting the index.

Most species entries are complete on one line; a few long scientific names require going to a second line to avoid abbreviation (but long English names are abbreviated, sometimes too much), and 275 important subspecies or subspecies groups are entered onto uncoded second lines. Each line provides information in six units, which makes a page look like a set of columns rather than a set of lines. Each line gives the alphanumeric code, the scientific name (genus and species each forming a column), the English name (specific and group names forming columns), and the distribution of the species. Symbols (period, bracket, asterisk, exclamation point) in conjunction with the alphanumeric code indicate variations in taxonomy (explained at the end of the family list) or the status of the species. Extra letters at the end of the distribution code tell if a species (sometimes subspecies) is endangered or extinct. Curiously, extinction can be indicated at either end of the line.

The unique alphanumeric code is composed of a letter indicating the order (A-Y, except O, in this volume) in the sequence in which he treats it, one or two digits for the family (indicating where he places it in the order), a letter designating the subfamily or tribe, and up to three digits for the species. This differs from the code in the first edition by rearranging the information content and by adding the subfamily designation. For example, the Limpkin was 5M1 in the first edition but is N5a1 in the second. In the first edition, Edwards anticipated that codes would change through time, and suggested how that might be handled by users. An early reviewer (Hailman 1974, *Bird-Banding* 45: 288) questioned the value of a changing code and pointed out several reasons why the code provided was not particularly useful for computers. These specific points have not been addressed in the new edition, except for an effort to make the code hierarchical by reversing family and order designations and inserting the subfamily designation. The latter, even where subfamilies or tribes are not generally recognized, was necessitated to separate the family number from the species number. In the computer (and cross-reference list), extra zeros are present to justify columns for computerization; these are omitted from the main list.

One might ask to what extent this code has been or will be used; I am not aware that it has been. Several computer-based schemes for curating collections have been devised in the past few years, but each institution has apparently devised its own (if any) coding system depending on the capabilities and limitations of the equipment and systems available. Until all computers are compatible, I doubt that there can be a unified code, and I doubt that anyone (other

than perhaps a cryptographer) will use a code that keeps changing.

The scientific name entries are straightforward. Alternate combinations are indicated in taxonomic notes. These notes, grouped at the end of family listings, indicate where species may be lumped by other authors or where other generic names have been used for a species. This is a very useful addition to the list. The English-name listing gives Edwards' preferred specific and group names, with alternatives; his basis for preference is given in the introduction. One can only wonder why Tucuchillo is a preferred English name for one species in a series of nightjars, but one can quibble endlessly over English names. Incidentally, Edwards specifically calls these English rather than vernacular names, accepting a point made by Parkes (1975, *Auk* 92: 818) in a review of the first edition.

The distribution includes the geographic Region and Subregion of occurrence for both breeding and wintering (for migrants) seasons, with more detailed information on range as space permits. The first edition gave only the Region. The distribution code is complicated, however, and will necessitate constant referral to the list of symbols and to the maps. The improved distributional information may be the most significant and useful change in this edition.

The one other area of major change in this edition is the arrangement of the taxa in the list, and here I believe Edwards made some poor decisions. On the whole, he retained the orders and families of his first edition, but he arranged them generally to follow the classification proposed by Cracraft (1981, *Auk* 98: 681) without following the latter's systematics. Cracraft's classification was expressedly a "first attempt" and a "preliminary expression of ideas" that should not have been adopted or followed for a list of this kind. In avian classification, the most recent word is not necessarily the last word—or even the best available word. The one advantage to Edwards was the merging of two orders, which reduced the number of taxa at that level to 25, eliminating the need for a double letter representing any order and saving a space on the computer.

In the sequence of genera and species, Edwards followed a series of papers by Devillers (1976–77, *Le Gerfaut*, vols. 66–67) except for those groups covered in the revised volume I of the "Peters" Check-list (Mayr and Cottrell 1979, Harvard Univ. Press), the Strigiformes (for which he followed an unpublished list), and the Alcedinidae [for which he claims to have followed Fry (1980, *Living Bird* 18: 113) but certainly did not]. In every instance there are enough unexplained exceptions so that the overall arrangement must be considered Edwards' own unique arrangement/classification, one that has so many partial bases that it in fact has no basis.

There are 166 entries in the bibliography, a substantial increase over the 55 in the first edition, which

covered the entire class. Still missing are most of the important regional works noted by Parkes as absent from the first edition. Works listed range from continental field guides and monographs of orders to descriptions of single species. Some of the latter date back to 1964, but some descriptions published between the first and second editions are not cited (e.g. Weske and Terborgh 1977, *Condor* 79: 143) even though the species are included.

Typos and similar errors are few. The "geese" included in the anatid subfamily Tadorninae (p. xix) should be Sheldgeese, even though the individual species are called "goose." The family name Mesitor-nithidae is misspelled (Mesitornidae) once on page 30. On page 2, *heraldica* is listed as a subspecies group under both *Pterodroma rostrata* and *P. arminjoniana*; the listing under *rostrata*, as Beck's Petrel, not indexed as an English name, should be *becki*, which is indexed as an important subspecies unit.

The sum of a review is not equal to the total of the details. This is a greatly improved expansion of the original Coded List, although not all changes are necessarily improvements. The utility of the code has yet to be demonstrated by wide acceptance. The list itself is a very handy and apparently complete reference. Whether one prefers this list or one of the similar compendia depends on how one intends to use it.—RICHARD C. BANKS.

John Gould. The bird man. A chronology and bibliography.—Gordon C. Sauer. 1982. Lawrence, Kansas, The University Press of Kansas. xxiv + 416 pp. \$65.00 (cloth).—This long-awaited, attractively presented reference work on John Gould is the product of more than three decades of study by the author. According to Sauer, this book is not a biography, but a "compendium" on John Gould. It consists of four parts of unequal lengths. Part one is a genealogy of John and Elizabeth Coxen Gould. In part two the author presents a detailed, annotated list of Gould's major works; part three is a chronological list of the life and works of Gould; and part four is a bibliography of Gould, his family and associates.

John Gould (1804–1881) was a well-known 19th century ornithologist, artist, and also, according to Sauer, a good businessman. The author in his introduction stresses that Gould, whose present fame rests on hand-colored lithographs bearing his name, was less impressive as an artist than as a systematist. Gould in fact only drew rough sketches of the birds to be illustrated. These were then properly executed by the artists he employed, first his wife, and after her death in 1841, a number of famous artists, such as W. Hart, E. Lear, H. C. Richter, and J. Wolf. Gould published only impressive, imperial-folio-size (22 × 16") plates; each plate gives the name of the artist, lithographer, and printer.

In 1827 the young Gould was appointed as "Curator and Preserver" to the newly founded Zoological Society of London by Nicholas Vigors. Within a few years he embarked on his life-long career. Being in a position to study a collection of exotic birds, Gould published "A century of birds from the Himalaya Mountains" with the collaboration of his wife in 1831. The scientific text was the work of Vigors, the colored drawing that of Elizabeth Gould. Other, splendid folios followed during the next 50 years. Gould travelled widely on the European continent, studying the bird collections of a number of zoological museums. It was presumably during this time that he became fascinated with Australian birds. In 1837 he left the Zoological Society to prepare for his trip to Australia. He also began to work on the collection of birds that Charles Darwin amassed during his 5-yr voyage on the H.M.S. Beagle.

Part three details Gould's life, emphasizing his many publications, voyages, and correspondence with eminent ornithologists. It is enlivened by the introduction of two devices. One, a historical context, is provided by the insertion of important events (in parentheses) of the period. The second, the inclusion of excerpts from Gould's notebooks and his correspondence up to 1870, provides an added insight into the man and his times, and transforms into absorbing reading what could have been a dry catalogue of dates and events. For instance, we find that, despite his fascination with hummingbirds (his lithographs of the Trochilidae, with their iridescent colors, are still collectors' items), Gould saw his first live hummingbird only in 1857. On visiting Philadelphia (where his collection of Australian birds was donated to the Academy of Natural Sciences by Dr. Thomas Wilson), Gould observed his first Ruby-throated Hummingbird. "It was on the 21st of May, 1857, that my earnest day thoughts and not infrequent night-dreams of thirty years were realized by the sight of a Humming Bird . . . it was . . . at . . . Philadelphia that my wish was gratified by the sight of a single male in the celebrated Bartram's Gardens . . ." (p. 139).

About half the book is taken up with part four, a "bibliography of John Gould, his family and associates." This section should be a bibliographer's delight. Sauer goes into considerable detail concerning important publications, even giving a copy of the index to H. M. Whittell's 1954 "The literature of Australian birds." Under the headings of C. A. Wood and J. T. Zimmer, the author provides facsimiles of Wood, "An introduction to the literature of vertebrate zoology" (1931), and Zimmer, "Catalogue of the Edward E. Ayer ornithological library" (1926).

This is a scholarly work, of interest to ornithologists, historians, and lovers of Gouldiana in general. The color reproductions present a delightful cross-section of Gould's plates. The black-and-white illustrations provide glimpses of the times and environment of Gould. There are numerous portraits of

Gould, maps of areas he had visited, and pencil sketches of various species of animals.

Gould the artist-entrepreneur is much more evident in this work than Gould the systematist. The format does not allow the author to analyze and evaluate Gould as an ornithologist and his impact on other scientists. A proper biography, using this work as its major source, would remedy this. "John Gould. The bird man" is an important reference book that is a must for any college, university, and public library. It is also highly recommended as an addition to the bookcase of ornithologists. While at first glance the price may seem high, it is well worth it.—
MARIANNE GOSZTONYI AINLEY.

Flight of the storm petrel.—Ronald M. Lockley. 1983. Middlebury, Vermont, Paul S. Eriksson. 192 pp. \$16.95.—The young person enamored of birds and contemplating how to spend his or her life studying them has three courses of action from which to choose: (1) Become an M.D. or the like, make lots of money, and retire early to study birds in comfort. This option has the disadvantage of creating peripatetic life-listers. (2) Take advanced degrees and obtain an ornithological research and/or teaching position. This road often leads to paper-pushing under the dictum, "research time may be defined as that into which everything else eats." (3) The third strategy is just to begin studying birds, never minding about money and hoping that things will somehow work out. How remarkably productive this last alternative can be is shown by the life of Ronald Lockley.

As a young man of 24 in 1927, Lockley assumed the lease of Skokholm, a Viking-named island off the Welsh coast, and began to indulge his passions for birds, wild flowers, and islands. "Flight of the storm petrel" is the third major work on birds written for a general audience to come from his years of patient observation and banding on Skokholm; earlier books described the island's puffins (*Fratercula arctica*) and Manx Shearwaters (*Puffinus puffinus*). Actually, the present book is a good deal more than a one-species account, as it treats all the world's 21 species of storm-petrel (Family Hydrobatidae).

Because Lockley's aim is a popularized account, the specialist should not expect to find detailed quantification, and he won't. But even so, the number of literature references (42, 19 since 1970) is disappointing. And more than a few readers will find the literary license a bit much; at one point Lockley relates an imaginary interview of a storm-petrel (*Hydrobates pelagicus*) conducted by himself. However, books written by intensely-curious, life-long students of birds are always worth exploring for hypotheses (sometimes found in cryptic form) provoked by intense observation and thought.

Overall, rather little is known of the Family; only six species have been studied thoroughly. Foremost

of these is Lockley's own bird, *H. pelagicus*. The first seven chapters, and almost half the book's pages, are devoted to treatments of this species' prebreeding, egg laying, incubation, nestling care, and migration between the eastern North Atlantic and waters off southern Africa. Throughout these chapters, liberal reference is made to work with other tubenoses, particularly shearwaters, and particularly D. M. Serventy's long-term study of the Mutton Bird (*Puffinus tenuirostris*). Among gleanings of general interest, I noted that Lockley takes the Lackian position that age-specific reproductive success is due to differential breeding experience. However, he may not be familiar with the alternative effort hypothesis proposed by G. Williams. Lockley implies that mutual individual recognition of parent and young by voice occurs in this storm-petrel, an untested hypothesis and problematical in a species that nests in individual burrows. He suggests that because petrels are dressed in blacks, whites, and grays, they are without color vision(?). Lockley comes down in favor of the "desertion" hypothesis, attributing such behavior to a gradual "loss of interest" in the chick. Preening is thought to be a "... reaction to itchiness caused by irritation of the nerves just below the skin ...". He presents suggestive evidence that a seabird colony, in this case one of puffins, was decimated solely by a parasite, the mite *Dermanyssus gallinae*. Among seabirds, tubenoses are thought to be uniquely invulnerable to petroleum spills because their sense of olfaction allows them to avoid oil slicks. He claims petrels are solitary at sea because they need to disperse widely to find the small organisms in their diet. One wonders, then, how plankton-feeding phalaropes manage in flocks large enough so that, in flight at a distance, they appear as smoke on the horizon. His statement about solitary habits seems incompatible with his later claim for intraspecific dominance hierarchies on the pelagic wintering grounds. The assertion that Arctic Terns (*Sterna paradiseae*) make a living by snatching prey from the surface while hovering seems remarkable. Don't they dive in the eastern Atlantic? Prebreeders are thought to be attracted to breeding islands by homing in on the calls of breeding adults, like toads to a breeding chorus. Chapters 8-10 are devoted, one each, to Leach's (*Oceanodroma leucorhoa*), Madeiran (*O. castro*), and Wilson's (*Oceanites oceanicus*) storm-petrels. Among these accounts, largely travelogues in nature, we find the inverse correlation between length of nestling stage and latitude in *O. oceanicus* being ascribed to differential length of daylight. But don't storm-petrels routinely feed at night?

Chapter 11 contains shorter accounts of several storm-petrels found mainly south of the equator. Of note is the bald assertion that *Oceanites gracilis* breeds in the Galapagos even though as of 1969 no nest or fledgling had ever been found there. And there is the mystery of why the webs on the feet of several

storm-petrels are yellow. Apparently, these are the only brightly-colored pieces of external anatomy in the entire Order Procellariiformes. Lockley asserts that oceanic birds migrate under guidance from sun and stars. Do they? Are any other sensory systems involved?

After a short postscript, the book concludes with two appendices. The first provides a very useful compilation of the 21 hydrobatids. The second briefly summarizes the predators and, more substantially, the external and internal parasites of petrels.

The book is remarkably free of errors of any sort. I found but one "typo." In one context, the term "fitness" is used uncritically and ambiguously. The meaning of "local enhancement" is not understood. The pen-and-ink sketches of the noted wildlife artist, Noel Cusa, complement the text gracefully. In several sketches, though, the storm-petrels seemed too plumpish, looking rather like diving petrels (*Pelicanoides* spp.) or even Dovekies (*Plantula alle*).

Seabird workers owe much to Ronald Lockley. He placed the first band on a storm-petrel. Techniques now taken for granted, like "latticing" burrows and checking by smell for burrow occupancy, were invented by him. His book sums up a lifetime of work on petrels by one who would surely describe himself as their friend as well as their pupil. This account should appeal to all who enjoy descriptive ornithology, and contains enough meat to make it worth reading by the hypothesis-hunting specialist. Those daunted by the hardbound edition's price tag might take heart from knowing that both "Shearwaters" and "Puffins," Lockley's earlier treatises, were both subsequently reissued as paperbacks.—THOMAS C. GRUBB, JR.

Aves de ambientes acuáticos de Córdoba y Centro de Argentina.—Manuel Nores and Dario Yzurieta. 1980. Córdoba. State Secretariat of Agriculture and Animal Husbandry of Córdoba. xxi + 236 pp. 45 color plates. No price given.—The province of Córdoba, roughly the size of the state of Florida in North America, occupies a central position in Argentina. Besides grassland, desert, and semidesert habitats, it has large wetlands, the avifauna of which is described here in an exhaustive and well-illustrated book. The senior author is largely responsible for the text, while the junior author has painted all 146 wetland species and also collaborated on writing the text.

In the introduction, the types of wetland occurring in the province are classified into (1) those with a definite bed and with aquatic vegetation (*lagunas*), (2) water bodies without a definite bed but vegetated (*esteros*), (3) temporary pools lacking vegetation (*bañados*), and (4) reservoirs (*diques*). Besides these wetland types, birds of rivers, lakes, and creeks are also considered. The birds are treated in systematic order, with description of each family—a bonus for the

North American reader because these family descriptions contain data that are not easily available in the existing English-language literature. For example it mentions that the Screamers (Anhimidae) exhibit neither sexual nor seasonal dimorphism, and that they often soar in thermals similar to birds of prey. Coloration of each of the 146 species is described, with attention given to sexual, age, and seasonal plumages and to the color of soft parts. Habitat, and also some peculiarities of habits such as characteristic calls, way of flight, tail flicking, etc., is briefly described where necessary for identification. Further headings deal with seasonal occurrence, nest site, kind of nest, number and coloration of eggs, distinct identification marks or habits, and, finally, distribution in the province (with a simple map) and in Argentina, clearly describing the seasons of occurrence. It is noteworthy that in the Spanish ornithological language there are no such misleading expressions as in the North American English "summer visitant" or "winter resident." A breeding bird is so stated: "breeds between December and March"; a winter visitant "breeds in Alaska and Canada, comes here as a migrant, found from October to May" (*Limosa haemastica*). These are straightforward although generalized statements. With respect to abundance, the reader is informed in the introduction that "common" or "rare" refers to frequency of observations, whereas "abundant" or "scarce" refers to numbers of individuals an observer might see (e.g. *Larus pipixcan* is said to be more or less common, but not abundant, whereas *L. maculipennis* is very common and very abundant, occurring in great flocks).

A laudable feature of this simple and short but concise book is the color illustrations. These paintings are entirely satisfactory for identification of each species and each plumage (although some of the postures are a bit stiff and in some cases the head is too large, a common feature of many bird illustrations worldwide). I have seen some of the original paintings of Sr. Yzurieta, and it appears that the printing has subdued the colors. What is missing in quality, however, is compensated by quantity. This is the first "state" book of a partial avifauna where each species is depicted at least twice (standing resp. swimming, and flying), or, where different plumages necessitate it, up to 3 (*Plegadis chihi*), 4 (*Larus pipixcan*), 5 (*Rosttrhamus sociabilis*) or even 7 (*Circus buffoni*) times!

These detailed features make this book an extremely good field guide and source book. For the North American visitor who reads Spanish fluently, it is a storehouse of information about a wetland avifauna that lives in habitats similar to those on our continent, yet is so different in some of its features. A superficial comparison with our wetland avifauna shows, for example, the richness in Rallidae [3 species of coot (with deep yellow, red, and red/yellow shields!), 3 gallinules, 6 rails (of which only one is known for its nesting habits)] or of the passerines (7

species of furnariids nest in wetlands, besides 1 wren, 3 pipits, and at least 3 fringillids), whereas the diversity in icterids, ardeids, and anatids is comparable to that in North American marshes. Such comparisons would eventually lead to tracing the history of wetland birds both in North and South America, something not yet attempted. In the meantime, I recommend a visit to the Córdoba marshes, where a lot of challenging observations could be made following the guidance of this book.—MIKLOS D. F. UDVARDY.

A bird-finding guide to Ontario.—Clive E. Goodwin. 1982. Toronto, Ontario, University of Toronto Press. 248 pp. \$12.50.—Many years ago, Olin S. Pettingill Jr. produced a new kind of bird book: a bird-finding guide to areas east/west of the Mississippi. Such a book must have been quite a risk at that time, when "birding" as a respected past-time or passion had not yet caught on, or at least was not yet widespread, in North America. Today, however, bird-finding guides may be more numerous than bird identification guides and there is no end in sight. There are bird-finding guides for all political and many nonpolitical jurisdictions: the world, continents, countries, states, provinces, counties, cities, etc. In Canada, the proliferation of these guides is not great. To date, there is only one small guide of the entire country, although a second more exhaustive one has gone to the publisher. Few provinces have them, although at least two have naturalists' guides, but there are several city and/or regional guides available. "A bird-finding guide to Ontario," then, is one of the few province-wide birding guides in Canada. The author, Clive E. Goodwin, was (Ontario) Regional Editor for *American Birds* for 17 years.

The purposes of the book, as described by Goodwin, are: 1) to meet the growing demand across North America for bird-finding guides and 2) to provide directions to the best-known localities for finding birds in Ontario. The book is well laid out: the first section (chapters 1 and 2) gives general information on Ontario birds and their status in the province, chapters 3–8 give directions on how to get to certain birding areas in various regions of Ontario, and the last two chapters give information for visitors and seasonal systematic lists. The bulk of the book is contained in the second section. Each of those six chapters begins with a map of the region showing the locations of all sites discussed. A short introduction discusses the region, giving breeding birds that are more or less unique or that may reach the northern or southern limit of their breeding range within that region. The rest of each chapter consists of an alphabetical and numerical listing of the various sites and how to get to them. One must be impressed with the number of specific sites Mr. Goodwin covers, 217 in total. It is also a credit to his thoroughness to have

most, if not all, of the sewage lagoons in Ontario included.

My major criticisms of this book lie with what has been omitted rather than with what is presented. The most serious omission is that for many sites Goodwin fails to mention any (or more than only a few) of the birds that can be found there. An example can be taken directly from the text description for Guelph. Guelph is a large town of 70,000 people. In the guide it is allotted two and one-third pages—a reasonable allotment of space. Only five bird names are mentioned in the entire section, however; two of these are Grasshopper Sparrow (which appears twice) and one is “semi-wild Mallard.” A tally of several of the Regional Sections shows that for about 40% of the sites listed, no species or even family names of birds to be found are mentioned.

In a similar vein, the narrative that goes with some of the sites is amazingly brief. For example, the entire entry for Thedford consists of one sentence: “The sewage lagoons are on the right, driving west on Highway 82, just ½ km after the long curve to the left leaving the village.” There is no mention of whether or not the area is good for birds (some sewage lagoons are not) or of what to expect when you get there. Approximately 18% of the site entries consist of similar one- or two-sentence descriptions of how to find the site. Given only pages and pages of directions the reader will find the book boring and tedious. In a nutshell, the book lacks meat! It is heavy on the “where” but very light on the “what” of birding in Ontario!

To be fair to Goodwin on these points, however, he nowhere states that his book is a guide to the birds that will be found at birding sites, but rather “Where the birds are and how to get there.” I think in preparing *good* bird-finding guides, however, authors have a responsibility to provide this information for the sites they describe.

As is true of many bird-finding guides, some significant birding areas appear to have been missed or omitted. Even within the limited area of south-central Ontario on which I may be qualified to comment, the communities of Barrie, Orillia, and Owen Sound are not mentioned. All three are located adjacent to

or near large water bodies and get significant seasonal populations of birds. The garbage dump in Barrie, for instance, is a good inland area for gulls.

My only criticism of the material presented by Goodwin (and this is a minor but frequently occurring irritation) is his use of the word “duck” for both the singular and plural. While the two dictionaries I consulted show that either “duck” or “ducks” is correct for the plural form, it is certainly more than a little awkward to read “Gulls and duck loiter” or “. . . in autumn, loons, duck and gulls . . .” In addition to this awkward usage, he is at times inconsistent too, as he writes, “Scan for ducks and gulls,” “. . . several species of ducks . . .” and “. . . watching migrant loons, ducks and gulls . . .”

Goodwin includes two systematic lists, a seasonal status of species in northern and southern Ontario and a list of species that have occurred fewer than 15 times in the last 20 yr. These are useful and appear up to date. The Index lists both place names and bird species mentioned in the text. Given the paucity of bird names in many of the accounts, however, I suspect that the Index is not complete in absolute terms.

Goodwin could have enhanced the appeal of his book greatly had he included a section on where to find birds highly sought after in Ontario (i.e. “want birds”). For resident birders, species like Bobwhite, Wild Turkey, Black-headed Gull, Barrow’s Goldeneye, Harlequin, and Sandhill Crane can often be located, if you know where to go. For out-of-province birders, finding Ontario specialities like Gray Jay, three-toed woodpeckers, the northern owls, Boreal Chickadee, and Spruce Grouse also fit into the category.

In spite of my criticisms, I use and keep a copy in our vehicle almost all the time. As I said above, most of my criticisms are with what is not in the text. What is there is a vast improvement over what was available prior to 1982. For most keen Ontario birders, the book should be an essential part of their libraries. Similarly, community libraries should have a copy to assist novice birders in finding good local areas. The book is probably unnecessary for strictly scientific collections.—D. V. (CHIP) WESELOH.

ALSO RECEIVED

Proceedings of the Second International Swan Symposium, Sapporo, Japan, 21–22 February, 1980.—G. V. T. Mathews and M. Smart (Eds.). 1981. Slimbridge, Gloucester, England, International Waterfowl Research Bureau. 396 pp., figures, tables. £8.00.—This book, as the name suggests, is a compilation of the 54 papers presented at the Second International Swan Symposium held in Japan in 1980. Although the Symposium was the second sponsored by the I.W.R.B. to deal with swans, this is the first time the proceed-

ings have appeared as a separate volume. Perhaps this is an indication of an expanding world-wide interest in swan research.

The book is divided into nine sections and the papers in each section are arranged in geographical order, from the host country via the New World to the Old World. The topics of the nine sections, and the numbers of papers in each are: “Distribution and status” (8 papers), “Migration” (10 papers), “Breeding biology and population dynamics” (7 papers), “Be-

haviour" (3 papers), "Feeding" (7 papers), "Hunting and management" (2 papers), "Mortality and disease" (4 papers), "Contributions by non-professional researchers" (7 papers), and "Anatomy, weights and measurements, genetics" (6 papers). Aspects of the biology of the Black Swan (2 papers), the Whistling Swan (13 papers), Bewick's Swan (including the eastern Bewick's or Jankowski's Swan) (14 papers), the Whooper Swan (16 papers), the Trumpeter Swan (10 papers), and the Mute Swan (16 papers) are presented.

The quality of the papers ranges from those of some scientific merit to others of rather general natural-history interest. Although some readers may feel this mixture is a problem typical of symposium proceedings, I think it reflects quite well our lack of knowledge of some species in particular areas of the world. Presumably the Symposium organizers solicited contributions from all areas of swan research, and what appears in the proceedings is a fair representation of that work. The natural-history-type papers indicate swan research in some parts of the world is only just beginning, while the total lack of papers dealing with the Black-necked Swan and the Cascoroba Swan seems to indicate there is no work going on in other areas.

The entire volume is in English, which must have caused considerable editorial headaches, considering that for many authors English was not their first language. The editorial style seems consistent throughout, the figures and tables have been printed clearly, and there are few typographical errors. The complete addresses of the authors follow each paper. Anyone interested in the world-wide conservation of swans will find this volume a useful addition to their library and a convenient summary of the current status of swan research.—RICHARD W. MCKELVEY.

Aves Brasileiras.—Johan Dalgas Frisch. 1982. (A cassette supplement to "Aves Brasileiras" by Johan Dalgas Frisch; Copacabana MK7 51812) Sao Paulo, Brasil, Dalgas-Ecoltec, Ecologia Tecnica Ltda. (Rua de Consolacao, 3095, CEPO1416-Sao Paulo.) \$8.50.—Published bioacoustical recordings can often be clas-

sified into one of three categories. The first consists of works intended as contributions to the scientific study of behavioral or taxonomic relationships. The second are produced as aids to identification. The third type of recording is artistic, designed to evoke a mood, perhaps of some pastoral setting or exotic frontier. "Aves Brasileiras," published to accompany a field guide of the same name by Johan Dalgas Frisch, does not easily fit into the aforementioned scheme.

The first third of the cassette consists of bird songs dubbed simultaneously over orchestral music. For example, the first piece is a popular rendition of Mozart's Symphony No. 40. The birds that accompany the music are not identified, but include one that sounds for all the world like a canary. This unusual amalgam of music and bird song cannot adequately be described. It sounds unharmonious to my ears.

The remainder of the cassette includes recordings of 76 species of Brazilian birds (and one introduced species). The bird songs are arranged in eight sections (night 1-3, dawn 1 and 2, day 1 and 2, and twilight). All of the birds are presented without verbal introduction, and many overlap for most of the cut. The birds are listed on the jacket in order of first appearance on a band. It is often difficult to identify the strange bird voices by referring to the list of species. This format simulates the difficult task of separating vocalizations in the field. The recordings are generally of excellent quality, and include some fine songsters. As far as I could determine, the birds are correctly identified. As a few species are not commonly found on published recordings, their presentation is valuable.

Overall, I found the cassette confusing. The first section may appeal to some as "art." The second section is less useful than it would have been had some sort of verbal identification of the species been included. This recording presents a challenge to the aspiring neotropical ornithologist: Can the songs be successfully matched with the accompanying list of species? As a supplement to a field guide, I doubt that many bird students would find this cassette helpful.—RICHARD BRADLEY.