REVIEWS

EDITED BY KENNETH C. PARKES

Seasonal activity and ecology of the avifauna of an American equatorial cloud forest.—Alden H. Miller. 1963. *Univ. California Publs. Zool.*, 66(1): 1–78, 2 pls., 3 text-figs. $1.50.—This study, according to the author, was directed primarily at determining the breeding seasons of the avifauna in an American equatorial cloud forest. It was conducted at San Antonio, Colombia, at latitude 3½° N and 6,500 feet elevation in the western Andes, concurrently with intensive research on *Zonotrichia capensis,* from February, 1958, to January, 1959. A brief introduction leads to the body of the report—an annotated list of the 167 species encountered. Not included are several species previously reported by other workers but not detected by the author. The last dozen or so pages are occupied by discussion, speculations, comparisons, ecological analyses, generalizations, and conclusions.

The species accounts understandably receive uneven treatment. The author is to be congratulated on the large amount of positive breeding information he has drawn directly and indirectly from examination of relatively few suitable specimens. A more valuable contribution, in my view, is the author's annotations on whatever was detected of the birds' natural history. The text rarely lacks lucidity, and only once did I ponder so puzzling a sentence as the one on page 56, concerning a specimen with an adult skull: "its rectrices were postjuvenal, not pointed as in the immatures, which apparently retain the juvenal rectrices in the postjuvenal period." Inclusion of a map would have enabled the reader to locate other collecting sites mentioned in the text with reference to San Antonio.

The important concluding section, in my opinion, goes far beyond the author's data and falls far short of the expected high standard. Thus, the distribution of breeding activity noted among 111 of the total 167 species is summarized in a graph constructed from a working table which the author prepared for himself but did not publish. This graph shows two curves and their relation to the wetter and drier parts of the year. The upper curve, sharply peaked in March, represents monthly totals of numbers of species found breeding. The lower curve, a modification of the upper, is depressed and its peak shifted to May. It represents a ratio devised to equalize differential monthly effort in the field. This ratio is termed a breeding index in which the number of breeding species is expressed as per cent of the total of specimens collected.

I find it difficult to assign a precise meaning to this index. It would conform to the author's intention only if he made two unfounded assumptions: (1) the presence of the same per cent of individuals of all species each month, (2) the same per cent of individuals of all species in breeding condition in each month. A way to achieve the author's objective would be to list by name for each month all specimens collected and to indicate which of these are in analyzable breeding condition. Then, having decided upon a numerical sample the same for each month, based most usefully on the month in which the smallest number of specimens was taken, select that number of specimens from the monthly totals by means of a random-number table.

In view of the far-reaching conclusions derived from the breeding index, for which, according to the author, the tabulated data were interpreted from the details of the species accounts, I sought to reconstruct his working table for myself in order to plot a curve in pursuance of the method outlined above. This became an impossible labor because: (a) details are given for fewer individuals than the number of specimens in many of the accounts, thus making futile any attempt to compile monthly totals

of individuals or even to decide which 111 species the author had chosen; (b) species or individuals taken below the forest and/or the cloud belt at San Antonio may be included; (c) specimens in breeding condition from other areas, including the Tropical Zone in Colombia and northern Venezuela, are utilized to suggest time of breeding of those same species, collected only in nonbreeding condition, at San Antonio; (d) no guide is given for the interpretation of numerical values in the case of nests with eggs or of begging young or other instances not involving specimens in the hand, or of a breeding pair or of several individuals of the same species, breeding or not, shot the same day; (e) breeding specimens of species taken only once, or several times within a short period, are not counterbalanced by nonbreeding records the rest of the year; (f) no allowance is made for seasonality of native visitants, whether as breeders or nonbreeders. Not only is the author's information grossly inadequate for a study of this magnitude, but his interpretations must be accepted on faith.

The breeding index is put into service (1) to emphasize the year-long breeding of the avifauna as a whole with a marked but not excessive peak in the second quarter of the year and (2) to lend support, as the ultimate cause of this peak, to the correlation between maximum breeding and the departure of the North American migrants.

The author compares San Antonio with Amani in East Africa, reported on at length by Moreau, and calls the latter locality the African equatorial counterpart of the American tropical cloud forests. The reader must decide for himself whether the author considers tropical cloud forest an inclusive term for all cloud forests in the tropics, or forests affected by mist within prescribed altitudinal limits, or possibly an atmospherically modified fasciation; whether equatorial cloud forest is distinct from tropical cloud forest or if tropical cloud forest is distinguishable from temperate-region cloud forest, as eventually it must be, with latitudinal distance from the equator; whether the several references to subtropical forest at San Antonio are synonymous with cloud forest; whether "Tropical Zone" and "tropical" and "subtropical" are used in the sense of Chapman or of someone else.

Consulting Moreau's series of papers, I find that Amani, compared to San Antonio, is located considerably lower, at 2,800–3,000 feet, that it averages 2°C warmer, and that its long-term rainfall record is annually 50 per cent greater. More importantly, there is no cloud forest at Amani. This is obvious from Moreau's own writings and his photographs. Dr. Miller makes the point that at Amani the breeding season is much more sharply peaked and shows a rather marked seasonality associated with moderately contrasting wet and dry seasons and a considerable variation in temperature. Climatic conditions at San Antonio were more uniform, the station lying a little closer to the equator (3½° N versus 5° S).

Here I wish to comment that the two stations are similar in having annually two wet and two drier periods typical of humid equatorial latitudes generally, while their difference in distance of approximately 100 miles from the equator is not shown by the author to be climatically significant. Insulating cloud cover and mist would tend to make climatic conditions more uniform at cloud-forested San Antonio. Conditions at Amani, situated some 1,500 feet below the lower limit of the cloud-forest belt in that part of East Africa and with heavier rainfall in the wet periods than at San Antonio, would tend to produce stronger seasonality in precipitation and temperature. The one-year climatic record at San Antonio and the desultory breeding data warrant only the broadest sort of provisional generalization awaiting confirmation by a

thorough study of the area. The reader need not quarrel with the over-all finding of increased year-'round breeding equatorward in conjunction with marked seasonality in the spectrum of tropical birds.

The author estimates the avifaunal increment comprising the wintering migrants at close to 15 per cent. The species implicated are *Dendroica fusca, Wilsonia canadensis, Mniotilta varia, Hylocichla ustulata,* and *Empidonax virescens,* all presumably competing with the residents for the same food supply. Postulating a mechanism for "the selective forces which may have led to the doubtless beneficial general displacement of breeding in the period of the presence of visitants," Dr. Miller offers as a model the migrant *Hylocichla ustulata* supposedly tapping the food resources of, and inferentially obtaining the same prey in the same way as, two native robins, *Turdus ignobilis* and *Turdus serranus.* The latter birds, incidentally, each weigh twice as much as the *Hylocichla.* Of possibly greater significance to me is the circumstance that the similar-sized native *Catharus,* which is much more closely related to, if not congeneric with, the *Hylocichla,* is only a vagrant at San Antonio. As the author does not mention other students who have considered the problem, I cite Skutch (*Ibis,* 92: 212–215, 1950) and Moreau (*Ibis,* 92: 261–262, 1950), both of whom came to the conclusion that competition by visitors is at best a minor contributory factor and also point out that migrants arrive at the height of the nesting season south of the equator.

Thus the author conjures an image of the native avifauna giving way before the migrants. One could, however, as readily adopt the opposite view, that is, the wintering ranges and within them the varying geographical and ecological concentrations of individuals give a picture of different species of migrants in process of adjustment to the presence of the undisplaced residents. A third view, a reconciliation, is that of two complementary groups which may not be directly competing with one another at all. Competition has not been demonstrated by Dr. Miller, who seems to have erected an hypothesis on negative evidence.

The author recognizes (p. 69) that "ecologic radiation is to be expected in view of the competition among basically similar structural types within the same family" among the resident birds. I cannot appreciate the manner in which this statement does not also apply to his five species of migrants, all of which are generically distinct from the native birds at San Antonio. Skutch and Moreau, agreeing with one another that native birds breed at the optimum periods of year in accordance with their own specific requirements rather than in deference to those of migrants, evidently disagree with Dr. Miller. Neither Skutch nor Moreau has accepted a single-factor hypothesis for breeding periodicity, but their observations strongly suggest an increase in food supply as the principal factor in the general burgeoning of life in tropical latitudes at approximately the same period of year as in temperate regions north or south of the equator.

Skutch (*op. cit.*: 197–211) discussed five classes of birds "whose breeding season differs markedly and consistently from that of the generality of the avifauna" in inland Central America. These are nectar-drinkers, grass-seed-eaters, ground-feeders, grasshopper-eaters, and big far-ranging birds (hawks, oropendolas, larger woodpeckers, etc.). Moreau (*op. cit.*: 244 ff.) made similar distinctions in Africa. Dr. Miller does not refer to these avifaunal elements painstakingly analyzed by Skutch and Moreau, the consideration of which as a result might have altered the aspect of his breeding index and perhaps the expression of some of his views.—P. SLUD.

Check-list of Angolan birds.—Melvin A. Traylor. Publicações Culturais da Companhia de Diamantes de Angola, no. 61, 1963. 250 pp. 12½ × 9½ in.—This work fills a long-felt need, since the only previous comprehensive list, Bocage's *Ornithologie d'Angola,* was published as long ago as 1877–1881. As the author says, he has never visited the territory, but it is plain that he has made an exhaustive search of the published literature, and has been to great pains to study the various collections of specimens made, or at least to obtain information about them second-hand from reliable sources.

The introduction contains a useful historical review of ornithological activity in Angola. It is evident that while the status of the birds of the western part of the territory is generally well known, the position further east is much less satisfactory. It was therefore wise to have included in an appendix a list of forms collected in the last 10 years in the extreme west of Northern Rhodesia, including the author's own important collection made in 1961 in the Kalabo District, bordering southeastern Moxico. There follow in the introduction some useful geographical and zoogeographical notes. The ecological contrasts are remarkable, from tropical evergreen forest in the northwest (part of Chapin's Lower Guinea Forest District), with an average of 60 inches of rain a year at Cuanza Norte, to semi-desert conditions in the southwest, with only 2 inches at Moçâmedes on the coast. Chapin's Southern Congo Savanna District is considered to be more restricted than originally proposed, the Rhodesian Highland District (characteristically Brachystegia woodland) correspondingly extending further north. Stress is laid on the significance of the western escarpment, acting as a barrier between the Brachystegia woodland of the plateau and the dry coastal plain. This escarpment zone is also notable for containing a number of endemic or near-endemic species. Towards the western extremity of the Brachystegia zone is a belt of high ground, rising in places to over 2,000 meters, which the author rightly regards as an isolated extension of Chapin's Eastern Montane District. In view of these various ecological contrasts, it is not surprising to find no fewer than 859 species and 188 additional subspecies recognized as occurring in the territory.

Turning to the list itself, the relative paucity of knowledge of eastern Angola seems to be brought out especially well by the lack of any records of some species associated with an aquatic environment, widespread and conspicuous enough in Northern Rhodesia. Examples are *Ardeola ralloides, Nycticorax nycticorax, Sarkidiornis melanonota, Anas erythrorhyncha, Haliætus vocifer, Circus r. ranivorus, Larus cirrocephalus,* and *Hirundo smithii.* It is also surprising to find only one record of *Motacilla flava* from the territory as a whole. Vultures must surely be more plentiful in the east than the records suggest, there being merely one each of *Torgos tracheliotus* and *Gyps africanus* from the Lunda District, and none at all from Moxico or Bie-Cuando Cubango. On the other hand, one wonders whether *Falco ardosiaceus* is so widespread as is indicated. With no offense meant to Mackworth-Praed and Grant (*Birds of the southern third of Africa.* Vol. 1. London, Longmans, 1962. See p. 143.), the reviewer is unaware of any authentic record from the Rhodesias, Nyasaland, or Portuguese East Africa. It is interesting to find that *Buphagus erythrorhynchus* is evidently absent, possibly because it is unable to compete with *B. africanus* (in Northern Rhodesia the one tends to replace the other in different localities). But according to the information available *B. africanus* is confined to the west, and the apparent absence of either species further east may merely be due to lack of information.

Breeding data are given where available, and here again there is obviously scope for much further work. *Apalis rufogularis angolensis* and *Zosterops senegalensis*

quanzae, northern forms, are believed to breed throughout the year. Further south a more seasonal regime may be expected.

There is a comprehensive gazetteer. It would have been convenient if the map in the author's systematic notes on the passerine birds of Angola (*Publ. cult. comp. Cia Diamant. Angola,* 58: 53–142, 1962) had been repeated. The printing and general format are of a high standard.

To sum up, this check-list is a credit to the author and a most valuable piece of work, pointing the way to the acquisition of further knowledge of the birds of Angola.—CONSTANTINE W. BENSON.

The Song Sparrows of the Mexican plateau.—R. W. Dickerman. *Occas. Papers Minnesota Mus. Nat. Hist.*, 9: 1–79, 1963. ix, 1 pl., 29 text-figs., 11 tables.—Thus exclaimed Robert Dickerman as he strode into the Instituto de Biología, where I was minding my own business with Arizona birds: "The Song Sparrows of the Mexican plateau bid fair to eclipse those of central California in amount of geographic variation within a small area." He implied that differentiation of populations around San Francisco Bay (J. T. Marshall, *Condor*, 50: 193–215, 233–256, 1948) is paltry or no more than commensurate with that at the south end of the Mexican plateau. Having abruptly made these and similar remarks in precise and clear tones, he concluded by jumping up and departing—leaving me as though I were quite incapable of finding any plausible defense! (Adapted from Galen, *On the natural faculties* I, 13.) Upon examining representative specimens of Dickerman's eight Mexican races, based on conventional subspecies standards, I can see that his evaluation of the four California forms is perfectly natural. A taxonomist will count the number of subspecies listed for an area and decide how much variation must therefore occur. But the San Francisco Bay birds exceed the conventional rank of subspecies, a fact that was not stated in so many words in the *Condor* article. My duty, later on in this review, is to equate them with conventional subspecies as represented in Dickerman's paper. But first let us find what he has to say.

On the Mexican plateau, Song Sparrows occur in the mountains of Durango and along the north base of the trans-Mexican volcanic belt. Highly sedentary, they spend their lives in willows, cattails, and bullrushes at the edges of springs, streams, canals, marshes, and lakes. Drainage of lakes, together with cutting and grazing of streamside growth, has curtailed or eliminated the already discontinuous populations. Nests are built close to the ground in natural areas, but at Chapultepec Park they are higher, to avoid rats. Parasitism by the Red-eyed Cowbird at the park frequently causes abandonment of the eggs; another hazard is puncturing by Bewick's Wrens.

The usual measurements, as well as weight, total length, and wingspread show that males average larger than females and that adults are slightly larger than immatures (comparing fall birds whose age is determined by skull ossification). Abrasion reduces wing and tail measurements after the prebasic (= postnuptial *auct.*) molt and changes the birds' colors as differently colored portions of the variegated feathers are worn off. Alkaline environments bleach the feathers. Old museum skins have so faded and foxed from browns and grays to reddish-browns and buffs, that Dickerman was unable to use them in racial comparisons. The delineation of variation had to be made principally from fall specimens taken since 1954. These sufficied except in one comparison, wherein color differences, masked by grayness of the fresh fall plumage, were unveiled by winter abrasion (p. 33; see my comment below).

Aside from the Lumholtz specimens (which must belong to an indigenous Chihuahuan—not Sonoran—population) and a Lago Chapala population which became extinct

before its fall colors could be determined, there are eight subspecies, three newly described. They are treated separately by Dickerman, but I shall introduce them by groups:

I. Durango birds lacking black shaft streaks; chocolate-brown, resembling *morphna* of Washington! ..... *goldmani*

II. South end of Mexican plateau; black streaks present; resembling California races [such as *gouldii* in the west and *heermanni* in the east—reviewer's opinion].

A. Western reddish-brown races; along lower Rio Lerma drainage.

1. Redder, darker; Zacapu, Michoacán ..... *zacapu*
2. Less red, paler; Lago Pátzcuaro, Michoacán ..... *adusta*
3. Browner; Lago Yuriria, Guanajuato ..... *yuriria*

B. Eastern plainer brown races; Toluca to Hidalgo.

1. Darkest and largest; head of Rio Lerma near Toluca, México, and downstream to within a few miles of *yuriria* ..... *villai*
2. Paler, redder; valley of México ..... *azteca*
3. Grayer-brown; Tlaxcala and east into Puebla ..... *mexicana*
4. Same color as *villai* but smaller; Hidalgo ..... *niceae*

The noteworthy variant in size is the middle population, *villai*, of the southern west-east sequence, which far exceeds the other southern races in nearly all measurements. To the northwest, *goldmani* is equally large.

In explaining this great amount of geographic variation, Dickerman states that the aquatic-edge vegetation which is home to Song Sparrows insures and enhances the isolation of populations. It is mobile and quick-growing. If a stream has to change its course or a lake its margin because of climatic, geological, or human interference, the Song Sparrow's habitat sprouts up again near where it was before. The small population it supported doesn't have to leave the area, looking for a new home. Specifically, it does not decamp for another marsh, there to mix its genes with those of a strange population.

In criticism let me say that the instance of racial color differences obscured in fresh fall plumage is probably due to the gray bloom of feather debris from the molt; these skins have to be wiped with damp cotton, and you can tell when they are clean by the shaft streaks, which become clear black when this bloom and the awful powder from white corn meal are removed. Very fine subspecific splitting precludes the use of old museum skins. Were a coarser standard adopted, old fall skins could be compared among themselves. They could be placed into comparable "fading groups" according to the blackness of their shaft streaks. I heartily commend Dickerman's novel idea that the Song Sparrow's unique habitat is what gives it everything necessary to be the most geographically variable species known on the face of the earth!

Now, back to our original intention of equating racial differences among Song Sparrows as presented by different authors for different parts of the continent. Judging from the number of race names used, there must be twice as much geographic variation on the Mexican plateau (Dickerman—8 races) as around San Francisco Bay (Marshall—4 races), if the names stand for the same thing. But they do not. Dickerman's are conventional races: at least 70 per cent of the central population of one is separable from its neighboring race, using all available traits together; or, a race name is given to the slightest amount of difference that suffices to separate 70 per cent of the sample of a population from other such populations. By setting the racial criterion at this lower limit of detectability, all races tend to be equivalent; comparisons of amounts of geographic variation can be made between species and

genera. Dickerman's Mexican races are equivalent to those of the eastern United States, studied by Wetmore and others, and to those of Alaska, delineated by Gabrielson and Lincoln.

Chaos and misunderstanding follow the use of higher standards, which I shall nevertheless espouse. Seth Benson used to taunt me thus: "Joseph Grinnell could look at a Song Sparrow specimen and tell you within 15 miles where it came from. Why can't you; and why can't you detect more than four races?" I could only answer that I *was* capable of telling where a specimen came from, but that I did not want to name intermediate races. Using conventional standards, there would be nine San Francisco Bay region races instead of the four currently recognized: these would be the *Marin* (*gouldii,* part); Peninsula (*gouldii,* part, including "*santaecrucis*"); East Bay (*gouldii,* part); *Napa* (*samuelis,* part); southern San Pablo Bay (*samuelis,* part); Stege (*pusillula,* part); *San Francisco Bay* (*pusillula,* part); Southampton Bay (*maxillaris,* part); and *North Suisun Bay* (*maxillaris,* part) populations. Five are variously intermediate among the four italicized. Only the latter possess unique traits, developed to a maximum, and found nowhere else in the species. Needless to say the central populations of the four races are 100 per cent separable. Figure 48 (*Condor* article, p. 235) shows a very crude analysis, just of dorsal ground color, which separates 70 per cent of any one of the four extreme racial populations from nearly 100 per cent of the other three combined! For example, there are a few skins of Marin, San Francisco Bay, and North Suisun Bay that are assigned to the blackish-olive back type of Napa. These can be diagnosed by enormous differences in bill measurements, to say nothing of further color differences: none has the dense, long, pure black streaks of *samuelis*, and the San Francisco Bay birds are yellow beneath!

The Song Sparrow's phenomenal geographic variation is the showpiece of the A.O.U. The most jaded enemy of subspecies cannot fail to be impressed with a species that ranges in size from that of a Savannah Sparrow to that of a Brown Towhee, in dorsal ground color from pale gray to dusky and from pale reddish-brown to chocolate, in bill proportions from sparrow-like to blackbird-like, that can have reddish-brown or black streaks on the chest if not black spots, and that can have white or yellow underparts! The entire species deserves to be worked up by one person, using the fresh fall material now available in the Museum of Vertebrate Zoology (California and Pacific coast), University of Minnesota (Mexico), U. S. National Museum (Alaska, Idaho, eastern United States), and A. R. Phillips' collection (Arizona, Sonora). Of course I would like to see my criteria used; these would point up the dramatic sweep of geographic differences. The rules would be to name populations that have unique attributes and to take away the names of all intermediate populations. The following is a suggested outline, mostly from memory and therefore not doing justice to all forms:

I. Shaft streaks long and diffuse, not greatly contrasted with ground color; underparts (except the streaks) not pure white, but dirty gray instead; bill long and slender; size large; northwestern North America.
   A. Streaks sooty, dorsal background dusky; central southern coast of Alaska; lives along the beach; partly migratory ..... *caurina*
   B. Streaks brown.
      1. Dorsal background gray; size huge; Kodiak and Aleutian islands; lives along the beach ..... *insignis*
      2. Dorsal background dark reddish-brown; size medium; southeastern Alaska to Oregon; partly migratory ..... *rufina*

II. Shaft streaks compact, contrasted; underparts white (aside from these streaks or spots) or yellow in one form; size small; bill short.
  A. Ventral markings are streaks; middle of throat finely marked.
    1. Streaks brown.
      a. Dorsal background dark reddish-brown; Durango ..... *goldmani*
      b. Dorsal background pale reddish-brown, feathers edged with pale gray; lower Colorado River, Virgin River of Utah, southern half of Arizona, and northern Sonora; Baja California (isolated; with longer bill); partly migratory in north ..... *fallax*
    2. Streaks black.
      a. Dorsal background grayish, lacking brown; bill slender and small; size very small.
        (1) Dorsal background light gray; islands off California ..... *graminea*
        (2) Dorsal background yellow-gray; venter yellow; San Francisco Bay salt marshes ..... *pusillula*
        (3) Dorsal background olive-dusky; San Pablo Bay salt marshes ..... *samuelis*
      b. Dorsal background brown, feathers edged with gray or buff.
        (1) Wing relatively long; migratory races.
          (a) Grayer; salt marshes of Atlantic coast ..... *atlantica*
          (b) Dorsal background reddish-brown, more buff in Dakotas, paler gray in Rocky Mountain region; bill stubby, slender in Rocky Mountain region; eastern United States west to Rocky Mountain region and northern Arizona; the most migratory of the species ..... *melodia*
        (2) Wing short; birds sedentary.
          (a) Dorsal background intense bright reddish-brown, feathers edged with yellowish; bill small; northern California coast ..... *gouldii*
          (b) Dorsal background dark rich brown; bill swollen at base; Suisun Bay brackish marshes ..... *maxillaris*
          (c) Dorsal background gray-brown; bill thick but not swollen; Great Valley and southern coast of California ..... *heermanni*
  B. Chest markings are large black spots, forming a necklace; large square unmarked throat patch pure white; black streaks very broad on rich brown back; southern portion of Mexican plateau.
    1. Dorsal background reddish-brown; Lower Rio Lerma drainage ..... *adusta*
    2. Dorsal background plainer brown; head of Rio Lerma east to Hidalgo ..... *mexicana.*

—JOE MARSHALL.

A field guide to the birds of east and central Africa.—J. G. Williams. 1963. London, Collins. 288 pp. 16 col. pls., 24 black-and-white pls. 45s.—A bird-watcher visiting my garden at Kampala, Uganda, would immediately notice a sparrow-sized yellow and black bird as the commonest bird in the garden, often stripping pieces from banana leaves for use as nesting material. My visitor might next hear a loud chattering from some bushes and then see five or six rather dull-colored thrush-like

birds with bright yellow eyes. With his recently acquired *A field guide to the birds of east and central Africa* he would quickly identify these two birds as a weaver and a babbler, but he would be puzzled that neither could be identified to species. The two birds, *Ploceus stuhlmanni* and *Turdoides plebeja,* are the commonest birds in the garden and my visitor might ask (perhaps somewhat indignantly) why they receive no mention in the new *Field Guide,* which, after all, is supposed to deal with common species. If I then diverted his attention to several large birds of prey circling overhead, turning again to his *Field Guide* he would have little difficulty in identifying them to species.

This new Peterson-style field guide has been long awaited. Bird watchers in east Africa frequently complain of having to carry the two massive volumes of Mackworth-Praed and Grant on their travels, and it was felt that there would be an enormous demand for a field guide that omitted all mention of subspecies, food, breeding data, etc., and concentrated on the problem of how to identify the bird in the field. East Africa is one of the richest areas for birds in the world and the new *Field Guide* is to the common species and "those less common birds which draw attention to themselves by their colourful plumage, their spectacular appearance or their loud calls or songs" found in Kenya, Eritrea, Nyasaland, Tanganyika, Northern and Southern Rhodesia, Portuguese East Africa, Zanzibar and Pemba Islands, Ethiopia, and Uganda. The Congo Republic is excluded and hence the book is really concerned with east and not central Africa, despite the title. The map on page 16 gives the incorrect impression that Madagascar is included. Descriptions and illustrations are provided for 428 species and the essential field characters of a further 324 "allied species" are enumerated. But this is only a fraction of the birds found in the area. In Kenya alone 1,033 species occur, and Kenya comprises a very small part of the total area covered by this book. In a second companion field guide it is proposed to deal with those species not included in the present work. These will be "the rarer and more local birds and those whose skulking habits and dull plumage result in their being overlooked." The difficulty with this system is well seen in the opening paragraph of this review: in an area as vast and diverse as east Africa a rare bird in some parts may be the commonest bird in others. Hence before the book can be adequately tested in the field one must have the yet unwritten companion volume, or continue to carry Mackworth-Praed and Grant.

The illustrations are by the author and by Mrs. R. Fennessy. The Peterson system is used, in which essential field identification characters are indicated. None of the illustrations is up to the standard of Peterson himself, but this is perhaps understandable. They are adequate and some groups (hawks) are more easily identified from this book than from Mackworth-Praed and Grant. A few species described are not illustrated, such as the Ostrich which is considered "unmistakable."

I have tried the book out around Kampala and I find that I can identify many non-passerines without difficulty, but for the passerines the book is almost useless. There are simply too many species that receive no mention at all. Perhaps the book is more useful around Nairobi (Kenya) than around Kampala.

Peterson has written a glowing introduction to this new *Field Guide.* Williams, in the Preface, is more factual. He might even stimulate an expedition to the Impenetrable Forest of Western Uganda to find the turaco with "very little red on the wings" that has been seen but not collected, or to the Northern Frontier Province of Kenya where a "greyish, long-tailed bird with red or chestnut under tail coverts has been glimpsed." Why not visit east Africa for your next bird-watching holiday?—D. F. Owen.

Biology of birds.—Wesley E. Lanyon. 1963. American Museum Science Books, Natural History Press, Garden City, New York. 186 pp. (paper), 175 pp. (cloth); 64 figs. $1.25 (paper); $3.95 (cloth).—It has been said of the melodies of Verdi's operas that they all seem simple and obvious until you try to compose an equally good one yourself, and so it is with elementary and introductory works on ornithology. The author of such a book must present his material at a level which seems fairly simple and obvious to the advanced biologist, but how can this be done most effectively? How much complexity and detail can be left out without sacrificing rigorous accuracy, and how much can be left in without overwhelming and discouraging the beginner?

In this compact book, Wesley Lanyon has attempted to provide an introduction to the biology of birds. It is not a guide to bird watching and is not confined to traditional natural history. The topics discussed are suggested by the titles of the seven chapters: Origin and Evolution; Design for Flight (gross anatomy and some physiology); Variations on a General Theme (adaptation and adaptive radiation; modern systematics); Migration and Navigation; Distribution and Environment; Courtship and Reproduction; Growth and Survival. Inevitably, some subjects are dealt with more successfully than others. Every specialist will probably feel that his favorite topic has been treated too briefly, but will perhaps approve of the economy of discussion of the rest. In some cases I feel that the author has given too little information, although the section headings suggest that he originally intended more. For example, a section in Chapter 1 entitled "The Process of Evolution" is almost entirely about geologic time and dating methods; only one short sentence really deals with the process. Similarly, a section on "Metabolism" in Chapter 2 is taken up largely with a description of the digestive organs and their mechanical functions. One gets the impression that the author had set the stage for the subject and then found that the allotted space was already used up. In other instances, critical comments may be offered for various reasons. In discussing the evolution of flightless birds (p. 12; page references in this review are to the paperback edition), there is no mention of their wing structure although several other lines of evidence are given in support of the view that they were derived from volant types. In the discussion of flight (p. 28), the differences in function between the flaps of an airplane wing and the avian tail at slow speeds and in landing could be clarified. The use of space-saving teleological phrasing (pp. 43–45, on locomotion), although understandable, is unfortunate in an introductory book. No theory of the origin of migratory patterns is discussed except that of response to Pleistocene glaciation, and an intended *caveat* actually reads "This is *not* to say, of course, that migrations may have and probably did exist prior to the Ice Age" (italics mine). Evidently a typographical or editorial slip has reversed the desired meaning. In the section on major habitat types in the world (pp. 105 ff.), the lumping of deserts and savannas has at least as many drawbacks as it has merits. The fact that many birds will incubate altered eggs or foreign objects does not necessarily indicate an inability to *recognize* their own eggs (p. 143); only a careful choice experiment can determine this. Lastly, some non-passerines surely have vocalizations that are more complex than simple call-notes (p. 156). Illustrations (black and white) are numerous and generally well executed although the artist has sometimes delineated all too accurately the stuffed birds that served as models. Also, the legends accompanying the illustrations sometimes fail to explain the figures adequately (see figures 15 and 33).

It would be difficult to overcome most of the criticisms that could be offered without making the text at least half again as long, and critical comments should not be

permitted to obscure the many commendable features of the book. It is up-to-date, clearly and simply written, and uses a broad range of examples to illustrate its points. The data drawn from the author's studies on meadowlarks, used in many of the later chapters, are highly pertinent and informative. The text is not interrupted by the parenthetic use of scientific names, but all those needed (including family names) are given in an appendix. There is a useful list of general and specific references and an index. If the author has not altogether transcended the limitations of the chosen genre, he has nevertheless produced a clear, concise introduction to avian biology that will leave the reader well oriented and well informed.—THOMAS R. HOWELL.

The avifauna of Colima and adjacent Jalisco, Mexico.—W. J. Schaldach, Jr. 1963. *Proc. Western Foundation of Vertebrate Zool.*, 1 (1): 1–100. 2 maps. (Available from the Foundation, 1145 Glendon Ave., Los Angeles 24, California.)—The Western Foundation is a "non-profit corporation dedicated to the study of ornithology, oology, and mammalogy," and is supported by a group of amateur ornithologists prominent in the Cooper Ornithological Society. Schaldach's work constitutes the first publication of this foundation, noted in the west for its fine holdings of over 13,000 specimens of birds and 30,000 eggs, primarily from western North America, Mexico, and Central America.

Here reported are many important range and habitat extensions, information on migration times, breeding, local movements, species' abundance, and general ecology. Various vegetational systems to be encountered in the area are well described, and there is a detailed gazetteer of collecting localities. Peculiarities of distribution include the absence of *Lophortyx douglasii, Amazona albifrons, Coccyzus minor, Corvus imparatus*, and *Vireo pallens* from the area studied. Seventy species are added to the known avifauna of Colima, among them the Wood Nymph, *Thalurania furcata*, a species for many years known in Mexico only from a single specimen; a population of *Henicorhina leucophrys*, the Gray-breasted Wood Wren; the Ornate Eagle-hawk, *Spizaetus ornatus*; and the Short-tailed Hawk, *Buteo brachyurus*.

Joe T. Marshall and Allan R. Phillips, the unlisted editors of the work, admittedly belong to the laissez-faire school of editing. Thus, they have permitted inclusion of a mere outline drawing of Colima to serve as the map. (A second, folded, map, laid in just before official publication, is a half-tone, difficult to read, and only slightly helpful in interpretation of the outline drawing of the state. The halftone does, strangely, show Lajuela, a locality which Schaldach had failed to find.) There are many misspellings, including some scientific names and place names, and, too frequently, the author's prose is hopelessly complex. Such phrases as "for these cogent reasons, of extreme importance . . ." (p. 1) and "Xantus' specimens were noted for their propensity for having unreliable data attached to the skins" (p. 74) should have fallen before editorial scrutiny. While the author's meaning is clear in the above two examples, occasionally such statements leave doubt as to meaning or as to the confidence the author has in an opinion (see his sentence concerning status of the Balsas Basin Screech Owl).

Schaldach has often avoided the important work of determining the racial identity of specimens in his possession. In other cases, he has relied on the opinion of Dr. Allan R. Phillips to an extent that, in those cases, it would have been preferable for Phillips' views to have had a more formal statement. We normally regard the author of a paper as responsible for critical pronouncements made in it, yet, while it is clear that Phillips must take responsibility in many taxonomic matters in the present

paper (without commensurate authorial status), it still is often unclear just which responsibility is his and which is Schaldach's.

The publication is solidly based upon a large recent collection of specimens. Schaldach did practically all the field work himself. All things considered, the work does credit to its author and to the Western Foundation.—JOHN WILLIAM HARDY.

The birds.—Roger T. Peterson and the editors of *Life*. 1963. New York, Time Incorporated. Pp. 1–192, many illustrs. (photos., tone and line drawings, etc., including 64 pp. in color), 10¾ × 8¼ in. $3.95.—How many accomplished ornithologists have wished for a single book which they could recommend to an interested, intelligent layman with reasonable confidence that it would at once answer succinctly the question of what, really, modern ornithology is all about; provide a responsible, brief, yet kaleidoscopic view of the great scope of avian biology today; fascinate instead of discourage; state simply, yet never condescend; illustrate, yet not exhaust; stimulate, rather than suppress, a nascent responsiveness to the infinite fascination of the world of birds—a world here clearly portrayed, not as one of mere curiosities for the puerile hobbyist but as a biologically and esthetically significant portion of man's environment? This is such a book.

The editors of *Life* are to be congratulated, not only for their skills in the production of informative and pleasing books (skills no doubt in part perfected through the course of producing their entire "Nature Library" series, of which this is the twelfth), but also in their choice of an author for the text of this one.

Roger Tory Peterson is billed at the beginning ("about the author") as the best-known ornithologist in the world, a point that can scarcely be argued. More important is the fact that, in a fruitful life more strenuously and passionately devoted to birds than, perhaps, any other of his times, he has quietly and inevitably become one of the most knowledgeable and truly preeminent ornithologists in the world, seemingly going almost everywhere, knowing almost everyone, reading voraciously, the champion of every good cause, and the owner of an impressive depth and breadth of up-to-date comprehension that illuminates nearly every page of this book. Roger Peterson, as his many friends know, is an humble and modest person, often quick to defer to the "experts" (i.e., "government-inspected, institutionally certified choice Ph.D.'s") in matters of technical detail and theoretical interpretation, and has sometimes been heard to say that he was "not really a 'professional.'" It would be easy here to engage in definitions, but if, in the sense that Dr. Peterson honestly means it, this conceivably is true, then where *is* the "professional" (and not a few have tried) who has produced a book like this one, bridging so simply and elegantly the seemingly awesome chasm between researcher and public?

The book is divided into eight chapters: From Archaeopteryx to Sparrow (an interesting and well organized essay on the evolution, adaptations, and classification of birds); What it Takes to Fly (a lucid discussion of anatomy, with emphasis on muscular and skeletal features, olfaction, and optics, correctly organized around the central feature of avian existence); Birds as Food Gatherers (a consideration of the niche, making excellent use of example); How Many Birds? (an integrated consideration of ecology, zoogeography, population dynamics, and the concept of territory); The Riddle of Migration (a simple but up-to-date statement of progress in the study of migration and orientation); How Birds Communicate (a brief review of the field of behavior); From Egg to Adult (a review of the reproductive specializations of

birds); and Toward a Balance with Man (a sane and forceful statement of the realities of present and future conservation).

The prose is straightforward, simple, and sometimes delightful; here and there the author permits himself some truly original fun, as for example (for the kiwi) "schmoo-like creatures shaped like large, hairy footballs" and (with reference to certain innovations in the guano industry) "increment in the excrement." These and similar rich images detract nothing from the earnest and serious tone of the book and add a good deal of interest.

It is difficult to find major criticisms. In my opinion chapters 1–5 and chapter 8 are the best in the book, with little to choose between them, while chapter 6 (on communication) is the weakest and chapter 7 (on nesting behavior and development) is also below the level of the others. In the sixth chapter Peterson becomes (p. 120) briefly but badly stranded on the perilous shoals of ethological terminology ("imprinting" and "displacement" are not methods of communication; neither is "displacement" a mechanism, in the sense implied; nor can it be said without qualification that releasing mechanisms, much less the others, are always inborn). Really, not very much about "communication" in birds is actually said. Similarly, in chapter 7, the author passes over some of the interesting theoretical possibilities (such as the adaptive differences between "altricial" and "precocial" development of young and the probable adaptive significance of interrupted egg laying in hawks and owls) of his subject in favor of a prolonged recital (the nearest thing—though still not very near—to monotony in the book) of the kinds of nests birds build. Possibly he felt, and perhaps rightly, that the amount of space necessary to give proper attention to these complex matters would have been self-defeating in prolonging the book; and he may be forgiven (especially with reference to "*Ethology*") for having dispaired of making intelligible to the layman what even narrow specialists sometimes seem none too clear about.

Similarly with many minor points with which one might quibble; doubtless with more room for qualification most of them would have disappeared. It makes little difference, in the larger picture, for example, that *Archaeopteryx* was more the size of a pigeon than a pheasant (p. 10); that "*Geospizinii*" (p. 11) is improperly spelled and italicized; that some leading ornithologists recognize far more than 27 or 29 orders (p. 20); that "many" birds do not have a complete second molt, relatively speaking, anyway (p. 34); that occasional imprecisions of speech occur (various pages), or even that "oestrous" cannot properly be used with reference to birds (p. 139). I must confess, however, to a special, personal twinge upon reading (p. 15) the unqualified statement (obviously a *lapsus*) that auks have not lost the power of flight!

It is too bad that no one noticed that the "chick" the Black-throated Green Warbler is feeding on p. 160 must really be a cowbird, but no other slips of this kind were noted save for an apparent mixup in the legends on pp. 148 and 149.

A real deficiency, which may not be the author's fault, is the lack of a terminal list of scientific names of birds figured and mentioned in the text.

Withal, the book is remarkably free from error (I could find only three outright textual lapses—e.g., "White-rumped Piper,"—and no "typos") and very well made. The photographs, by many photographers including the author (who numbers this too among his many skills), are uniformly good and excellently reproduced. A novel feature is the inclusion of maps of North America and Europe showing the numbers of birds recorded and the number breeding in the several states and countries.

Finally, this thoroughly commendable book is so arranged that the text of each

chapter (by Peterson) is supplemented by well-legended "photographic essays" (by the *Life* staff) which reinforce and briefly repeat the message. Thus the browser can skim the gist of the book even without reading.

The price, more than being right, is a notable bargain.—ROBERT M. MENGEL.

Carolina low country impressions.—Alexander Sprunt, Jr., with drawings by John Henry Dick. 1964. New York, The Devin-Adair Co. Pp. 1–192, 75 line-drawings, endpaper maps, 10 × 7 in. $10.00.—Few who have visited the fabled Carolina lowlands have come away uncharmed by this lovely, leisured, mystical country, once the historic haunts of Mark Catesby, John Bachman, and John James Audubon. The present work, by two veteran Charlestonians (the first, long supervisor of the Audubon Society's complex of southern sanctuaries; the second, a well known artist-naturalist and plantation owner), is a nostalgic eulogy to the "low country" with emphasis on birds and other wildlife.

The book is a running series of descriptively titled word and picture essays: The Barrier Beaches; Bull's Island; Turtles; The Sea Islands; The Salt Marshes; The Off Shore Banks; Cypress Kingdom; Alligators; The Mountain Lion in the Low Country; Snakes; Gardens; Some Characteristic Plants; Hurricane Waifs; Some Interesting Birds, Ornithology in the Low Country (with some interesting unrecorded history); and Arthur T. Wayne (a fitting tribute to the pioneer ornithologist of the early 1900's).

Reviewing the work fairly is difficult. The text, for example, like the jungles of the "barrier beaches" described, itself sometimes becomes a veritable jungle of "mutilated English grammar" (the author's words in describing "gullah," a picturesque, dying dialect of the region)—a sort of monument to redundancy and the dangling participle. As Mark Twain once said of James Fenimore Cooper, the author has a positive genius for choosing just the wrong, or the second-best, word. Thus countless combinations such as "olfactory sentiments," "leafy semi-gloom," and "well-meaning observations." (To be sure, the result is sometimes powerful poetic imagery, as "cacophony of yapping excitement" for an aroused flock of skimmers and, best of all, the "sleek dives" of playing otters!)

Yet many compelling word pictures emerge. Among the best (for once devoid of minor ills) appears on p. 78:

> [A] striking [characteristic] of these cypress kingdoms is a serene sense of stillness. Amid the cypress, tupelo-gum, ash and buttonwood the calm is scarcely broken by the rustle of wind in the towering trees, the call of a bird, the plash of a fish, the drone of an insect or the cry of a 'critter.' Far from trivial sounds, these undertones become an orchestration of serenity, the latent life seeming as infinite as eternity. Man-made noises become desecration. To enter the watery fastness, one should forswear anything but canoe or duckboat, paddle quietly with no sound save a dripping sibilance as the blade cleaves the water.

Clearly the general success of these essays owes to the author's intimate knowledge and intense love of his subject. Perhaps the editors (surely Devin-Adair has editors) knew exactly what they were doing in giving him his head, for his original and unself-conscious tributes work, and perhaps the solvent of rigorously superimposed Yankee grammar would have diluted much of their charm.

Likewise Dick's drawings, intimately interspersed with the text, are the work of one obviously and long familiar with the sweeping tidal marshes, shaded live oak groves, and the silence of the deep swamps. If it is inescapable that Dick—an incorruptible primitive in this area—has not the remotest idea of how a bird is made, much less a mammal, it is no less true that with landscape, and particularly floral design and old southern architecture, he is thoroughly at home, sure in an

effective and very personal form of statement, and has produced a high order of book illustration dripping with a romance appropriate to the theme.

Concerning such a book, technical matters would not have to be mentioned at all, save for a recurrent inaccuracy of statement: fox squirrels are not nearly as large as cats (pp. 26, 31); "turtle shell" is poor biological usage and "fledgling" turtle (p. 34) is worse; the Brown Pelican (p. 65) was not last recorded nesting in North Carolina in 1929 but has continued to do so more or less regularly (A.O.U. Check-list, 1957: 30; *The Chat*, 1960; *Aud. Field Notes*, variously, etc.); the Barred Owl is not particularly a southern species (p. 80); coral snakes do not belong to the "cobra family" (p. 116); the Cattle Egret was not strictly African (p. 157) before its appearance in the New World; no family unit is maintained for the tree ducks (p. 158); the Wood Ibis (Stork) is not confined to Florida as a breeding bird (p. 163); coots are not closely related to the rail family (p. 180), being part of it; etc. Many similar half-truths and errors could have been prevented from marring a pleasant (if somewhat overpriced) book.—ROBERT M. MENGEL.

Projections, deepenings and undulations of the surface of the skull in relation to the attachment of muscles.—C. J. van der Klaauw. 1963. Verk. Kon. Ned. Akademie van Wetenschappen, afd. Natuurkunde, 2 reeks, deel 55, 246 pages, 26 pls. 23 Dutch Guilders.—In an impressive volume, Professor van der Klaauw has summarized the evidence on the relationships between the surface configuration of the skull and the muscles attaching to it. This facet of vertebrate morphology has been overlooked by most comparative anatomists in their quest for conservative features providing clues to phylogeny and relationships. The arrangement of the sites of muscle attachments and their modifications do not belong with these so-called conservative characters and hence the results of this study are not of direct application to avian classification. These results are, however, of great interest to workers concerned with the evolution of vertebrate structure.

The general conditions pertinent to the relationships between the surface of the skull and the muscle attachments are given with standard forms for each. The standards serve as the bases from which deviations are described. The conditions and standards are:

(1) With respect to the attachment of the muscles to the skulls which has three standards, (a) musculous attachment, (b) by an internal aponeurosis, and (c) by an external aponeurosis. The length of and the shape of the basal part of the aponeurosis comprise the two major deviations of the last two standards.

(2) With respect to the form of the projection on the surface of the skull, which has three standards, (a) smooth, flat surface, (b) a crista, and (c) a spina (no standards for deepenings or grooves are given).

(3) With respect to the arrangement of the muscle fibers, the standard being a parallel arrangement with the fibers perpendicular to the skull.

(4) With respect to the relationship of the surfaces bearing the sites of muscle attachment, the standard being a situation in which these surfaces are parallel to one another.

(5) With respect to the position of these surfaces in which the standard has the surfaces lying directly opposite.

The various combinations of these standard conditions are listed and illustrated by schematic figures. Deviating conditions, especially of muscles, and the association of these deviations with the surface structure of the skull are carefully covered. A most interesting point revealed is the numbers of actual examples for each combination of standards; some are represented by many examples, while others are unrepre-

sented. This section does present problems to the reader because of the brevity of the textual description and the lack of legends for the plates and because of an inadequate system of cross-reference between the text and the plates. No clear relationship between the examples (pp. 83–185) and the plates is given; the reader must develop his own system of cross-reference, which may not always be certain.

Analysis by establishing standards for each condition and then outlining deviations is a useful approach but it has many dangers. The standard may be interpreted as the most common arrangement, or as the typical condition for the group, or as the generalized or primitive type; none of these implications are stated by van der Klaauw. Some of the standards do not appear to be the most typical, and hence are not standard except arbitrarily. A parallel arrangement of muscle fibers is not the most common condition for numerous cranial muscles; in birds, a pinnate arrangement is far more common. Moreover, it appears doubtful that muscles attaching onto aponeuroses or upon bony projections would be parallel-fibered as shown in most of the plates. A reexamination of this aspect, at least for avian cranial muscles, may reveal that a pinnate arrangement should be regarded as the standard condition.

Many of the conclusions of this study are of direct interest to ornithologists. The size of the skull, the thickness of skeletal elements (especially those forming the brain case), and the composition of the skull (whether bone or cartilage) influence the relationship between the muscular attachments and the skull surface. Moreover, the over-all shape of the head, whether it must be streamlined as in fast-swimming fish or tapered and strong as in burrowing forms, affects this relationship. Birds have small, light skulls with thin cranial walls which foster the development of cristae and spinae for attachment of muscles. Birds with powerful jaw muscles have a sculptured skull with many projections and hollows for muscle attachments; these muscles tend to be pinnate reflecting the presence of many aponeuroses and hence the presence of cristae and spinae. Reduction of bone in avian skulls as a consequence of flight is discussed. The question is asked whether the skull of flightless birds differs in its structure and composition from that of flying birds and whether such differences would affect the mode of muscle attachment.

The discussion of the functional basis for the correlation between the skull surface and the mode of muscle attachment (Chapter 4) is one of the most interesting parts of this paper and is highly recommended as an introduction to the ideas and methods of functional anatomy prevailing at the Anatomical Laboratory at the University of Leiden. The differences in the philosophical approaches of van der Klaauw and of most American avian anatomists provides much food for thought. Professor van der Klaauw does not use an evolutionary approach, but on the other hand, his analysis is more exact, more complete, and far more penetrating than most evolutionary treatments of the form-function problem. While I believe that an analysis must be ultimately framed in evolutionary terms to be successful, I also believe that it must have the precision and depth characterizing this study before it can be truly successful and before any real advances in morphological ideas can be made.

This paper is not exciting reading, nor are the discussions easy to follow even for a student of avian anatomy. Nevertheless, I recommend it to all ornithologists as an excellent analysis of a most difficult morphological problem and as an example of the detail in which structure must be studied before it can be fully understood. The author has made a major forward step toward the eventual solution of the correlation between the mode of attachment of muscles and the surface sculpturing of the skull, an important segment of the basic problem of mutual interactions between morphological structures.—WALTER J. BOCK.

Lista de las aves de Venezuela con su distribución. Tomo 1, Parte 2. Passeriformes. Segunda edición.—William H. Phelps and William H. Phelps, Jr. 1963. Caracas, Venezuela; separate from Bol. Soc. Venez. Cien. Nat., 24 (104 and 105). Pp. [1–5], 6–479, 1 map, 9 × 6¼ in. (no price given).—This is a second edition, thoroughly revised and enlarged, of the Passeriformes volume of the Venezuelan check-list, originally published in 1950 (see *Auk*, 68: 121–122, 1951). The non-Passeriformes volume appeared in 1958 (see *Auk*, 76: 116, 1959). The format follows the lines of the earlier edition: for each form are supplied the scientific name, the original citation, Venezuelan distribution, indication of habitat and altitudinal zone, extralimital range, and number of examples in the Phelps Collection. Compared with the original edition, there are corrections, refinements, and additions. Where a form is montane, the altitudinal range in Venezuela is given in meters as well as by zone. Many more locality records are included, and there are changes in technical names and taxonomic status. For each species there is not only a Spanish name but also an English one, the latter taken, in almost all cases where the species occurs in both areas, from Eisenmann's "The species of Middle American birds," and in most other instances agreeing with the names to be adopted in de Schauensee's *Birds of Colombia* (1964, in press).

While in all major respects the new volume replaces the 1950 edition, in some minor respects it is merely supplemental. Thus the map and gazetteer include only localities not mentioned in either of the volumes of the first edition. The same is true as to the bibliography relating to the Phelps Collection, and certain summary lists in the introduction. Those workers who may be obtaining the Venezuelan check-list for their libraries for the first time will need to secure *both* editions of the Passeriformes volume in order to have complete gazetteers and bibliographies available.

It is of interest that, compared with Colombia with 1,526 reported species and subspecies of Passeriformes (de Schauensee, *Caldasia,* 5: 1122–1123, 1952), Venezuela boasts of 1,296, included in 722 species and 324 genera. The total number of forms of all orders is said to be 2,101 as of 1962. Twenty-eight full species of perching birds are reported as endemic to Venezuela, of which two (*Philydor hylobius* and *Grallaria chthonia*) are among the 82 Venezuelan forms of the order described as new *since* the 1950 edition by the authors, or by one of them in collaboration with another ornithologist (two of these new forms they now reject). Of passeriform species or subspecies 60 are listed as migrants to Venezuela; 10 of these are from southern South America, 48 from temperate North America, and 2 (races of the Black-whiskered Vireo) from the West Indies. The authors point out that the list of migrants is not complete. Although this useful and careful work is in Spanish, even those without knowledge of the language should find it a valuable reference.—E. EISENMANN.