REVIEWS

EDITED BY WALTER J. BOCK

Parrots of the world.—Joseph M. Forshaw, illus. by William T. Cooper. 1973. Garden City, New York, Doubleday and Co., Inc. 584 pp., 147 col. pls. and caption figs., 3 large maps, 344 range maps, 11 (numbered) text figs., 3 tables. $2\frac{1}{2} \times 11 \times 15\frac{1}{2}$ in. $65.00.—The largest and certainly the most lavish of bird monographs to appear in recent decades, this book is a "throwback" to the late 19th century when such well-illustrated works were commonplace. Conceived to "meet the needs of ornithologists, institutions, aviculturists, and naturalists generally" (from book jacket), the book's cost doubtless will limit greatly its distribution among these groups. Perhaps in this era of spiralling prices and energy crises the wasted space in the book and its resulting high price will trouble others than this reviewer.

Joseph M. Forshaw brings to the book a lifelong interest in and experience with raising Australian parrots. His familiarity with the avicultural literature is amply demonstrated, and inclusion of the voluminous findings of aviculturists is a major contribution, the more so since many parrots are known only from aviary observations. Of course Forshaw has extensive field experience with many Australasian parrots, and he has spent some time in Asia and the Americas, as well as observing captive parrots representing all regions. The production of an attractive book discussing and illustrating all of the more than 300 species of parrots attests to Forshaw's interest in and dedication to this group. The artist, William T. Cooper, also an Australian, has painted nearly 500 parrots, representing the 332 species recognized by Forshaw (there are 344 accounts, but these include some extinct species whose appearance is unknown, and some forms not recognized as species). The color plates range from adequate to excellent, and color reproduction generally is good (but see below). Particularly noteworthy are the backgrounds, which are well executed and faithfully depict the habitats of various parrots.

My major complaint about the book is that it is too sumptuous. As if available funds were inexhaustible, the publishers of the book, the author, and the artist wasted space in many ways, and compounded this with a few unfortunate arrangements. The margins are large—incredibly $3\frac{1}{4}$ inches on the outside, nearly an inch on the inside, an inch at the top, and 2 inches at the bottom. True, some section headings, maps, and figures identifying birds on color plates are in the outer margin, but the amount of unused space is immense. There also is undue space between section headings in the text. Maps and figures in many cases could have been made smaller—Figs. 1 to 4 (of external and internal features) are fully 10 times the size that would suffice, and two of the three regional maps are overly large, and their lettering grossly so. Some color plates show many forms, and others show a single bird; in those depicting habitats, both groupings use an acceptable amount of space. Many plates show a single bird, or a few birds, with no or unimportant backgrounds that easily could have been sacrificed, and that cover only a third or a quarter of the otherwise blank page. Examples that come to mind are the Dusky Lory, Swift Parrot, Budgerigar, and some conure plates. The point is that this book could have been produced effectively, losing none of its impact, with far fewer pages or in much smaller size, and thus at a substantially lower price.

For each species the common and scientific names are given, the vernacular names being treated on a worldwide basis requiring some new appellations. A description

is provided for every species, and each subspecies and its range are given. A brief summary of the species' range is augmented by a map simply depicting the overall range (greater use of lettering could have reduced the size of many of these simple, outline maps that generally lack all boundaries, rivers, and features other than coastlines). Standard measurements (wing, tail, culmen, tarsus) are provided, with average and sample sizes; the samples are often small and presumably represent diverse times of the year. Under "general notes," various matters are treated including especially abundance, range clarifications, sociality, and foods. Other headings are "call," "nesting" (includes courtship displays, clutch size, incubation, seasonality), and "eggs" (measurements). The plates usually but not always are situated close to the species accounts. Unfortunately, the plates are unnumbered, and in fact one searches in vain for reference to them in the text, contents, and indexes. Thus one has to flip back and forth to locate the illustrations that do not happen to be on the same pages as the appropriate accounts. Incidentally, finding anything is difficult because the plates lack pagination (they are treated as numbered pages), and page numbers of text pages are in fine type—near the *inside* margin just below the text—it would have been simple, and helpful, to use some of the waste space to number the pages boldly at the *outside* corners. Birds portrayed in a plate also are figured in a small-sized black-and-white reproduction of the plate in the margin opposite it. These marginal figures bear numbers keyed to a legend below them. For plates containing more than one bird, these numbers inconsistently go up the plate, down the plate, or to either side, hence one has to use extra care in finding the bird he is seeking. Each bird was painted from a specimen, the museum number of which is indicated on the caption; the feather colors were supplemented by soft part colors obtained by the author from various sources.

About 14 pages of introductory material present general features of anatomy, classification, and natural history in summary fashion. The author does not pretend to be a taxonomist, but of course had to make taxonomic decisions at all subordinal levels in his treatment. Generally, he is a "splitter," using three families of parrots (Loriidae, Cacatuidae, Psittacidae) and subfamilies that others probably would treat as tribes, as well as maintaining genera (e.g. *Barnardius*) that others merge. The book is not to be construed as a revision or definitive work on parrot systematics. At the species level there is ambiguity. I quote from the account of the Adelaide Rosella (p. 230): "In my opinion the Adelaide Rosella is a hybrid population so I use the name *P. adelaidae* merely for convenience not as an indication of specific status." The "convenience" seems to be the author's, and confused readers may be irritated at his text treatment of the form as a species. Generic features are mentioned briefly for each genus.

The arrangement of the main portion of the book (species accounts) is geographical, in three parts, "parrots of the Pacific distribution," those of Afro-Asia, and those "of the South American distribution" (quoted from contents section). Treated are 154 species in 45 genera representing 7 subfamilies (in 3 families) in the Pacific or Australasian section, 49 species in 9 genera of 1 subfamiliy in the Afro-Asia section, and 141 species in 27 genera of a single subfamily in the "South American" section, attesting to the differential diversity of parrots in these regions even though taxonomic advances are certain to change these figures somewhat. The seven pages of "references cited" are in fine print, and contain about 850 items. There is an index to scientific and one to English names. Scattered typographical and other errors occur, and give only minor inconvenience (e.g., on page 569 of the references cited the Brooks and Brooks paper lacks the year of publication; it refers to "Blue and Gold

Macaws," by which is meant the Caninde Macaw, under which, on page 360, one can find that their paper was published in 1970).

The color plates are a pleasure to view. Checking three copies, including both American and Australian versions of the book, I find that the greens are too dark in half the predominantly green parrots, e.g., in the Princess Parrot (p. 217), *Barnardius* parrots (p. 223), some Amazons, *Pyrrhura*, and many others. Occasionally the dark green obscures colors, as may be likely in the Swift Parrot (p. 263, which should show blue or turquoise on the face and is illustrated with a fully green face), and is the case in many bluish winged parrots (wings shown green). The colors were checked in 12 instances using the actual specimens illustrated. Proportions pose some problems, as in page 379, which depicts an overly big-headed Golden Conure beside a too small-headed Blue-crowned Conure that has its body twisted peculiarly and is too dark green. I especially enjoyed the splendid macaws, the vivid lories, and the spectacular cockatoos. Backgrounds effectively show the nesting habits of the bank-nesting Patagonian Conure (p. 419), and the stick nests of Monk Parakeets, which are a trifle dully colored and have the wings too dark (p. 447). I had passed over the illustration of the Antipodes Green Parrot (p. 244), but found my family viewing it one evening, captivated by portrayal in its stormy background of a troop of penguins ("parrots with penguins!?")—the penguins, not mentioned in the book, are Erect-crested Penguins (*Eudyptes pachyrhynchus sclateri*).

The book appears to be well bound, with a heavy cover fully one-quarter of an inch thick (is it possibly too heavy for the binding?). I compliment the author and artist on the publication of an interesting, very attractive book on these intriguing birds, but I wish they and the publisher had planned the book more judiciously to lessen its size and bring the price within range of the greater audience that it deserves, and especially the smaller institutional libraries that today are so hard-pressed financially. Americans perhaps can draw some consolation from the fact that, through some quirk, the North American version is priced identically (US $65.00) with the Australian version (A $65.00), despite the much greater current value of the Australian dollar!—LESTER L. SHORT.

Cranes of the world.—Lawrence H. Walkinshaw. 1973. New York, Winchester Press. 370 pp., 4 col. pls., 128 black-and-white photos. $25.00.—Lawrence Walkinshaw has been fascinated by cranes all of his adult life and has spent a large part of his spare time studying them. He has undoubtedly spent more time in the field watching cranes than any other person, living or dead, and thus ranks as one of the foremost authorities on the family. The results of his lifetime of study are contained in the present work; and, in reading its pages, one must admire his patience in sitting by crane nests day after day, his persistence in reaching the habitat of so many species to study them in the wild, and his painstaking efforts in assembling so much detailed information on these great birds. For all this, Walkinshaw deserves the highest praise.

Knowing that a life's work is encompassed in the pages of "Cranes of the world," the task of reviewing it is painful because this book is not only a disappointment but a near disaster. "Cranes of the world" is simply not a reflection of Walkinshaw's dedication to ornithology, his ability as a scientist and his knowledge of crane biology. Walkinshaw is a meticulous and conscientious observer, but has not achieved the difficult task of putting his observations together into a usable book. Instead this

volume is a copious but largely unprogrammed data bank from which information retrieval is a nightmarish proposition. Good scientists are not always good writers, hence the need for proper editing. The publisher bears a major share of the responsibility for the lack of proper editing of this volume. It should have been properly refereed by scientific colleagues, and then reorganized and rewritten with the help of a capable editor to present the wealth of available scientific information in a consistent and readable form. It is really a tragedy that the present book has come out under the authorship of one of the world's greatest authorities on cranes.

A book should be judged primarily by whether it succeeds in its stated objectives—in other words, whether it is what it purports to be. In his preface the author tells us that this is intended to be a popular as well as a scientific work, while the title itself certainly implies that this is the last word on the subject—the "bible" for the Gruidae—and this implication is reinforced by the jacket statement.

In keeping with the first objective, the book is written in a rambling, discursive style, somewhat reminiscent of Bent but without Bent's charm. It is a hodgepodge of personal experiences, lengthy quotations from other authors, and reams of statistics. This is scarcely the stuff to "catch the imagination of the general reader," which is the author's stated intention. Repetitious accounts on slogging through marshes to find yet more cranes' nests, or page after page of clutch sizes, arrival dates, and breeding localities will not fascinate the average reader. A data bank provides information for the specialist when needed, but does not make for interesting bedside reading.

Alternatively, can this volume qualify as a "coffee table" book, intended for those who buy beautiful books just for the pictures, even though they may never read the text? The large size (11 × 9 inches) and colorful jacket would certainly suggest that such a role is intended. Here again the book is not a success. It is full of photographs—but contains only four color plates. This alone would not ban it from the coffee table. But the black-and-white photographs do not rescue it as they are uneven and generally rather mediocre. Some fine studies are interspersed by others that are poorly centered, out of focus, or wrongly exposed, although I suspect that the originals are better than their published reproductions. The bulk of the photographs are by the author, and while this is understandable, they are certainly not the best available. Here is another missed opportunity. In their attempt to tap the general market, the publishers have gone a little way but not nearly far enough. A sizable collection of fine color plates could have enabled this book to take its place among the many beautiful monographs that have appeared in recent years. Unfortunately, the publishers have cut so many corners that the "Cranes of the world" will never be placed in the decorative book category.

Having failed on the popular level, can this book be redeemed by its value to science? There can be no denying that it has considerable value, and the author's principal achievement is the sheer accumulation of data on the Gruidae within the covers of one volume. But this is not enough. For information to be useful it must be retrievable, and herein lies one of the book's principal failings. The material is presented in a haphazard fashion that makes it very difficult to assimilate. The sequence in which subjects are treated varies from one species account to the next, and subjects covered in some species may not be discussed at all in others, or else they may be covered by a few brief remarks tucked in under another section heading, where one would not thinking of looking. For a simple question like "What do Sandhill Cranes eat?", the answer cannot be found in a list of food items conveniently tabulated. Not only must one read the "Food" section under each different

subspecies and make one's own synthesis, eliminating overlap, but also other sections must be skimmed through where additional feeding information listed under sections such as "Winter" will be mentioned. And on p. 109, in the "Food" section of the "Canadian Sandhill Crane," one reads that "A great deal has been written about the food of this and the former subspecies," with references to four articles by other authors, not here summarized. Thus the reader is left with the uneasy feeling that for the complete answer he must involve himself in a further literature search. Most annoying of all, section headings are frequently misleading and bear little relation to their contents. A section under *Grus vipio* labeled "Ecology," for instance, consists entirely of an excerpt, without comment, from Dementiev and Gladkov (1951, Birds of the Soviet Union) on courtship behavior. But there is no section headed "Behavior" for this species! The point of a heading is twofold: first, to tell you what subjects are discussed beneath it, and second, and equally important, to tell you that you needn't look elsewhere for further information on these subjects, unless cross-referenced. A student of crane behavior might become hopelessly lost trying to assemble all the needed facts from these pages. Behavior sections are short or even nonexistent for some species, while incidents of "dancing" and other behavior are catalogued under other sections such as "Migration" or even "Distribution." The only attempt at listing some of the generalized aggressive movements shown by "the usual crane" (sic!) occurs under *Grus japonensis* in the section labeled "Territory." Truly, one needs a sophisticated scanning device to retrieve information from this book. Cross-referencing is conspicuous by its absence. In the species account of *Grus leucogeranus*, no mention is made of the occurrence of a bird in Japan in 1960, for the first time in nearly 100 years—but your scanner will pick it up for you from Table 4 at the back of the book which lists the crane counts from Kyushu. Even your scanner will not pick up the well-known Common Crane that spent the winter at Yatsushiro in 1960 and even appeared on Japanese television—this one the author has missed entirely.

Intensifying the chore of sifting facts is the almost complete lack of syntheses and summaries. Apart from the very skimpy and inadequate introduction where a few general remarks are attempted, the book is almost one solid mass of facts and observations unrelieved by generalizations or conclusions. Walkinshaw appears to believe that simply by assembling within the pages of one volume all the facts he can discover about the cranes of the world, his job is complete. It most assuredly is not. Facts are fine, but a definitive work must contain summaries and conclusions, not only for ease of reference but also because one wants the broad overview of the world expert. One can accept a blow-by-blow account of a crane's daily movements lifted in toto from a field diary, or seven pages of localities for the "Greater Sandhill Crane," if the significant points arising from these statistics are discussed by the author, but when as here, they are simply stuck in without comment, they remain a tangled jungle. Throughout this volume, the reader must reach his own conclusions, with the main advantage of having the facts in one place instead of scattered throughout the ornithological literature. The summaries and conclusions by an authority make the difference between a data bank on cranes and a book on cranes.

In a definitive work on any group of birds one expects all aspects to be covered, but in this book only those subjects are treated that happen to interest the author. Behavior is not one of these, and the ethologist will not find much of interest in these pages. This is a pity, as cranes often behave spectacularly. Dancing and other movements are discussed in a cursory way, with no real effort to analyze the different actions or assess their significance. Tossing vegetation into the air is listed

as a distraction display but not as a displacement activity, and no attempt is made to compare the behavior of different species or genera in a search for relationships. Fields like taxonomy, nomenclature, systematics, and evolution are clearly of no interest to the author, his nod to these subjects consisting of a simple species list in the introduction followed by a list of fossil cranes taken straight from Brodkorb (1967, Catalog of fossil birds), again without comment. One would at the very least have expected a contribution to the controversy as to whether the various forms of the genus *Balearica* represent one species or two, but here they are just listed as two without discussion. The "Description" section of *Balearica pavonina ceciliae* consists of eight lines, which include the following sentences: "It is *supposed* to have less white in the cheek and a darker bill tip (than *B. p. pavonina*). *Apparently* neither characteristic holds true" (italics mine). Well? Does it or doesn't it? Surely this book would be the place to look for the answer. Synonymies of scientific names are lacking, their place being taken by a list of vernacular names from around the globe.

No maps are included nor a gazetteer, despite the plethora of localities given in the text. The bibliography, in spite of an impressive list of titles, is not a bibliography in the accepted sense; it is rather a list of publications on cranes. Many of the titles therein are not cited in the text, and sometimes the important information they contain is not incorporated. Far worse, many references given in the text do not appear in the bibliography. Incredible though it may seem, in the relatively short chapter on *Grus japonensis* I counted no less than seven simple author and date references that are not in the bibliography, and a spot check showed the same situation elsewhere.

The editing, as previously noted, is abominable. Headings of equal status are sometimes in upper, sometimes in lower case, sometimes separated by gaps from the text and sometimes not. Quotes are opened but not closed and vice versa. Typos abound. And even on the jacket the Gray Crowned Crane, which has a black crown, is featured as the Gray-crowned Crane. And, most unbelievably, the book has no index.

Lawrence Walkinshaw is a great field man and a devoted student of cranes. But data that are assembled in such a disorganized fashion without analysis and conclusions are completely unacceptable to the professional and amateur ornithologist alike. The greatest tragedy is not that "Cranes of the world" fails to summarize knowledge on the Gruidae for students of avian biology, but that much of this information may be essential for critical matters of crane conservation, but not be available in a usable form. With the cranes being one of the most threatened families of birds, availability of information and conclusions is crucial. Regretfully, I cannot recommend this book to anyone but the crane specialist, and then only warily. It is to be hoped that the author will undertake a second edition of this work, making it truly worthy of its title.—STUART KEITH.

Evolutionary trends in the neotropical ovenbirds and woodhewers.—Alan Feduccia. 1973. Amer. Ornithol. Union, Ornithol. Monogr. No. 13. Pp. iii + 69, 20 figs., 4 tables. $2.00.—A close relationship between the neotropical ovenbirds (Furnariidae) and woodhewers (Dendrocolaptidae) has been accepted by ornithologists since the beginnings of systematic ornithology. Yet debate continued on the exact degree of this relationship and on the interpretation of the supporting evidence with the most recent previous study being that of von Ihering in 1915. Alan Feduccia

undertook a reanalysis of this systematic problem, using a broad range of approaches from comparative study of such traditional features as plumage and cranial morphology to recently developed methods of electrophoresis of hemoglobins and cluster analysis resulting in a prim network. He posed two general questions: (a) the nature and direction of evolutionary change within this complex, and (b) which classification best reflects the relationships of groups within this complex. The material is well presented with excellent illustrations of skulls and other anatomical features and with clear graphs and tables comparing sets of figures. The basic comparisons are between the philydorine group of ovenbirds (those judged closest to woodhewers), the strong-billed woodhewers (representing most genera of this group), and a group of "intermediate" woodhewer genera (*Sittasomus*, *Deconychura*, *Dendrocincla*, and *Glyphorhynchus*). Evolutionary trends are discussed in terms of changes from ground-dwelling and tree-foraging ovenbirds that obtain insects by surface gleaning to trunk-creeping woodhewers that capture insects by probing, prying, and pecking into bark crevices; these trends are placed against a behavioral and distributional background. The major morphological modifications in cranial anatomy are shown to be adaptations for probing into bark crevices from a surface gleaning ancestral condition. Changes in sternal structure, in the entire hind limb, and in tail anatomy (the pygostyle and tail feathers) are interpreted as adaptations for tree creeping from a perching ancestor. The woodhewers are treated as a subfamily (the Dendrocolaptinae) within an enlarged Furnariidae, having evolved, possibly polyphyletically, from the Philydorinae. Feduccia accepts the classification advocated by Sclater (1890, Catalogue of birds in the British Museum, vol. 15) with some rearrangement of subfamilies and placing of genera (p. 68).

Feduccia's general conclusions are reasonable and in good agreement with the presented evidence. Few ornithologists will disagree with the broad outline of the evolutionary history suggested, although disagreement may still exist over the classification Feduccia advocates; I personally favor his systematic treatment of these birds. Nevertheless, careful reading of this monograph is disquieting because its convincing appearance and reasonable conclusions are belied by many serious defects. These are largely traceable to the initial formulation of the study and the assumptions used, and to misconceptions of evolutionary and systematic theory.

Feduccia's prime initial assumption is that the woodhewers evolved from a philydorinelike ancestor (p. 8); this assumption is a hypothesis about relationship and subject to testing by comparative observations. As a scientific hypothesis, this statement is liable for disproof. It can be falsified, but not confirmed. Careful attention must be given to the types of observations and comparisons that may provide strong tests of falsification. The major weakness in Feduccia's analysis lies in this area as the comparisons made do not constitute good tests attempting to disprove the initial hypothesis of relationships. His comparisons concentrated on the philydorine ovenbirds, the group of four "intermediate" woodhewer genera, and the strong-billed woodhewers. And hence Feduccia's major conclusion (p. 59) on the evolution of woodhewers from philydorinelike ancestors is actually no more than a restatement of his initial assumption (p. 8). These conclusions are most reasonable, but they have not been tested satisfactorily. No evidence is presented supporting (testing) the important, but undiscussed, classification of ovenbirds. Many genera of climbing and/or probing ovenbirds (e.g. *Pygarrhichas, Margarornis*) are not included in detailed anatomical comparisons. Indeed, in many ways the wrong study was undertaken. Rather than concentrating on the philydorine-dendrocolaptine boundary, a better decision might have been to place emphasis on the evolution and classification

of the ovenbirds proper with the central question being the pattern of adaptive radiation in this group, including the apparent multiple evolution of climbing, bark-probing groups. The assertion (p. 4) that this group "exhibits perhaps the greatest adaptive radiation" of any New World passerines adds to the desirability of such a study.

Much of the analysis of the adaptiveness of particular features and of the course of evolutionary change is marred by the assumption expressed in the statement (p. 6) that "one can test whether or not a given character state represents an actual climbing adaptation by looking at the same character state in unrelated groups of birds." Thus, the decision on whether a feature in the woodhewers is an adaptation for climbing can be based on whether a similar feature is found in the specialized climbing woodpeckers. For example, Feduccia argues (p. 41) that the widely separated articular condyles for the digits on the distal end of the tarsometatarsus in woodhewers is a climbing adaptation because "In climbing birds, where selection forces are operative for a strong set of opposable toes, spread of the condyles could help facilitate this end." Yet woodhewers possess an anisodactyl foot that is well suited for climbing, and evolution of specialized climbing feet in woodpeckers is away from the perching zygodactyl foot with opposable toes. Moreover the proximal ends of the anterior digits are united for a greater distance in woodhewers as compared to ovenbirds (p. 43), which would reduce the spread of the digits. The assumption that adaptiveness of features in one group can be ascertained by comparison with other groups is widely used by biologists, but is erroneous. Its invalidity depends on the concept of paradaptation. The extensive use of comparisons to judge adaptations in this study greatly weakens the entire analysis of adaptive evolution of the sternum, hind limb, and the tail, all of which are associated with climbing.

Much of the evidence supporting the conclusion that woodhewers have evolved from and are closely related to the ovenbirds comes from a comparative analysis of cranial morphology (pp. 12–34). Ovenbirds have a schizorhinal nostril, a rhynchokinetic upper jaw, and a more weakly constructed skull. Woodhewers possess a holorhinal nostril, a prokinetic upper jaw, and a strongly constructed skull. The conclusion that the woodhewer probing skull is advanced and could have evolved from the ovenbird gleaning skull is reasonable, but is marred by several serious weaknesses.

(a) Descriptions are sometimes vague in critical areas, such as in the nature of the kinetic mechanism. In ovenbirds, with a rhynchokinetic skull, the continuity of the orbital and nasal septa is insufficiently stressed. These birds do not possess a nasal-frontal hinge at the base of the upper jaw; description of this hinge is erroneous and confusing. Overemphasis is placed on the distinction between schizorhinal and pseudoschizorhinal nostrils—both are functionally similar. The width of the posterior end of the nostril and whether it is pointed or rounded are trivial. The major factor is whether the nostril separates the medial dorsal bar of the upper jaw from the lateral nasal bars—the distinction between holorhinal (plus prokinesis) and schizorhinal (plus rhynchokinesis) nostrils.

(b) The jaw muscles are described very superficially, which detracts from the functional analysis of the skull and hence the efforts to understand evolutionary trends in the group.

(c) The comparisons do not provide strong tests for disproving the hypothesis of evolution of the woodhewer skull from an ancestral philydorinelike skull. Although the philydorines are discussed as intermediates between most ovenbirds and the woodhewers, *Automolus,* which is chosen as representative of this group, is an

extreme dendrocolaptinelike genus (p. 20) with most philydorines having a more ovenbirdlike skull. Some nonphilydorine ovenbirds, e.g. *Pygarrhichas* and *Margarornis*, possess certain woodhewerlike cranial features, such as the ectethmoid complex (p. 22), but these are not described in detail. A major reason for the choice of the philydorines as the ancestral stock from which the woodhewers evolved is the configuration of the nostril in this group, which is almost holorhinal in some genera, e.g. *Automolus*. Unfortunately this is weak evidence as the woodhewer skull could have evolved from any of the ovenbird skulls described. Similarity between the skull in the philydorines and the woodhewers, such as the intermediate genera, can just as easily be attributed to convergence. Nothing in cranial morphology precludes the possibility of woodhewers evolving from a furnarine ovenbird such as *Geositta*, which shares with all woodhewers the presence of horns in the syrinx. Although the hypothesis that the woodhewer skull evolved from a philydorinelike skull is reasonable, no strong evidence is presented to test this hypothesis and to disprove equally reasonable hypotheses that woodhewers evolved from another ovenbird group or even from a nonovenbird ancestor.

(d) An unresolved question is why the schizorhinal, rhynchokinetic skull evolved in ovenbirds (pp. 33–34). Feduccia concludes that the holorhinal nostril is primitive in passerine birds because of its widespread occurrence in this order. Thus evolution proceeded from a primitive holorhinal, prokinetic skull to a schizorhinal, rhynchokinetic skull in ovenbirds to a holorhinal, prokinetic skull in woodhewers. The selective advantages for the schizorhinal, rhynchokinetic ovenbird skull are obscure. A second, and perhaps more reasonable hypothesis, is that the schizorhinal, rhynchokinetic skull is the primitive type among birds and hence the ovenbird skull is representative of the primitive passerine skull. The advanced holorhinal, prokinetic skull could have evolved several times among passerine birds, once in the woodhewers if they are descended from an ovenbird stock.

Feduccia argues strongly in favor of a polyphyletic origin of the woodhewers from the philydorines. While it is quite likely that a number of tree-creeping, bark-probing lineages evolved within the ovenbird complex, and that the woodhewers may be polyphyletic, the only bit of evidence supporting Feduccia's conclusion is the hemoglobin electrophoretic pattern in the genus *Dendrocincla*, which is identical to that in ovenbirds. Yet, it is just as reasonable to regard this feature as an ancestral ovenbird characteristic retained by *Dendrocincla* as to consider it as indicating a separate origin of this genus from the philydorines. The prim network (Fig. 19, p. 60) and consideration of all evidence presented by Feduccia are consistent with the hypothesis that the woodhewers are a monophyletic taxon.

Merging the woodhewers and the ovenbirds into a single family results in a nomenclatural problem for the familial name. Choice of the Furnariidae for the family because of the preponderance of species found within the Furnariidae is invalid under the rules of zoological nomenclature. Analysis of the nomenclatural history of the names Furnariidae and Dendrocolaptidae does not permit a clear resolution of this matter. Although the Dendrocolaptidae may have priority, I would strongly advocate following Feduccia's usage of the Furnariidae for the family until this nomenclatural tangle is resolved formally.

With the availability of this monograph on the woodhewers and the ovenbird-woodhewer transition, the next step is a comparative analysis of the functional morphology, evolution, and classification of the ovenbird section of this family. Completion of that study would permit a reexamination of questions left unresolved in the present paper. Although I have a number of reservations about this paper,

Feduccia's monograph is a real advance over the previous study of this group by von Ihering; it deserves careful study by any ornithologist interested in avian evolution and classification.—WALTER J. BOCK.

A symposium on the House Sparrow (*Passer domesticus*) and the European Tree Sparrow (*P. montanus*) in North America.—S. Charles Kendeigh, Chairman. 1973. Amer. Ornithol. Union, Ornithol. Monogr. No. 14. Pp. v + 121. $3.50.—This monograph is a collection of papers that were presented at an A.O.U. symposium in September 1969, "orginized to . . . stimulate interest, and summarize present researches" on the biology of the two species of *Passer* in North America. Publication of the symposium proceedings by the A.O.U. monograph series "was deemed justifiable on the basis of the strongly unified theme of the collected papers concerning the biology of introduced congeners and the probability that the study of these species would be enhanced by the publication of all contributions to the symposium in a single volume." That goal was not quite achieved, as slightly over one-third of the papers in the symposium are published here only as abstracts, with the notation that publication of these papers elsewhere had been previously arranged. No references to published papers are given for two of the five abstracts. To the extent that the active North American researchers on the genus *Passer* were present at the symposium, the volume does summarize "present" research.

The reports deal with data ranging from preliminary observations through relatively thorough treatments, some of which apparently represent Ph.D. dissertation research. The first two papers detail the history of introductions and subsequent spread of the two species in North America. The House Sparrow is continuing to spread, partly following the development of new habitats by human activity (Canada) and partly by immigration into already habitable regions (Mexico). The European Tree Sparrow seems to establish peripheral populations, derived from a more or less permanently established core population around St. Louis, Missouri. These peripheral populations expand and then become extinct locally. Barlow suggests that the tree sparrow is outcompeted by the House Sparrow where they cooccur. He provides no reasons for the tree sparrow's inability to establish itself away from human habitation where the House Sparrow seems unsuccessful. Barlow's contribution serves also as a link to the papers dealing with variation by suggesting from colorimetric studies and some statistical analysis of mensural characters that the tree sparrow population has not diverged much from present day examples from presumed ancestral region in Germany. He suggests possible reasons in the lack of genetic variation in the 20 initial colonists or the similarity of the selective pressures in the two regions.

Johnston, from his continuing studies of geographic variation in House Sparrows, measured sexual dimorphism among *P. domesticus* individuals killed in a windstorm around Topeka, Kansas. He found that sexual dimorphism is most evident in osteological features associated with flying, while the hind limb or skull characters show little or no dimorphism. The hypothesis proposed is that the sexes exploit the same food supply and hence are subject to selection pressures producing very similar bone sizes. The flight apparatus difference might result from the importance of flight in male-male aggressive interactions. The possibility of differential contributions of the sexes to the nesting effort, with males flying longer average distances for food, is not considered. The differences found in North American populations are similar to those found in European populations.

Klitz reports the interesting preliminary result that *P. domesticus* appears to be genetically monomorphic at a series of loci normally having about 30% polymorphism among animal populations ranging from fruit flies (*Drosophila*) through man. The reasons for this apparent difference are not obvious, although Klitz eliminated genetic homozygosity of the founding stocks as a possibility. At a somewhat different level of analysis, Clench shows that although House Sparrows exhibit minor variations in pterylosis, the differences that are of taxonomic importance occur at the family level and above.

These variation studies are followed by a series of papers dealing with the population biology of the House Sparrow at several localities in North America. Interestingly, this rather neglected aspect of House Sparrow biology seems to emanate mostly from investigators interested in House Sparrows as disease vectors, prinicipally as carriers of encephalitis. Mitchell and Hayes first provide a short paper on the conditions under which they were able to breed House Sparrows in captivity—a useful paper for investigators interested in establishing laboratory populations. Unfortunately they spend an inordinate amount of space discussing how their experimental manipulations of nestlings influenced the reproductive success in captivity. Two papers then deal with breeding biology among wild populations, pointing to the importance of nest placement in reproductive success and providing some estimates of mortality of adults and young from the vicinity of St. Louis, Missouri. North reports on the organization of postbreeding flocks of House Sparrows around Oklahoma City and shows that juveniles are predominant outside the city during the daylight feeding hours while adults predominate within the city. All the birds he studied roost in the city at night. He documented shifts in flight paths as the young birds learned the location of feeding sites. He offers no interpretation of his results, not even of the possible behavioral interactions that generated the age differences in feeding flocks.

The five remaining reports, of which four are abstracts, deal with variation in the House Sparrow's physiological characteristics. The types of physiological variation investigated range from partial pressures of oxygen required for survival (very low in the House Sparrow) to energetic differences among populations along latitudinal gradients. These variations are reflected also in seasonal acclimation patterns at single localities. House Sparrows modify the rate of food intake to maintain themselves under varying degrees of temperature- and activity-induced metabolic fluctuations. Interestingly, the birds apparently anticipate (after a learning period) high overnight metabolic costs by storing energy the day before rather than making up deficits the next day. A variety of energy characteristics vary latitudinally in relation to temperature conditions, including insulative layers of fat that also serve as energy storage depots, lean dry weight, and possibly fatty acids. As is evident from the work Kendeigh and his students are doing at Illinois, the House Sparrow is a very good research animal for laboratory studies on the energetics of homeotherms.

In view of the range of items covered in this monograph and the fact that this was intended as an overview of *Passer* research in the U.S. it is somewhat surprising to me that, if abstracts were to be included, a greater effort was not made to summarize the literature of *Passer* biology in North America. I am left with the feeling that the causes of *Passer* biology and the A.O.U. monographs would have been better combined if the symposium had been more broadly based as a review of past and present research along with important new directions, rather than reports of research of varying degrees of completeness. Presumably fewer authors could have dealt with broader aspects of the general themes developed in the symposium to yield a volume

of wider usefulness to researchers in *Passer* biology and to workers in fields for which this genus is proving to be an excellent research tool.

The volume is well produced and has only a few typographical errors. Two references in Johnston's bibliography were deleted from the final text. A major problem with this volume is the time lapse between the presentation of the papers at the symposium in September 1969 and the publication date of the monograph, October 1973. This 4-year lag is especially unfortunate for a volume that was meant to present reports of current research activities. The authors would have been better served by publication of their results in a regular journal.—LARRY L. WOLF.

Productivity, population dynamics, and systematics of granivorous birds.—S. C. Kendeigh and J. Pinowski (Eds.). 1973. Warsaw, Polish Sci. Publ. 410 pp. $13.00 + postage (obtainable from ARS Polona-Ruch, 7 Krakowski Prezedmiescie, 00-068 Warsaw, Poland, postage 5% for Europe and 10% other; or from Dr. S. C. Kendeigh, Vivarium Building, Wright and Healey Streets, University of Illinois, Champaign, Illinois 61820, postage $0.60).—This volume is the published results of a symposium in 1970 by the IBP working group on granivorous birds. Of the 31 papers in the volume 20 deal with the biology of *Passer domesticus* in whole or in part, four report on other species of *Passer*, while five deal with other bird groups—one each on Columbidae, Sturnidae, and *Agelaius phoeniceus*, two on grassland birds in the prairies of North America. One paper is a request for a starling group within the IBP granivorous birds section and the final paper in the volume is a critique of the use of the term "energy flow" in the context of ecosystem productivity. While the large number of papers on *Passer* reflects the research interests of the editors and participants, it is becoming increasingly clear that *Passer*, especially *P. domesticus*, as noted by Kendeigh in his introductory remarks, is well on its way to becoming the white rat or fruit fly for ornithologists.

Some of the papers in the volume result from work clearly designed to exploit the research utility of *P. domesticus* as a highly successful and widely distributed colonist. The presentations range from morphological variation in North America to microgeographic variation in Europe and Kansas and from geographic variation in breeding characteristics, such as clutch size and number of broods, to variation in energetic balance sheets for individuals and populations. Other papers focus on the importance of the genus *Passer* and other genera of granivorous birds as agricultural pests throughout the world. An important area of investigation that the conference left nearly untouched is the relative contributions of adaptation and acclimation to the observed geographic differences. Long-term studies of the type recently reported by Perrins and Jones (1974, Condor 76: 225) should be possible with *Passer* and will eventually provide insight into the problem.

The papers are divided into four major topics and miscellaneous papers, although several from the miscellaneous section could easily have been incorporated into one of the other four sections. The four topics are about equally represented in the volume and cover the fields of bioenergetics, population dynamics and related behavior, food and feeding—both basic and applied studies, and systematics and evolution. Most of the papers are reports of present research, although a few attempt to synthesize material from a variety of sources. Lacking from this symposium are review papers that lay the conceptual framework for future research activity. The taxonomically restricted character of the subject matter is also to some degree apparent in the references most authors utilized in their presentations. While this may have

been by design for the present conference, it does suggest that a more conceptually oriented conference, using *Passer* and other granivores as research subjects, would be an appropriate further step in the IBP activities.

Most of the papers, excluding those presented only as summaries, are sufficiently data-rich that they would have been acceptable in appropriate journals. In general the authors are to be commended for the level of presentation achieved, and the organizers of the conference have done a good job of bringing together a variety of workers dealing with this rather specific topic. Fairly rapid further progress can be expected from research on *Passer* in the next 5 to 10 years, and this volume will be an important source of current knowledge on which to build.

The volume is reasonably well produced, although I predict that the paper covers and binding will give way fairly quickly. The editing could have been better, especially of the papers that were obviously written by authors whose first language is not English. Still, in view of the diversity of languages in which the reports could have been published, it is noteworthy and helpful that so many appear in a single language. A few reports, including their summaries, are entirely in French; an additional summary in English would have been helpful and little trouble. Two items I feel would have been worth adding to this volume of 400-plus pages: (a) an index of authors and subjects, and (b) a summary at the end of each major section.

This volume invites comparison with a recently published A.O.U. monograph on *Passer domesticus* and *P. montanus* (see previous review). The two symposia had relatively little overlap in participants, principally because of the more international character of the present volume, though several U.S. workers are represented with similar contributions in both volumes. One paper on lower critical partial pressure of oxygen in *Passer domesticus* is presented here in full but only as an abstract in the A.O.U. monograph. The larger number of papers (and a higher proportion of full presentations as oposed to abstracts or short summaries) and the greater geographic coverage of papers and participants makes the present volume the more useful of the two. An additional worthwhile feature of the present volume is the printing of the question-answer exchanges at the end of each paper. This is an important component of a working symposium that can alert other workers to differences of technique and opinion.—LARRY L. WOLF.

Systematics and evolution of the Gruiformes (class Aves). 3. Phylogeny of the suborder Grues.—Joel Cracraft. 1973. Bull. Amer. Mus. Nat. Hist. 151. 127 pp., 51 figs., 49 tables. $4.75.—This work consists mainly of an attempt to derive a phylogeny of the suborder Grues from a study of the osteology of the fossil and, to a much lesser extent, the living forms of the group. Cracraft has elsewhere (1972, Condor 74: 379) criticized ornithologists for basing classifications on "general overall resemblance," and has espoused the cladistic approach of Hennig (1966, Phylogenetic systematics, Urbana, Univ. of Ill. Press) whereby phylogenies ideally are based on "primitive-derived character sequences." The present paper thus allows us to assess the methods, results, and efficacy of "phylogenetic systematics," at least as applied by Cracraft.

Previously, Cracraft has treated the fossil families Bathornithidae and Geranoididae in the American Museum Novitates series (1968 No. 2326, 1969 No. 2388, 1971 No. 2449). The bulk of the present work consists of systematic revisions of the Tertiary forms of the families Rallidae, Idiornithidae, Eogruidae, Ergilornithidae, Gruidae,

and Aramidae. A new family, Laornithidae, is proposed for the Cretaceous genus *Laornis*. A number of taxa are transferred from one family to another and two fossil rails and a species of *Idiornis* are described as new.

Using what he considers to be derived characters, mainly in the conformation of the distal end of the tibiotarsus and proximal and distal ends of the tarsometatarsus, Cracraft derives a phylogeny in which the suborder Grues is divided into two infraorders, the Ralli and the Grui. The Infraorder Ralli comprises the Rallidae and the Laornithidae, while in the Grui two "major radiations" are recognized—one consisting of the fossil families Geranoididae, Bathornithidae, and Idiornithidae, and the other of the Eogruidae, Ergilornithidae, Gruidae, Aramidae, and Psophiidae.

A major complaint is that Cracraft, who evidently intends to review the systematics of all the Gruiformes, has not yet justified his use of the traditional limits of the suborder Grues and no reasons are given for not including the suborders Turnices, Heliornithes, Rhynocheti, Eurypygae, and Cariamae, at least some of which appear to be intimately related to families included in the Grues. Thus it seems at best a piecemeal and provisional phylogeny that ultimately results. A further extension of this criticism is that Cracraft, in spite of assertions to the contrary, evidently has not made sufficient comparisons with recent skeletal material. Repeatedly, one finds that fossil taxa are minutely compared with other fossil taxa but not with living forms.

For instance, the species *Gypsornis cuvieri*, from the Eocene of France and usually placed in the Rallidae, is transferred to the Eocene family Idiornithidae. This form is based on a proximal end of a tarsometatarsus that, at least as illustrated by Cracraft, is scarcely separable generically from the modern genus *Psophia* and agrees with that genus in detail. Furthermore, except for the hypotarsus, the illustrated material of *Idiornis* itself is very similar to *Psophia*. Not wishing to found a suggestion on the basis of photographs alone, one searches for some discussion of the possible relationships of the Idiornithidae to the Psophiidae—but in vain. The Idiornithidae are compared at length with the extinct familes Bathornithidae and Geranoididae but not with any living familes. Cracraft places the Idiornithidae and the Psophiidae in different superfamilies at the ends of two entirely different phyletic branches (Fig. 46), yet to the eye they hardly differ morphologically. Could it be that *Gypsornis* and *Idiornis* are really psophiids and that the modern psophiids are relicts of an Eocene group that became extinct elsewhere after South America was isolated early in the Teritiary? Perhaps Cracraft's remark (p. 122) that the "Psophiidae are obviously of New World origin" will have to be re-evaluated.

The Eocene genus *Telecrex*, originally described by Wetmore as forming a new subfamily of Rallidae, is retained in the Rallidae and said to be "decidedly raillike" by Cracraft, who might have been expected to recognize that it is actually a galliform (Olson 1974, Wilson Bull. 86: 246). For *Laornis*, a Cretaceous genus based on the distal end of a very large tibiotarsus from New Jersey, Cracraft erects a new family that he places in the infraorder Ralli and terms "the earliest known gruiform genus." After studying this specimen I conclude that it belongs not with the Gruiformes but with the suborder Lari of the Charadriiformes (Olson MS). Cracraft has the Ralli branching off early in the history of the Grues, while the Psophiidae and Aramidae are presented as later, more derived forms. However, the most primitive living rail, *Himantornis*, shows a number of resemblances to the Psophiidae (Olson 1973, Wilson Bull. 85: 381), suggesting that rails may have evolved from a psophiidlike ancestor rather than the opposite being the case, and also that Cracraft's two "infraorders" are more closely related than he would allow.

One cannot avoid the feeling that in his search for primitive vs. derived characters and in his professed aversion to the use of "general overall resemblance," Cracraft has at times become like the blind men and the elephant, minutely inspecting each process of a bone without considering the whole of which it is a part. Many of the characters chosen by Cracraft seem to resolve themselves into a choice of one of only two alternatives (e.g. external condyle rounded vs. not rounded, or internal trochlea reduced vs. not reduced) so that the particular feature in *any* taxon would *have* to fit one category or the other. Furthermore, seldom, if ever, is there any intrinsic feature of these characters by which one can determine whether the character is primitive or derived. That determination is made by the "distribution patterns of the character states," *after* the organism has already been assigned to some higher taxonomic category. And how does Cracraft make that assignment?—on the basis of "general overall resemblance," that's how.

Let us look again, for an example, at *Gypsornis*. In the discussion of the relationships of *Gypsornis* to the other genera of Idiornithidae (pp. 70–71) the tarsometatarsus of *Gypsornis* is shown to share with other early Tertiary gruiforms a number of characters that are not found in *Idiornis* or *Elaphrocnemus* and it is therefore considered primitive. But how was *Gypsornis* allocated to the Idiornithidae in the first place? Back on page 53 we see that it was because the formation of the hypotarsal canal and internal surface of the hypotarsus, the development of the intercotylar prominence, and the broad, robust proximal end of the tarsometatarsus of *Gypsornis* are similar to the idiornithids and different from the rallids. There is no talk here of primitive-derived character states—just good old similarity such as everyone else uses. A conventional systematist would have proceeded in the same manner. And after having placed *Gypsornis* with the Idiornithidae, wouldn't a conventional systematist also have deduced that because *Gypsornis* shared characters with taxa outside the family that it might be more primitive? Wouldn't the results and the methods be essentially the same? If Cracraft is really following the methods of Hennig then I fail to see how these differ in practice from what others have been doing all along. If anything, the apparent shortsightedness engendered by the search for derived characters would seem to subject the paleontologist to more errors in identification than he might otherwise make. Ornithologists can hardly be expected to take Cracraft's admonitions to heart if his methods place species in the wrong order and what appear to be closely related genera at the ends of different branches of a phyletic tree.

Apart from the apparent errors in identification and interpretation, Cracraft's paper is fraught with other mistakes of varying degrees of seriousness. For example, the specimen illustrated and discussed as the holotype of *Thiornis sociata* is not, in fact, the type, as an examination of the original reference would have disclosed. On page 36 the reference to Ballman 1969 pertains to a different paper than that cited in the bibliography. The species *Palaeoaramides minutus*, described as new on page 30, is referred to in Table 6 on page 28 as *Palaeoramides* [sic] *minimus* (I here restrict the name to *minutus*, which is the usage employed elsewhere in the work). The species *Palaeoaramides eximius* is consistently misspelled *eximus* (pp. 27–29). In the synonymy of *Aletornis marshi* (p. 13) the second entry should read *Protogrus marshi* not *Aletornis marshi*, which latter combination was first employed in Brodkorb (1967, Bull. Florida State Mus. 11: 99).

There are further annoyances. Cracraft often refers new material to previously described fossil species but seldom makes it clear which specimens were in the original series and which ones he himself has assigned. There is no consistency whatever in

the magnifications used in the photographs. The worst example is Fig. 10, where views of the three species of *Quercyrallus*, which are differentiated mostly on the basis of size, are presented at five different magnifications, making visual size comparisons impossible. Cracraft has designated a number of lectotypes but does not always illustrate them and for some reason, posterior views of most bones are usually omitted.

Because it is an extensive summary and illustrates many specimens not easily available for study, this paper will be a useful reference for the avian paleontologist. But one would be most incautious to rely heavily upon it either for concepts or accuracy of details. If it is indeed possible to derive a meaningful phylogeny of the Gruiformes with the information presently at hand, it has not yet been done.—STORRS L. OLSON.

A field guide to Mexican birds. Field marks of all species found in Mexico, Guatemala, Belize (British Honduras), El Salvador.—Roger Tory Peterson and Edward L. Chalif. 1973. Boston, Houghton Mifflin Co. Pp. xxii + 298, 48 col. pls., text figs., cloth. $8.95.—After many frustrations and delays, this beautiful and authoritative volume is now available. It is precisely in the mold of the other publications on birds and other organisms in this superb series, begun in 1934 with Peterson's first field guide to the birds of eastern North America. I trust the basic format thus needs no description. Unlike previous Peterson bird guides, this one has an ungrammatical dust cover title, a long complicated history of preparation, and a co-author, who as early as 1940 discussed with Peterson their possible collaboration on this project. World War II interrupted their active progress, and thereafter delays were caused by the scope of the task (over 1000 species had to be illustrated) and abortive collaboration with at least one other author and two other artists.

With few exceptions, the text shows the results of careful attention to the published literature as well as the rich personal experience of the authors and other field students. Like other publications in the series, the book is a concise guide to field identification first and in only minor ways a compedium of the biology of birds of the coverage area. Thus, many well known facts are omitted when they do not aid in field identification. The book treats all of the bird species of Mexico, Guatemala, and El Salvador, 93% of the birds of Honduras, 86% of those of Nicaragua, 66% of those of Costa Rica, and 56.5% of those of Panama! Thus it is useful for *all* of Middle America.

The wonderful plates are grouped near the center of the book, making quick comparison much easier. Peterson has never been better served by the color press, and indeed I think I have never seen better color printing anywhere. The colors are intense, definition very clear, and the birds almost leap off the page. One can almost imagine that he is looking at the originals. RTP is once again affirmed as the master of this kind of bird art, combining schematic clarity with a consistent gift for portraiture and the creation of liveliness in his subjects. A few errors have crept into the illustrations and in a few places color values are slightly off. The errors in most cases would not be confusing to the point of misidentification, but a few are pronounced and deserve notice here: the illustration of the foreparts of the Crested Guan, *Penelope purpurascens*, seems almost to be of some other species. Although the brief comments on the facing page mention the bare red throat, the picture shows a feathered gular area not even colored red! Two of the three races of the Orange-fronted Parakeet, *Aratinga canicularis*, are characterized by dark blackish blotches

on the sides of the lower mandible, and even the nominate race has paler shadows there. Peterson's picture shows none. The Black Robin, *Turdus infuscatus*, should show a yellow, not red, eye-ring. The Chestnut-capped Warbler, *Basileuterus delattrii*, has no vertically bordering white stripe to the dark chestnut auriculars as pictured and pointed to as a field mark by Peterson (the text makes no mention of the stripe). Adult San Blas Jays, *"Cissilopha" sanblasiana*, have yellow irides or yellow with a very faint greenish or brownish tint. The brownish-eyed individual shown is a second or third year bird in all probability, and this is strongly supported by the prominent crest, largely lacking in adults.

Most other errors I have found are ones of omission rather than commission. The text prepetrates the improbable notion that the Dwarf Jay, *Cyanolyca nana*, occurs in the state of Mexico, from where no specimens or sight records exist, and the presumed occurrence dates from the period when many specimens were merely labelled "Mexico", an appellation wrongly given non local meaning by later workers. One simply cannot distinguish between two nightingale thrushes, *Catharus occidentalis* and *C. frantzii*, by bill color. A very few of the voice interpretations are either not apt, inaccurate at least for Mexican populations, or merely fill space. The rolling raucous squirrel-like chatter of the Band-backed Wren, *Campylorhynchus zonatus*, is described as suggesting "a muted jay, *raha, raha, raha, raha* (Chaliff)" and as *"Tsu-ka, tsu-ka, tsu-ka*, etc. (Skutch)". These are not apt. The Gray-throated Chat, *Granatellus sallaei*, is said (fide Land) to have "a bunting like song," whatever that means. In fact, at least in Campeche, it has a simple, sweet, intense trill, sometimes rising at terminus (Hardy MS), and that is *not* buntinglike. Terms such as jaylike and buteolike (the last appears in the guide) should be avoided. These groups referred to are too large and varied to have a strongly unified similarity in the voices of their species. The Greenbacked sparrow, *Arremonops chloronotus*, is said (fide Land) to have a song resembling that of the Tufted Titmouse *"peter-peter-peter,"* but I have dozens of recordings of this bird from Campeche that in no possible way could be so interpreted. Does the Guatemalan population have a different song? As for filling space, why devote a line to describing the voice of the White Hawk, *Leucopternis albicollis*, as "a harsh buteolike scream"? This would not help to identify the bird were it out of sight, whereas in sight the species is one of the most nearly unmistakeable of Neotropical birds, requiring for the viewer no consideration of vagaries about voice. All the voices of jays of the taxa *"Cissilopha"* and *"Cyanolyca"* go unreferred to, although they have been described in the literature (Hardy 1964, Occ. Pap. Adams Center Ecol. Studies, No. 11; 1969, Condor 71: 360). Especially with *Cyanolyca* species voice is helpful, as they can be almost impossible to see without first having been heard.

Peterson has informed me (in litt.) that though changes in color illustrations are difficult and not planned before a second edition, he hopes that text emendations will be possible in forthcoming printings of the present edition. One-liners on voice can be inserted and slight errors in text corrected. Therefore readers are encouraged to send him notes on corrections or for inclusion when they contribute to detection and identification of the species.

Let me return to the sense of my opening paragraph. This is a fine book. I point out the few flaws so you can correct and use your copy more efficiently in the field. But for every error I noted there are many pages of excellence, with account after account hitting the nail of characterization squarely on the head. I especially like Peterson's intelligent treatment of difficult taxonomic problems. For example the *Vireo gilvus-V. leucophrys* complex is dealt with in two accounts with care taken

to point out the differing views that exist on systematic relationships of the forms. The same is done for *Basileuterus rufifrons* and *B. delattrii*, *V. griseus-V. pallens*, the *Pipilo ocai-P. "macronyx"-P. erythrophthalmus* problem, and several more. Peterson and Chaliff have drawn generously, with appropriate citations, on the unpublished experience of others to supplement accounts as well, so that we do not get a "Birds of Mexico" as known merely to the authors, from their own work and a few published papers. The book should be a great impetus to future fieldwork in the area of coverage and an indispensable volume for decades to come.—JOHN WILLIAM HARDY.

A guide to the birds of Trinidad and Tobago.—Richard ffrench. 1973 [1974]. Wynnewood, Pennsylvania, Livingston Publ. Co. xix + 470 pp., 36 col. pls., 41 text figs., 4 tables, 2 appendices. $12.50.—Without the many illustrations this publication would be of limited value as a field guide, for it is primarily a handbook and a good one. The 28 plates by John O'Neill and eight "portraits" by Don Eckelberry include no less than 225 species in color: it is therefore indispensible to the bird watcher who visits Trinidad or Tobago. The great majority of the birds depicted by O'Neill are excellent. The tarsi of the larger doves appear too long, the plumage of *Molothrus* and *Volatinia* too blue, the frontal shield of *Fulica caribaea* insufficiently bulbous, and the distinguishing features of the small green hummingbirds on plate 11 not as clear as they should be; but these are minor criticisms. Eckelberry's portraits are superb, as one expects of this distinguished artist. The lack of page cross-references on the caption sheets facing O'Neill's plates is deplorable; the publishers should have seen to this. Furthermore, although the text contains few typographical errors, the scientific names in the captions have a dozen mistakes, the most blatant that of the Large-billed Seed-Finch, which appears as *"Oryzoborus angolensis."*

In a popular work of this kind, covering a small area, it would have been useful to have inserted maps of Trinidad and Tobago in the text, indicating the distribution of the species at a glance. In this book one has to consult the appendices (pp. 439–442) to discover readily what birds are known from Tobago. As all of the species that breed in Trinidad and almost all of those of Tobago are also indigenous to South America, their extralimital ranges seem superfluous.

The text is on the whole reliable. It should be pointed out that the Broad-winged Hawk collected in Trinidad is a winter resident individual of the North American race, not the shorter winged *antillarum* that inhabits the southern Lesser Antilles and Tobago, and that the Variable Seedeater has been taken in Trinidad. The White Bellbird (*Procnias alba*) is regarded as a vagrant to Trinidad, although this cotinga has been reported there a number of times for over 100 years, and it is unknown from adjacent parts of Venezuela. The birds-of-paradise introduced on Little Tobago are mentioned, but not the feral domestic fowl on that islet. The statement by ffrench in his introduction (p. 31) that wood-warblers are difficult to identify is not true of adults, and I do not see why the North American species reported seen should be considered of hypothetical occurrence, apart from the admittedly misidentified Yellow-rumped (Myrtle) Warbler: both the Blackburnian Warbler and Common Yellowthroat have been collected on Tobago.

Data on nidification of almost all the birds that breed on Trinidad and Tobago are presented, but there is still no clue as to the identity of the species that lays the extraordinary "black" eggs found in pendant nests in Trinidad, Venezuela, Guyana, and Brazil. There are three records of snipe nests from the Caroni marshes, but oddly enough no report of a drumming snipe from this well-known region.

The text of ffrench's book is much like that of "The birds of Trinidad and Tobago" by G. A. C. Herklots (1961, London, Collins), but it presents more detailed and original information. Anyone interested in birds who visits these islands or the tropical South American mainland should buy this reasonably priced volume. With more than 400 species included, it is clear that the avifauna of Trinidad is richer than that of any other island of comparable size in the world.—JAMES BOND.

Saint Francis: nature mystic.—Edward A. Armstrong. 1973. Berkeley, Univ. of California Press. 270 pp., 19 illus. $12.00.—In the keynote scene in a motion picture of the early 1960s, a newspaper editor stated: "When legend becomes fact, print the legend." Our current varied concepts of Saint Francis of Assisi are within this framework. My own concept, for example, is visual—of the saint as recreated many times on canvas by Zurbarán and by El Greco. There is a motion picture based on the life of Francis. Books about him continue to appear. Ecologists have considered adopting him, because his concern was all creation. Generally, but more narrowly, he is associated with birds.

But accepting the legend means forgetting truth. What was it like to live the life of a humble nature mystic, in Umbria in northern Italy, in the years 1182–1226? Rev. Armstrong has tackled the near impossible in trying to recapture that cultural scene without being side tracked by a record skewed by the perspectives of self-interest and of the church for 700 years. It turns out that the real subject is elusive; much interpolation is required, to try to recover something that can be captured only by inference. It is known that Francis was a dissolute youth (a common trait of great saints!), later had several "conversion" or "mystical" experiences, and thereafter treated even inanimate things with, at times, an extreme reverance. To me this seems akin to the psychological effects of some personal disaster, including a conversion, and then the mystery as to whether subsequent behavior may be regarded as rational (such uncertainty being quite sufficient for regarding Francis of Assisi as the patron saint of ornithologists!).

The longest section in the book concerns birds, then follow household and farm animals, "small deer," cold-blooded creatures, furred beasts, and the Canticle to the Sun. It is heavily footnoted and thoroughly indexed; scholars will marvel at the broad erudition of its author. Yet the very nature of the real subject—not the legend—has a remoteness about it that could drive a nonscholar to habitual indulgence in ardent spirits (alcoholic). All would not be lost, however, for one then has *two* patron saints—St. Martin and (for more drinks downtown?) St. Urban.—RALPH S. PALMER.

Francis Lee Jaques: Artist of the wilderness world.—Florence Page Jaques. 1973. Garden City, New York, Doubleday and Co., Inc. Pp. xxi + 370, 64 col. pls., 100 scratchboard drawings and other illus. Slipcased. $25.00.—Seldom is a painter so fortunate as to be memorialized soon after his passing in a comprehensive and attractive volume. This book is a "must" for Jaques aficionados.

The main text, by Mrs. Jaques (who survived her husband by 2½ years), is biographical, informative, rather chatty, occasionally a bit gossipy, and not too heavy a eulogy. Lee Jaques comes through much as his contemporaries knew him—unassum-

ing, quiet, straightforward, and no-nonsense. He definitely was precocious as an artist and he seems to have gone ahead pretty much on his own, without elaborate formal training. In due course, the world came to him; he sold almost everything he painted. He has been memorialized in this journal (1971, Auk 88: 478).

Jaques had a decorative and highly individual style with a thoroughly controlled underlying unity. The shadows are right, the bird (or whatnot) relates to the landscape, and the latter is consistent and correct. That is very different from an unmelded assemblage of clichés such as commonly is passed off as wildlife painting. Jaques, for example, never quit studying reflections in water and often they are a strong element in his canvases. He liked flat planes (and a flat brush) and much space; this requires avian subjects of large size, such as waterfowl. He never did well with streaky little jobs and summed this up by stating that "the difference between warblers and no warblers is very slight." Painting the texture of fur is another picky task. Jaques could ruin a good mammal drawing by painting it as though the fur were flat pieces sewn together in a sort of patchwork. This book about him, fortunately, emphasizes his better work (although only three dioramas are included); smaller creatures are shown mostly as preliminary designs. He pioneered in the use of scratchboard for wildlife subjects and his book illustrations in this medium have been imitated but not excelled. Another of his specialties was painting on sheets of glass, arranged one behind the other. His hobby was model railroads, complete with "habitat" and painted background.

All the backgrounds in the Whitney Hall of Oceanic Birds at the American Museum of Natural History were done by Jaques, from field studies onward. This gave him a chance not only to adjust painting on a curved surface so that it "reads" right at eye level at the distance appropriate for viewing the finished group *in toto*, but also he maintained the horizon at constant level from group to group around the entire hall. Apparently nobody questions this striving for unity, but it is an ongoing argument in museum circles (and it surfaces in this book) as to whether an artist's personal style of painting should be evident in a group background or whether, somehow, he should try to emulate a scene without letting his individuality become explicit. (You can please some of the people all of the time . . .) My personal experience lets me relate to tundra more readily than to islands in the far Pacific; that may be justification for standing longest before an alpine group, with the mighty Matterhorn, painted by Jaques, as a background. Considering that Jaques himself liked openness, it seems a bit out of character that he preferred the Olympic Rain Forest habitat group among his own museum accomplishments. Yet his treatment of space undoubtedly justified his choice.

I open any new book relating to a wildlife painter wondering whether its author felt a need to "identify" the subject with the all-time greats. In conversation Jaques once commented that, among occidentals, Bruno Liljefors was the greatest wildlife painter and Carl Rungius the greatest mammal painter. Agreed. Not surprisingly, both names are "dropped" in this book—but with more restraint than, for example, in "The animal art of Bob Kuhn" (1973, New York, Watson-Guptill Publ.).

Particularly good features of the book include the quality of the color plates, the blacks in the scratchboard illustrations, and the overall satisfying design. One might think it impossible to publish a Jaques drawing upside down, but brown bats do hang from the top of a wall down—not from the bottom up. The excerpts from Mrs. Jaques' writings are padding of a sort, but always pleasant reading. There is a useful index.—RALPH S. PALMER.

Audubon in Florida.—Kathryn Hall Proby. 1974. Coral Gables, Univ. Miami Press. Pp. xxiii + 384, 81 mediocre black-and-white photos, including 53 Audubon prints and some views of Florida and various desiderata. $12.50.—I found this book very disappointing. It adds nothing new or constructive to what has already been published about Audubon or to Audubon's own writings, but compounds some of of his errors. In fact Mrs. Proby has mutilated the bird accounts and failed completely to update their taxonomy. She visited the Dry Tortugas, but obviously never read Robertson's historic and competent "The terns of the Dry Tortugas" (1964, Bull. Florida State Mus. 8, No. 1). Nor did she consult Dr. Robertson himself, or she would not have written that the Sooty Terns return yearly after nesting to South America and the Yucatan Peninsula. She would have learned instead that immature Sooty Terns winter off the coast of West Africa, and the old birds remain airborne over the Gulf of Mexico and the Caribbean Sea. She might also have learned that Bird Island, where Audubon saw the Tortugas terns, disappeared under the sea about 40 years ago, and she was seeing them in a new location. Speaking of terns, the author does not make clear that Audubon was mistaken in calling "Cayenne Terns" the Caspian Terns he saw in Labrador. "Cayenne Tern" was Latham's name for the Royal Tern, which Audubon describes so graphically at St. Augustine and the Dry Tortugas. With a proper bibliography Mrs. Proby might also have learned that the last Whooping Cranes found in Florida died during the Pleistocene epoch.

In the first section of her book Mrs. Proby recounts a short life history of Audubon and his travels in Florida. She says, "The Great White Heron, perhaps Audubon's prize find of the trip, carries Audubon's name as its discoverer." This statement would have been acceptable if she had said, "may have been thought of by Audubon to have been the prize find of the trip." The author has quite evidently not discovered that the Great White Heron is only a color phase of the Great Blue Heron and interbreeds with the darker birds. How could the author reprint an article from the "Charleston Mercury" of 1833 and seemingly make no effort to see the Bachman papers at the Charleston Museum, which contain many references to Audubon's Florida travels? The best part of the book is undoubtedly the excellent foreword by Alexander Sprunt IV.—ELIZABETH S. AUSTIN.

Birds of the world on stamps.—Willard F. Stanley, Beverly S. Ridgely, and Gustavs E. Eglajs. 1974. Handbook No. 82, Amer. Topical Assoc., 3308 North 50th Street, Milwaukee, Wisconsin 53216. Pp. 104. Paper. $5.00.—A more appropriate title would be "Catalog of birds of the world on stamps." A necessary tool for the ornithophilatelist, this work is only of passing interest to the scientist. Two pages of text introduce a list of stamps arranged first by order and family (in J. L. Peters' sequence) and then by country and stamp catalog number. Indexes to orders, families, and common names facilitate collectors working from the country list to the taxonomic list. Six pages of monochrome representative stamp illustrations are included. The addition of generic and common names, Scott Catalog number, issue year, and denomination eliminate the need for a full stamp catalog in forming a specialized collection.

The authors have been thorough in achieving their stated purpose. They have compiled a complete and accurate list of the wild birds that have been depicted on world postage stamps through 1972. They have included local and Communist nation issues in the 236 stamp-issuing entities represented. It is interesting to note that

1063 recognizable species of birds (671 nonpasserine) representing 29 orders and 147 families and subfamilies are cataloged.

I personally feel that this work would have wider appeal and greater value if it included background and research information about the stamps and their subjects. The short introduction sadly neglects the interest and glamour available. Lundy Island issues stamps in puffin denominations with puffins as primary subjects. The stamps of Western Australia are distinctively identifiable by their Black Swans. At least a chapter of readable lore about our national bird on stamps must be available. Two sentences are not enough to handle the plagiarism evident in the "lifting" of bird illustrations from books for stamp design. The misidentification of birds is mentioned but not delineated or discussed. No mention is made of the many amateur ornithologists who have combined hobbies by specializing in bird stamps. Two of the authors, for example, have been members of the A.O.U. for over 25 years. The compilers have left out their most powerful reader magnet, the human interest aspect of ornithophilately.—TIMOTHY O. AUSTIN.[1]

[1] Yes indeed, my ornithophilatelist younger son.—ED.

ALSO RECEIVED

Land above the trees/a guide to American alpine tundra.—Ann H. Zwinger and Beatrice E. Willard. 1972. New York, Harper & Row. Pp. xviii + 489, profuse line drawings by A. H. Zwinger, 45 colored photos by Herman Zwinger and B. Willard. $15.00.—The blurb on the jacket of this book says it is "the first comprehensive book on the ecology of the alpine tundra of the United States." It is not that at all. It is a study of the botany of some mountain tundra in the temperate zone of certain western and northeastern states of the United States. It says very, very little about birds, mammals, and insect life. The subtitle is also misleading for surely Alaska and Canada are part of America, particularly North America. The bird life mentioned by the authors is inadequate. They perpetuate the old children's book error of ptarmigan feet being feathered for warmth and to furnish snowshoes.—ELIZABETH S. AUSTIN.

Swamps, river bottoms and canebrakes.—Brooke Meanley. 1972. Barre, Massachusetts, Barre Publ. Pp. 142, many fine black-and-white photos and a few drawings by John W. Taylor, Chesapeake Bay waterfowl artist. $12.50.—Every one of the swamplands described and discussed in this interesting ecological study is a personal experience of Brooke Meanley's. His writing takes the reader with him to vanishing jungle, forest, thicket, and hammock of America's southeastern wildernesses. From the Slovac Thicket and White River valley in Arkansas eastward to I'On Swamp in South Carolina and south to the Everglades—and other important wetlands in between—all are well covered in this work. While it is evident that birds are the author's greatest interest, he writes well of mammals, reptiles, amphibians, fish, insects, and other creatures and describes the flora in detail. In addition to a table of contents and a general index, separate indexes to plants and animals mentioned in the text are helpful. This is an excellent swamp reference book and also very good, entertaining reading matter full of the author's personal observations of bird behavior.—ELIZABETH S. AUSTIN.