REVIEWS

EDITED BY JOHN WILLIAM HARDY

The Audubon illustrated handbook of American birds.—Edgar M. Reilly, Jr.; Olin Sewall Pettingill, Jr., editor in chief; drawings by Albert Earl Gilbert. 1968. New York, McGraw-Hill Book Co. Sponsored by National Audubon Society, pp. xvii + 524, 375 halftone, 35 color photos., 100 drawings, 8½ × 11 in. $25.00.—Nearly every school, public library, and book-stocked home wants at least one big bird book with pictures. So ornithologists are asked "What book shall I buy?" almost as often as "What bird is that?" This volume widens the selection.

Among popular works covering the entire United States and Canada, there are now three principal choices. The others are "Birds of America" by T. Gilbert Pearson ($8.95, Garden City Publishing Co., N.Y.) and the National Geographic Society's two-volume set, "Song and Garden Birds of North America," and "Water, Prey, and Game Birds of North America" by Alexander Wetmore and others ($25.00). Of the three, the National Geographic set is much the richest in color illustration, but its species accounts, while more popular in treatment, are less informative. The Pearson work, on the other hand, is more than 50 years old and is outdated not only by advances in knowledge but also by the addition of Hawaii to the States. But it still continues to sell through many printings at a price no new book of this format can approach.

In comparison, Reilly follows the tradition of Pearson but restricts himself more severely to the bare facts. Virtually the entire text is made up of the species accounts. Each family is introduced by a brief comment, but there is no personalized essay on each bird as in Pearson and no interspersed discourses on general topics like nesting, migration, history and conservation as in the National Geographic set. Instead the information is presented in a series of thumbnail summaries—condensed and orderly. It is a book for reference, not for easy reading.

Most species are presented under the following subheadings: appearance, voice, range and status, habitat, seasonal movements, biology, and suggested reading. However some species that occur in this part of the world only casually or at the extreme fringes are treated in one short paragraph. In every case the account is severely brief, as might be expected from the word handbook in the title. Usually a species gets less than 6 column inches in a double-column page.

We applaud the patient effort required to glean from the ornithological literature these kernels of fact on 875 species (Chapman's "Handbook" contained 532) and particularly to ascertain that certain bits of information are not available. One of Reilly's most stimulating contributions is his disclosure of startling gaps that still exist in knowledge of common birds, such as incubation periods and age at first flight. Another useful contribution is his listing of one or two prime references on each species.

A noteworthy feature is the bird portraits. Over 500 species are figured, 35 in color. The drawings by Gilbert are charming, and the photographs represent the finest from a wide selection of sources. All are printed clearly in large size, bleeding off the edge of the page. This lavish decoration seems out of tone with the sober, compact text, but may enhance the appeal on bookshop counters. On the other hand, much of the bulk and price derives from the illustrations. Most serious ornithologists will see little value in a photograph of a bird that has been pictured

many times before unless it shows something significant about behavior or habitat. And for identification, the illustrations in a field guide are better.

Feeling that I share with most ornithologists a tendency to be hypercritical of bird books, I would like to make it utterly clear that I regard this book as attractive and solidly factual on the whole, before I single out minor aspects for less favorable comment. In offering critical remarks, I hope to address myself as much to writers of future books as to prospective readers of this one.

Here it seems to me the assemblage and condensation of facts has been somewhat mechanical. Words and methods of the past have been repeated with no imaginative attempt at improvement. Ranges of birds are given in the traditional way. For a widespread species like the Little Blue Heron, this is a formidable list of locations, heavily abbreviated, and leaving many questions about intervening places for those people who carry atlases in their heads. The simplest of range maps would have been a vast improvement. Also the areas reached by casuals seem hardly worth mentioning. To show for the Bohemian Waxwing, "S. Ill., C. Ind., C. Ohio, Pa., Conn., Mass." is scarcely worth the space as few people in those areas will see the bird in a lifetime there. Indeed, since birds fly and occasionally wander, we might be justified at this stage in our sophistication to dismiss strays with the acknowledgment that most northern birds will occur eventually nearly everywhere on this continent.

This compendium approach also has allowed some words to creep in as generalizations that must have been regional viewpoints in their original contexts; e.g. the Orange-crowned Warbler, a widespread nester in the West and North and a common wintering bird in many of the southern states is called "rare," and the Tennessee Warbler, which is one of the most abundant nesting birds of the Canadian boreal forest and an abundant migrant throughout the Midwest is called "fairly common." Other phrases used frequently to describe abundance are almost devoid of meaning, "rather rare to locally common" and "fairly common, at least locally." Could not these statements apply to nearly all birds somewhere?

Similarly noninformative are some statements about incubation periods: Black and White Warbler, "more than 10 days;" and Golden-winged Warbler, "10 (?) days." As Margaret Morse Nice (Wilson Bull., 65: 81–93, 1953) has shown that 10-day incubation periods have been substantiated for only a few birds on earth, it is not helpful to say that an incubation period is 10 days or longer.

I have no doubt someone has said in print that the Mourning Warbler sings "yeee, yeee, yeee, churr-churr-churr" and the Connecticut Warbler, "beecher, beecher, beecher," but I think you would be greeted with laughter if you read those syllables to an audience of people who know the birds. And to people who do not know the songs, I doubt these syllables will convey any useful impression.

In describing the appearance of birds, I think Reilly would have been wise to have taken a fresh look at the bird in its entirety rather than to have condensed the usual part-by-part inventory.

Typographical errors are few in this book, but I suspect a slip of the pen in placing the fall departure of the Arctic Warbler in Alaska at "Aug.—early Nov." It is unthinkable that this small insectivorous bird could survive on the Arctic tundra more than a few days after the end of August, and Brina Kessel at the University of Alaska has only one record into early September for the state. Another slip, I believe, was made in expressing the pitch of the Starling's voice in "vibrations per minute" instead of per second. An omission, probably unintentional, was the failure to mention under habitat or food the cowbird's characteristic habit of following grazing animals to capture insects, from which it gets its name.

A point of a different kind is Reilly's use of the heading "biology" to embrace the subjects of nest, eggs, incubation, age at first flight, food. Here he is following a common modern usage, although the term usually is "breeding biology." I am probably filing my dissent too late to influence the trend, but it seems to me this term is regrettably lacking in precision. Are not appearance, voice, range, habitat, and migration parts of a bird's biology also? It seems to me the term is too all-embracing. It promises more than it delivers. It suggests that it might include botanical, bacteriological, and even molecular elements that are a prominent part of biology but seldom treated under this heading. If life history, like natural history, is beginning to sound old-fashioned and unscientific, then we need to find a more exact and prestigious term. Meantime we have several terms that describe the pieces simply, such as reproduction, development, food, shelter, mortality.—HAROLD F. MAYFIELD.

A distributional survey of the birds of Honduras.—Burt L. Monroe, Jr. 1968. Amer. Ornithol. Union, Ornithol. Monogr., No. 7, 458 pp., 28 figs., 2 col. pls. $9.00 ($7.20 to A.O.U. members).—This important work follows, in general format, the fine example of Monograph No. 1 on British Honduras (Russell, 1964; see Auk, 83: 142, 1966). Added useful features include distribution maps, a (geographic) analysis of migration, and an index (largely limited to birds' names). Monroe naturally stresses geographic and altitudinal distribution more in this larger and far more diverse country. He cites past authors more freely, but gives fewer data on weights, breeding, microhabitats, and vegetation. A final addition, "Derivation of the Honduran avifauna," tells of its "arrival," "overwater invasion" of woodpeckers, etc., ignoring Léon Croizat's more probable theory that the means of dispersal are, in most cases, the means of survival. Especially interesting to me are Monroe's proof (p. 390) of major overwater flights in May, and his data on kite migrations.

Monroe's book, like recent volumes of "Check-list of birds of the world" (cf. Parkes, Wilson Bull., 72: 415, 1960), is "virtually indispensable to many readers, without any relation to possible defects or inadequacies." As the first important summary of a rich but long-neglected avifauna, one *must* use it, but it is vital to understand its limitations. Detailed, lengthy treatises often are taken for gospel, even by eminent scientists; and Monroe's interesting analyses give no such clear warning as the hasty addenda of forgotten species in this checklist.

My first impression was that extraneous matters (taxonomy, etc.) were poorly handled, but that strictly *Honduran* aspects were fairly adequately covered up to early 1964. But study shows the book to be marred by seeming carelessness, primarily a haphazard coverage of its own bibliography (as cited below), and also by lack of clarity, occasional lapses in judgment, and inconsistency. Thus, Honduras specimens recorded in Hellmayr and Conover's footnotes are cited by Monroe from their 1949, but not 1942, number. Also I believe the following should have received more attention: Brodkorb, 1943b, Paynter, 1955, and Russell, 1964, on the taxonomy of *Agelaius phoeniceus, Icterus cucullatus*, and *Habia fuscicauda* or "*gutturalis*," and on the ecology of *Vireo pallens*; Dickey and van Rossem, 1938, on the abundance of *Vireo gilvus* and resident status of *Progne chalybea* (who identified this obscure species in October, and *where* in Honduras?); Salvin and Godman, vol. 1, p. xvii, on swallows, etc.; and on subspecific questions Brodkorb, 1942a, Storer and Zimmerman, 1959, Underdown, 1932, and van Rossem, 1934b. Subspecies proposed (chiefly after 1932) in some 25 additional species are ignored in Monroe's accounts. Rarely, he even misquotes his sources: thus (p. 311) Brodkorb recognized *Polioptila albiloris bairdi*

"on the supposition that the wing plus tail measurement of the interior birds was greater . . . I cannot see any significant differences." Actually Brodkorb gave detailed data showing almost no overlap of the coastal *bairdi* with topotypical *albiloris* of the interior, which is smaller, *not* larger; while Monroe presents no data at all. Certain subspecific characters also seem reversed in *Centurus pucherani, Campylorhynchus zonatus, Dendroica petechia, Basileuterus rufifrons* (here including *delattrii*), and *Habia fuscicauda.*

Fortunately, subspecific problems affect only one species account: *Ammodramus savannarum* "is presumed to be resident" in the interior because the specimens are "*bimaculatus*," which breeds "from southern Mexico to Costa Rica." But in 1932, when most of these skins were so labeled, "*bimaculatus*" meant the much paler, larger northwestern race, now *perpallidus* (Hellmayr, 1938: 499; and others).

Monroe frequently fails to clarify his bases. Thus, rarely can one tell just what specimens he examined. Where, for example, is "a recently obtained series of *A* [*maurospiza*] *relicta* . . . from southern Mexico"? What are its "several morphological differences in both sexes" from *A. concolor*? Has Monroe actually examined the supposed Mexican *A. c. concolor* (Miller et al., 1957)? Or, in calling Honduran *concolor* "the northernmost known," is he reidentifying unseen birds on the political-boundary basis he evidently uses in *Lepidocolaptes souleyetii* and *Empidonax albigularis*? The day has passed when this was necessary because specimens *had* no data beyond country of origin.

Obscure, too, is Monroe's basis for writing that *Cyanolyca pumilo nigrogularis* "is now generally regarded as a synonym." Only Blake (in Mayr and Greenway, 1962) treats it so, to my knowledge. See Miller et al., 1957, and Wetmore (Proc. U. S. Natl. Mus., 89: 557, 1941; not cited by Monroe), who first recorded this jay east to central Honduras.

Monroe starts a taxonomic discussion by referring "all Honduran specimens examined" to *Tringa s. solitaria*, yet concludes flatly that *T. s. cinnamomea* "has not yet been taken in Honduras." Surely it would be better to say simply "I refer the 3 LSUMZ skins to *T. s. solitaria*." For two of the four in AMNH and BMNH, in my files, are *cinnamomea*. (Reliance on the at-hand LSUMZ series also mars the accounts of *Crypturellus boucardi* and *Agelaius*.) Space is lacking to document such inconsistencies as his half-way inclusion of Hunting Cay (assigned to British Honduras by Russell, 1964) and his treatment of the findings of Delacour (whose itinerary as given by Monroe, p. 35, is woefully incomplete and inaccurate).

In sharp contrast to his skepticism of earlier specimens (*Odontophorus guttatus, Hylocharis eliciae, Melanerpes, Mimus*), and *contra* Paynter (1955: 309) and further Bond papers (cited in Condor, 69: 81, 1967), Monroe accepts Gaumer records "at face value" (p. 327), by use of a dynamic viewpoint he all too seldom adopts. For instance he does not mention the apparent recent colonization of Isla Guanaja by Common Ground-Doves and grackles (Bond, 1936) or the present distribution of *Crax* and *Penelope* in Honduras. Readers can only wonder if Monroe's island records of *Icterus chrysater* and *Spizella passerina* rest wholly on his faith in Gaumer.

Monroe lists few specimens as "imm.," hardly any as "juv." He describes a typical juvenal pygmy-owl (p. 158) as an "adult male," and (p. 268) "agree[s] with Zimmer [that the types of *Empidonax difficilis seclusus*] are worn examples of *E. flavescens dwighti*." Actually these are juvenals, by my examination, and Monroe's nomenclature is unlikely in any case. Space prohibits systematic discussions here, but readers may consult Wetmore (Ibis, 100: 125, 1958) on "*Gallinago* Brisson" and Rand (Auk, 65: 425, 1948) on *Sphyrapicus varius nuchalis*. Especially poor, to me, are Monroe's

comments on *Buteogallus* (cf. also Bond, First Suppl. Check-list Birds West Indies: 3, 1956), *Centurus*, and *Seiurus* spp.

Dates, too, are poorly handled. *Caprimulgus carolinensis* is hardly "widespread in . . . winter" (p. 398), for there are only six Honduran records (p. 165), *none* between 18 November and 2 April (and none Monroe's, so his statement "It occurs in a wide variety of forested and semi-open situations" is not based on Honduras records, all but one of which are by a professional collector; nor are the ecological statements on *Empidonax albigularis, Tyranniscus, Ornithion*, and *Coereba* based on personal acquaintance in Honduras). Also "widespread in . . . winter" are *Tyrannus tyrannus* and *Wilsonia canadensis*, each apparently based on single Underwood specimens, with no attempt to verify the unexpected "December" dates by their plumages. The same (?) flock of Black Terns is reported on 9 September and 19 October; the correct date seems to be 19 September (pp. 37, 123, 124). There are seven other inconsistencies within individual species accounts, plus other dates that disagree with the itinerary of Howell and Montrello in Honduras (p. 36). The surprising date of 14 August 1949 for a Yeguare River valley skin of *Muscivora forficata* allegedly taken by Mrs. Carr (giving Monroe "extreme dates . . . 14 August and 5 March") seems to be due to confusion, in his notes, with two *M. tyrannus* taken by her elsewhere that day. Actually, Mrs. Carr kindly informs me, *forficata* is "a common fall and spring migrant, and also a winter resident" there from 15 October (1946) to 16 May (1948).

Monroe lists skins of *Oporornis tolmiei* from 27 September (but see Dickey and van Rossem, 1938: 498) to 12 May, then gives "extreme dates" as 26 September to 11 May; are *both* dates wrong, or has he accepted a fall sight record of a species indistinguishable afield (see Phillips, Auk, 64: 269, 1947; Lanyon and Bull, Bird-Banding, 38: 187, 1967)? Clearly, if his dates are correct, he accepts sight records of the almost equally impossible Eastern Wood Pewee. Offhand mention, on unlikely dates, of Connecticut Warblers in or near Honduras is ill-advised in the absence of specimens between Panama and Texas. Surely not "Merlins" (p. 90) were the "groups of . . . 30 . . . migrating in August and September" reported by a noncollector. Unproved, at best, are Monroe's statements about the migrations of *Buteo swainsoni, Chordeiles minor* (where are the specimens?), and *Cypseloides cryptus*; while his idea of *Jabiru mycteria* is disproved (Russell, 1964). *Actitis* (one of the less likely) is the only shorebird stated to "remain . . . throughout the summer." *Crocethia* "rarely strays away from the sandy beaches;" *is* there a valid inland record?

Unlike Russell, or Dickey and van Rossem, Monroe cites few dates for subspecies, listing only localities (and occasionally not even these: *Caprimulgus vociferus vermiculatus, Stelgidopteryx ruficollis fulvipennis, Wilsonia pusilla chryseola*). Closer study would surely show that *Catharus ustulatus swainsoni* is not really fairly common in *winter* (p. 306–307, 389; see Griscom, 1932b: 91, 309, and recent papers by Pedro Galindo et al. on Panama). What races of Yellow Warbler do actually winter, and where, in Honduras?

Monroe uses Russell's format in a rigid, space-consuming way. Why repeat constantly observers' full names, and pages in citations of brief papers? Why discuss geographic variation in its undisputed absence (*Selenidera spectabilis, Manacus candei*) or when no useful Honduran material has been seen (p. 126, 161, 308, 339)? Even without such discussion, two shorebirds recorded only once each occupy nearly half a page (p. 113). The same specimen may be listed up to four times (p. 124–125)! An inconclusive and unlikely account of the seldom-recorded dowitchers, all listed as *Limnodromus griseus*, occupies nearly a page and shows chiefly (as one

expects) that specimens not properly *preserved* are of frustratingly little value in critical groups; surely well-established ecological differences are firmer bases than sex determinations by inexperienced persons.

Future works, then, could be improved by a more judicious culling of dubious reports, a more careful and up-to-date coverage of the literature, and a *flexible* treatment of species. If polytypic, their specimens could be listed by subspecies; if migratory with dates, and extreme records with collector and museum. Specimen records could be distinguished throughout by italicizing, or by an asterisk. Place and observer or collector (and museum) should be given for unusual dates, and these critically verified and not allowed to conceal normal status. Let us give data according to the *problems presented* by a particular species and its movements and subspecies, and worry less about strict uniformity.

Finally, is it reasonable to expect every struggling graduate student, with limited time, to be a Baird, Ridgway, Hellmayr, Peters, or Wetmore? In broad faunal studies, is it not often wiser to dismiss many species with minimal systematic comment, as did Russell, or with none at all? This would serve to focus attention on those of which the student has made worthwhile studies, such as *Amazona ochrocephala* and *Arremonops* in Monroe's case; these accounts could then be expanded beyond such cryptic statements as that "further field work in Honduras has substantiated that *A. chloronotus* is indeed a very distinct species."

None of these criticisms should conceal the basic fact: Monroe's paper is a real contribution. Everyone interested in neotropical birds will want to consult it, at the specific level. Hopefully it will provide a stimulus and partial foundation for someone to do a full, up-to-date review of the Honduran avifauna, based on far more extensive personal collecting, especially of freshly molted birds, and a more thorough and critical examination of existing collections. Honduras, like any mountainous tropical country, is just too rich and complex for a graduate student's spare time.—ALLAN R. PHILLIPS.

The problems of birds as pests.—R. K. Murton and E. N. Wright (Eds.). 1968. Inst. Biol. Symp., No. 17. London, Academic Press. Pp. xiv + 254. 70 shillings.—In times past the public widely accepted the view that the problems studied by naturalists were relatively simple problems. Any farmer or muskrat trapper had ready answers to questions about wildlife populations, and it didn't seem to matter much whether or not the answers were true. Now, more and more it *does* matter as, both literally and figuratively, the human populace is colliding with other natural populations. In general, classical ornithologists have tried to ignore such practical problems, but one measure of our understanding is what we are able to do with our knowledge, and nothing brings an ornithologist to a realization of his ignorance more quickly than a call for help from an agriculturist or a city besieged by starlings. At such times all his sophistication with scientific vocabulary is meaningless.

Research on "problem" species of birds has increased greatly in recent years, and in view of the popularity of symposiums, one (or more) on pest species was almost a certainty. Such is the book under consideration. It is not a manual on bird control methods, but a collection of 12 technical papers by 17 authors, with discussions of those papers by ornithologists, agriculturists, engineers, conservationists, and representatives of the aviation industry. Each paper deals fairly specifically with a particular bird problem, or one of the techniques used in bird control work. The book is decidedly British in scope and authorship, and most of the data are from England or Canada. Though there are casual references to problems in other geographical

areas, a more fitting title for the book would have been "Some problems of birds as pests," for the book is by no means a comprehensive treatise of the subject.

Though the papers all relate directly to man's problems with birds, they include a great deal of interesting information and ideas on the general biology of birds, and are especially well worth reading for students of migration and students of bird-population dynamics. In his Chairman's introduction, Sir A. Landsborough Thomson points out that the symposium was not conceived in hostility to birds, and in this respect the book is reasonably balanced, with conservation interests well-represented in the discussions. The book is logically organized, as far as it can be, considering that its two sections—Birds and Aircraft, and Birds and Agriculture—are so different that they seem almost not to belong under one cover.

What especially strikes the reader about the section on aircraft is the widespread interest in the problem, and the variety of approaches that have been applied to the study. Following are a few of the interesting facts reported: Though it would be small consolation to those who have been killed, the bird danger to aircraft, relative to other factors, is very small. Only two major disasters, i.e., large passenger plane crashes (both in the USA), had been caused by birds as of the time of the symposium. The *potential* danger may be considerable, however, as indicated by the damage that planes have suffered from bird strikes. At least seven Canadian Air Force fighter planes have been downed by birds, and bird strikes cost England's Royal Air Force about £1 million ($2.4 million) a year. Civil British commercial aircraft have only about one serious bird strike in 20,000 flights. Military planes have a much higher strike rate because they are flown much more at high speeds at low altitudes. For planes in general, about 95 per cent of bird strikes occur below 6,000 feet, and 60 per cent below 2,000 feet. For military planes, 70 per cent of the strikes occur below 500 feet. About 70 per cent of civil aircraft-bird collisions occur near airports, and 30 per cent en route. For military craft the percentages are just reversed. One measure of the importance of the problem is the extent to which the aviation industry has become involved in bird research. The use of structural shielding to protect aircraft has probably reduced the bird hazard, but it becomes increasingly difficult to shield against the heavier species, especially those that weigh over 4 pounds, and shielding is virtually untenable for a bird the size of a swan. The overwhelming majority of strikes involve small birds (under 4 pounds). To study the effects of bird strikes on various test materials and aircraft designs, special air guns have been used to fire bird carcasses into aircraft structures to simulate the actual strike. Jet plane engines placed forward and out on the wings are apparently more likely to engulf birds than engines set aft on the fuselage.

A chapter on bioacoustics and bird-scaring techniques points out the interesting possibilities of using computers to analyze distress calls of birds in a search for sound-frequency combinations that might be more effective in scaring birds than the natural calls, and the use of a visual stimulus, such as a mechanical toy bird rigged to move as though in distress, to reinforce an audio stimulus in frightening birds. The author also envisions the use of telemetry to study the responses of birds to different kinds of stimuli via encephalograph records. Whether or not these techniques will have practical value, they are of interest as an indication of the range of tactics being tried in bird control work, where seemingly no scheme is too far-fetched, even including Schaefer's suggestion that laser beams be used on aircraft to confuse birds or even to burn their wings off at a range of 500 yards. One wonders if the laser might not pose a greater threat than the birds. Schaefer's discovery that birds can be identified in 10-cm radar (if true) is one of the most important in the history of migration

studies. It is increasingly characteristic of this era that studies that seem "merely academic" become of practical concern almost overnight. Bird study is of such moment to the aviation industry now that firemen of the Royal Air Force are being taught bird identification along with their other skills, and the development of a bird warning system has reached the stage that bird forecasters (the counterpart of weather forecasters) are working at a few military airfields in western Europe.

The second half of the book, subtitled Birds and Agriculture, includes a paper on predator-prey relationships, and one on urban pests, especially the House Sparrow (*Passer domesticus*) and Rock Dove (*Columba livia*), plus chapters on specific problems in Europe with the Rook (*Corvus frugilegus*), Oystercatcher (*Haematopus ostralegus*), and Bullfinch (*Pyrrhula pyrrhula*); and on Africa's problems with the Black-faced Dioch (*Quelea quelea*). Any student of bird populations will find these papers worth reading, for though they tend to be short on firm data relative to the amount of speculation and hypothesis, they *are* thought-provoking. The reader gets the impression that much of the data and detail on which these papers are based has been presented elsewhere, and this seems to be the case judging from a quick perusal of some of the references given. Much too frequently in this book the reader is asked to accept general statements about the basic biology of a species, or about the effectiveness of control measures, without benefit of the supporting data, and any serious student of the subject will need either to contact the authors for factual details or to do considerable library work, or both. On the other hand, some of the data presented seem not to be realistic. For instance, does an Oystercatcher really eat 500 cockles (325 grams of cockle meat) per day? In protein consumption, that is the equivalent of about 1,380 calories, or 23 times the expected standard metabolic rate for a 650-g bird. Such a calorie intake suggests either an incredible activity rate by the bird, or an equally remarkable digestive *in*efficiency. To say the least, Davidson's figure for the rate of predation seems to be an exaggeration, yet it forms the basis for his estimate of the *cost* of predation, which in turn affects the decision to control predation. This seems to be a matter of building a case for predator control instead of asking *whether* there should be predator control. To my mind this symposium has virtually omitted that important procedural step. The cost of control measures is another important consideration that the symposium largely ignores. Pertinent here is the question of bounties. Readers who tend to think of England as a stronghold of enlightened conservation may be surprised to learn that a bounty system (in the form of a cartridge subsidy) on certain species survived into recent years. Apparently, the system was just as wasteful in England as in the United States, and was continued for much the same reasons: petty greed and pork-barrel bureaucracy.

When it comes to the matter of effective, feasible solutions to bird control problems, the authors of the symposium seem nearly as helpless as the farmers. The pattern of control measures offered and tried is almost a stereotype from chapter to chapter. There is the method of shielding the crop from the pest (rejected on economic grounds), the method of scaring birds (rejected for any but short-term use), and the methods of poisoning (used, but without sustained effect) and shooting (used, but even less effective than poisoning). To their credit, Crook and Ward in discussing the *Quelea* problem in Africa admit that they do not know the solution, and realistically face the fact that much more knowledge is required. Even then there may be no feasible solution.

Surprisingly, the work that has been done with antifertility compounds is barely mentioned in the book.

Also much to their credit, all the authors point out the need for a broad ecological

approach to the problems of population control, and thus it seems unfair to fault them on this score, yet these papers and others I have read on population control usually reduce the problem to two participating principals—the crop and the pest species, with Man standing generally impotent behind the crop. Probably *no* biological system is *that* simple. Newton points out a dramatic example of the involvement of other species when he shows how the biology of ash trees is involved in Bullfinch depredations on orchards, but what are we ignoring of the more subtle relationships between the diverse populations in every biological community? It would be surprising, for example, if the oyster-Oystercatcher problem were as simple as described. It would be especially surprising if other invertebrates (both predators and prey) were not importantly involved. This is not intended as criticism of the authors, who are as well aware of these complexities as I am. It *is* a criticism of governments and industries, which expect quick answers, and seem to believe that the rules of economic expediency can be applied effectively to complex biological problems, under the sustained delusion that natural history problems are *simple* problems.

We may choose to ignore that Man belongs high on any list of pests, and surely that philosophy is no comfort to a farmer who sees his crop despoiled, but I wonder if we can continue indefinitely to operate the world on the basis of short-sighted economic considerations for every industry and special interest. It will be a mark of man's maturity when he realizes that he also *owes* something to the earth.—RICHARD R. GRABER.

Finding birds in Mexico.—Ernest Preston Edwards. 1968. Second Edition. Ernest P. Edwards, Sweet Briar, Va. Pp. xxii + 282, 15 plates (4 in color), 7 maps, 6¼ × 9¼ in. Cloth. $7.95.—The current edition of *Finding birds in Mexico* represents a threefold enlargement and extensive revision from the original work published in 1955. The function remains the same—to direct the highway traveler to some of the more productive and accessible birding localities in that country. The introduction includes short but excellent discussions of the effects of physiography, climate, and habitat on the distribution of the avifauna. Edwards divides the country into five major biophysiographic Regions: Yucatan, Baja California, Pacific Lowlands, Highlands, and Atlantic Lowlands. Each of the last three is further separated into Northern, Central, and Southern Sub-Regions.

In Section I (44 pages) for each Region and Sub-Region the author describes the highway systems, topography, and vegetation, lists the most common avian inhabitants by major habitat, and presents an outline map showing towns, important highways, and approximate Region and Sub-Region limits. The remarkably broad coverage excludes only three states: Hidalgo, México, and Tlaxcala.

Section II (182 pages) consists of an alphabetical list of 70 towns, all but two of which are discussed in relation to location, population, layout, elevation, climate, and vegetation. The bulk of each account is composed of lists of the breeding birds that are most likely to be seen in town, at its outskirts, or at the more easily accessible nearby birding localities. The last two paragraphs of each account list nocturnal birds and detail winter changes in the habitats and avifauna. Unfortunately, specific directions for reaching good birding spots are mentioned infrequently. More often the reader is told simply to search for a particular habitat along a certain road. The physical descriptions of the towns (which are of little value to a birder) and the discussions of winter changes are distressingly repetitious from one account to another and might well have been treated in a few paragraphs in the introduction,

leaving space for more detailed treatment of the natural vegetation and more explicit directions to localities.

The space expended for the repeated listing of such abundant and widespread birds as Turkey Vulture, Mourning Dove, and House Sparrow would better have been utilized for the more unusual and local species that might well be missed without specific directions. The many lists of birds likely to be observed within city limits are often merely reductions of the avifauna of the surrounding countryside, and hence are of little value to the highway-traveling birder.

Following Section II is a one-page directory listing the major habitats and the towns where each may be found. Unfortunately most of the excellent terms on this list are not employed regularly in the text.

The 15 composite plates (4 in color) depict in field guide style a total of 212 species, many of which are not illustrated elsewhere in the easily available literature. While most of the illustrations will prove helpful, some leave much to be desired. Presentation in color and less size reduction would have emphasized the subtle differences between the smaller wrens, which on Plate 7 are virtually indistinguishable. Drawing scales, provided only in the introduction, are inaccurate at least for Plate 8, ranging from about one-fifth life-size for the White-bellied Martin to about one-seventh for the Unicolored Jay. Nine of the species shown on Plate 13 are depicted in their entirety on other plates in the book and hence should have been deleted or replaced. Other species, such as the Yellow-headed Vulture and Boucard's and Rufescent Tinamous (Plate 1) have lost their diagnostic field marks in black and white, while the Russet and Highland Thrushes (Plate 10) are almost indistinguishable even in color. The bird shown in the middle of the top line on Plate 6 is a Spotted-crowned, not Spotted Creeper (corrected in later copies), and its range should include the Central and Southern Highlands Sub-Regions.

Section III (50 pages) is divided into three parts, a one-page list of 29 accidentals, a group of one-paragraph characterizations of 16 families of birds found in México but not in the United States, and a list of 976 species, arranged taxonomically under family headings, that occur regularly in México. Each entry on the last list gives the English and Mexican vernaculars, scientific name, average length in inches, range by Region and Sub-Region, seasonal status for other than permanent residents, and plate numbers if illustrated. A short description of the bird and an indication of habitat are presented for those species not illustrated and not occurring regularly in the United States.

Edwards employs his own taxonomic concepts, which in the main are those of a splitter, a refreshing departure from the current rage of indiscriminate lumping. However the author might be questioned in his decision to give specific rank to such forms as *Psilorhinus mexicanus, Icterus abeillei*, and *Pipilo macronyx*. One name, *Stelgidopteryx ridgwayi*, will send even seasoned ornithologists scurrying to the literature. On the other hand, conspecific treatment is afforded such groups as *Eupherusa eximia* and *poliocerca* (but *E. cyanophrys* is separate) and *Cassidix mexicanus, major*, and *palustris*. Such uneven treatment, confusing as it will be for the average birder, is not so much a reflection on the author as it is a comment on the still fragmentary condition of our knowledge of birds and on the inconsistencies in our taxonomic concepts.

Of more concern to the amateur is the author's unfortunate treatment of vernacular nomenclature. No less than 107 vernaculars differ significantly from those used in the four major works treating Mexican birds published since 1950 (Blake's *Birds of Mexico*, 1953; Eisenmann's *The species of Middle American birds*, 1955; the "A.O.U.

Check-list," 1957; and the "Mexican Check-list," 1950 and 1957). Even the most advanced student of Mexican ornithology will experience difficulty in identifying, for example, Chip-willow, Laughing Creeper, and Mountain Ovenbird. Of the 107 names, 20 involve unnecessary deviations from the A.O.U. Check-list (e.g. Meadow Warbler and Altamira Oriole). While an additional 19 names listed incompletely in the A.O.U. Check-list have been emended by the addition of necessary modifiers (e.g. Common Turkey and American Robin), many have not (e.g. Shoveler and Knot), and at least one (Kittiwake) has lost its required modifier. Some group names have also been subjected to major changes from those listed by Blake: for example, the name Woodcreeper has been changed to merely Creeper; and Becard to Cotinga.

Ranges of species, indicated by abbreviations denoting Edwards' Regions and Sub-Regions, are helpful but contain some inaccuracies and should be used with caution. The Fulvous Owl and Balsas Woodpecker occur in the Central Highlands Sub-Region, and the Barred Creeper has been recorded in the Central Pacific Sub-Region.

Terminating the guide are an inadequate bibliography (only 12 entries) and a four-page index to the group names used in Section III. The index will be of use only to the beginner who is totally unfamiliar with ordinary taxonomic sequence. The incompleteness of the index makes it impossible for a reader to look up easily all (or any) of the localities pertaining to a particular species. Town and state names should also have been indexed.

A departure from his earlier edition is Edwards' election to delete mention of tourist accommondations, a sound decision in view of the ready availability of this type of information elsewhere.

Relatively minor errors are more frequent than one should expect from an author of Edwards' knowledge and abilities. Among these are: "*Anoüs*" (p. 242) should be spelled without a diaeresis; Cozumel Wren should be listed and (probably) Tropical House Wren deleted from the list of Cozumel Island birds on p. 77; and the White Pelican (p. 31) and Common Tern (p. 50) should be noted as occurring regularly only in winter.

An unfortunate circumstance of reviews is that the reviewer must employ most of his allotted space in justifying his objections, while the pleasing aspects of a publication, which really need no documentation, receive relatively little attention. Lest I appear too harsh, let me emphasize that despite its shortcomings this work will be valuable for the novice as an introduction to Mexican birding. Even the veteran will find the plates and species list useful and will wish to study the discussions of localities for the few tidbits that he can glean.—LAURENCE C. BINFORD.

Bird migration and its riddles (Fugletraekket og dets gåder).—Finn Salomonsen. 1967. Copenhagen, Munksgaard. 333 pp.—This book first appeared in print in 1953. In a small country like Denmark it is proof of considerable success that a second, revised and enlarged edition has recently appeared.

Dr. Salomonsen's book consists of two parts. A general part, two-thirds of the book, deals with problems of bird migration, and a special section treats the migration of Danish birds. It may be recalled that a Danish high school teacher Chr. Mortensen, was the first to band birds for scientific purposes 70 years ago. Nowadays, ca. 50,000 birds are ringed annually in Denmark, and though this is less than in a few other small European countries (Finland bands approximately 150,000 birds annually) the migratory pathways and winter quarters of the common species are fairly satisfactorily known.

The general part of the book forms an up-to-date though concentrated text on the

study of bird migration. A glance at the contents gives some clues to the problems covered. An introductory chapter deals with animal migrations in general. Then follows a historical presentation of the subject. It is a well-known and very regrettable trend in science of today to forget everything that was done more than 10 years ago. Salomonsen, I hardly need to stress, has a much deeper perspective. It is significant that of the figures illustrating the general part of his book, no other decade is as well represented as the years 1931–1940, which saw the rise of bird ethology and ecology, and many classical studies on bird migration and homing.

The difference between migratory and resident species is discussed in a separate chapter, as are the direction and length of migratory pathways and the course of the migration. The influence of external conditions is discussed in full (meteorological conditions, food, etc.). A very important chapter deals with molt migration, which was first described in the Eider Duck in 1922 by the Swedish zoologist Sven Ekman. Little was known about it until quite recently, and Finn Salomonsen is probably the foremost authority today on molt migration.

In the chapter on bird navigation the author dismisses too hastily the possibility that birds may make use of the earth's electromagnetic field; he does not even mention the recent positive findings by Merkel on the subject. The chapter on the physiology of bird migration gives full credit to the contributions by American ornithologists and is probably as well written as any nonphysiologist could do it. There is an important chapter on the evolutionary significance of bird migration. Here the author's own studies have been pioneering. A final chapter deals with the origin of bird migration.

The general part of the book undoubtedly deserves to be translated into English and thus made available to a public outside Scandinavia.—LARS VON HAARTMAN.

Nightwatchmen of bush and plain.—David Fleay. 1968. Brisbane, Jacaranda Press. Pp. xii + 163, many black and white and col. photos, 10 × 7½ in. $5.50 (Australian).—Although semipopular in approach, this book contains a vast amount of information about owls. It is lavishly illustrated with photographs, a few in color. Some of the species inhabit the densest mountain rain forest of coastal eastern Australia and often nest in hollows more than 100 feet above the ground in the huge gum trees. It has required a lifetime of devotion and strenuous effort to learn something about their nesting habits. Mr. Fleay also is interested in captive birds and only recently succeeded finally in breeding the largest of the Australian owls, the Powerful Owl (*Ninox strenua*), in captivity after more than 40 years of effort. There is also a chapter on frogmouths and nightjars.—DEAN AMADON.

Birds of the early explorers in the northern Pacific.—Theed Pearse. 1968. Comax, British Columbia, published by the author, "sponsored by the Centennial Commission as a Centennial of Canadian Confederation Project under the Publications Assistance Programme." 275 pp., 16 black and white reproductions of Ellis and Weber paintings made during Cook's last voyage in 1778–79. $7.50.—Assembled between the covers of this book are accounts of the birdwatching and collecting of explorers and traders north of Kamchatka in Asia and Vancouver Island in North America, north to the Arctic Ocean between 1741 and 1830. The first five chapters list those explorers who sailed under the Russian flag, the next five those under the British flag, chapter 11 tells of the one French expedition under de la Perouse, and chapter 12 of a few American traders in the late 18th and early 19th century. Mr.

Theed Pearse quite evidently worked long hours at the research, and the final words of the 97-year-old author may well indicate the reasons for all the book's faults. He wrote "owing to age and infirmities, it became impossible for me to carry on."

Careless editing and proofreading left misspelled names, awkward sentences, typographical errors, omission of words, and peculiar punctuation throughout the book. The endpapers' illegible map shows more of the world than is necessary and is not redeemed by its decorative value. The most glaring fault of all in this volume is the complete lack of an index, which made checking on Mr. Pearse's coverage of explorers very difficult indeed.—ELIZABETH S. AUSTIN.

Moving the earth--for a song.—M. Wilson Gaillard. 1968. Richmond, Virginia, John Knox Press. 112 pp., 7 col. and many black and white photos. $4.00.—M. Wilson Gaillard was instrumental in establishing a bird sanctuary on Dauphin Island off the Gulf Coast of Alabama as an adjunct to a real estate development. It is a pity that instead of touching lightly on it, he did not tell the story of that sanctuary completely, including his method of persuading the developers to give up 160 acres to wildlife. It would have made a better book than his faulty retelling of the old story of the rise of American conservation embellished with anthropomorphisms and biblical digressions.

The author's idea that every individual can contribute in some way to preserving the wildlife on this continent is fine, but his book is badly researched and so full of errors and misstatements that one loses faith in his judgment. The inaccuracies are incredible, and I have a long list of them, starting with killing William Dutcher off 10 years before his time and ending with amazingly garbled expositions on migration and the Passenger Pigeon that reveal a total unfamiliarity with the literature. The anachronism of explaining seriously that evolution is not sacrilegious 34 years after the Scopes trial was as startling to this reader as the author's fulsome praise of the conservation work of the major oil companies and the Army Corps of Engineers.—ELIZABETH S. AUSTIN.

ALSO RECEIVED

Birds that stopped flying.—Elizabeth S. Austin. 1969. New York, Random House. 84 pp., 38 black and white photos, 11 drawings. Cloth, 6¾ × 9¼ in. $2.95.—Informative, nontechnical nature writing at its best, for children and lay adults. The biologically astute will recognize the significance of the title as opposed to merely "flightless birds," but then may be somewhat surprised that Mrs. Austin treats *Archeopteryx* first with no mention specifically made to its rather incongruous inclusion as a primary flightless bird under this title. The success of the book is clearly related to the author's ability to write simply and straightforwardly while avoiding scientific errors that almost inevitably arise at least occasionally in such attempts to simplify.—J.W.H.

Wild refuge.—George Laycock. 1969. Garden City, New York, The Natural History Press (published for Amer. Mus. Nat. Hist.). 160 pp., 39 black and white photos, appendix, 9½ × 7½ in. Cloth. $3.50.—A popular and nontechnical account for the layman of our national wildlife refuge system. Maps show the refuges, and an appendix table lists their locations, acreage, year of establishment, and principal wildlife species utilizing.—J.W.H.