REVIEWS

Zoogeography: The Geographical Distribution of Animals.—Philip J. Darlington, Jr. 1957. xi + 675 pp., 80 text figs. John Wiley & Sons, Inc., New York. $15.00.—A zoogeographer must have an unusually broad background: he must know many regions of the world (preferably from having studied them first hand); he must have a specialized knowledge of the systematics and distribution of one group of animals and a broad knowledge of both plants and animals; he must have an historical viewpoint, not only with respect to animal distribution but also with respect to geography, climate, and evolution; and he should be in a position to broaden his background through close contact with specialists in other groups of organisms than his own. On these bases, the author of the present text is admirably qualified, and it is gratifying to find that he has produced a book in which a tremendous quantity of useful information is collated.

Following the introduction, are chapters on the distribution of the fresh-water fishes, amphibians, reptiles, birds, and mammals. The second half of the book contains discussions of continental patterns and faunal regions, island patterns, evolution of the geographical patterns, the past in the light of zoogeography, the principles of zoogeography, and the geographical history of man. The writing is straightforward, if at times somewhat ponderous, and the reader is frequently referred to other parts of the book for information bearing on the matter being discussed. It is a book to be studied rather than read for pleasure or casual information.

This, I think, is an appropriate place to protest the repeated statements to the effect that fossil birds can tell us little about either the phylogeny or past distribution of the group. Such statements by influential biologists are often based on lack of knowledge or interest in the field and have been responsible for delaying important and much needed work in paleornithology. While fossils of birds are far fewer and often less complete than those of mammals, there are now in museums thousands of unstudied bird fossils. Nor are these by any means all from Pliocene or Pleistocene deposits; there are, for instance, many hundreds of beautifully preserved bird bones from late Oligocene or early Miocene deposits in Europe, the study of which will undoubtedly add valuable information on the phylogeny of several groups.

Darlington's mistaken attitude toward paleornithology has resulted in the most serious errors and omissions in the chapter on birds. Gregory's important study (Condor, **54**: 73–88, 1952) showing that the jaws attributed to *Ichthyornis* were in reality those of a mosasaur was evidently overlooked, for the Ichthyornithes are listed as toothed birds. Another omission was Miller's study of the Miocene hoatzin *(Hoazinoides)* suggesting relationships of that group to the cracids (Auk, **70**: 484–489, 1953). *Mancalla,* which was approximately the size of a murre, is said to have been "comparable to the Great Auk in large size and in reduction of wings." Actually, *Mancalla* had gone considerably beyond the Great Auk in the approach to a penguin-like flipper. (And it should be added that those who have carefully studied this fossil agree that it is distinct enough, not only in the structure of the wing but also in the leg and other structures, to merit family rank.) Another family not recognized is that of the straight-billed relatives of the flamingos, the Paloelodidae. This is one of the best-known fossil groups (four Oligocene or Miocene species alone are represented by hundreds of well-preserved bones) and is universally recognized by students of fossil birds. Including it in the Phoenicopteridae and omitting the Telmabatidae altogether will be responsible for any failure

to give the student an understanding of the widespread radiation of the flamingo-like birds in the early Tertiary.

Considering the extent to which a zoogeographer must rely on others for collecting and evaluating his factual material, Darlington's book is well prepared and contains fewer errors than the first editions of most texts. Tighter organization of the material would have made specific information easier to locate and, by reducing the number of pages, would have made the book less expensive.—ROBERT W. STORER.

Wild Paradise. The Story of the Coto Doñana Expeditions.—Guy Mountfort. 1958. 240 pp., 130 photos. chiefly by Eric Hosking; text figs. Houghton Mifflin Co., Boston, Mass. $7.00. Originally published in England as "Portrait of a Wilderness", this is an enjoyable report of three trips by an international group of distinguished bird students to an area on the southwest coast of Spain, between the vast *marismas* (salt marshes) at the mouth of the Guadalquivir and the Atlantic. The Coto Doñana, a private estate of some 67,000 acres, is one of the last comparatively unspoiled lowland districts remaining in western Europe. It is sandy country, with heaths, pinewoods, cork-oak savannah and marshland, remarkably rich in birds. About half the birds known from Europe have been observed in this region. Ecologically it is much like the well-known Camargue of the Rhone Delta, but the scantiness of the human population, the protection afforded by its aristocratic owners, and the proximity to Africa have preserved in the Coto Doñana a greater variety of breeding species, especially herons, ducks, and birds of prey. Raptors of 11 species are reported to breed regularly and 27 have been observed. Among the many splendid photographs, those of several species of rare birds of prey are notably fine. Though designed as a popular, informal account, the book contains much significant information on behavior, ecology and identification aids, as well as lists of all tetrapod animals noted. An ecological chapter by E. M. Nicholson is very good.

The future of the *marismas,* with their great water-bird colonies, is far from secure. Unless large areas are soon set aside as permanent sanctuaries before the pressures for modernization become insuperable, Europe and the world—not merely Spain—will lose a precious and irreplaceable natural resource. In these times of rapid change, the enlightened conservation interest of the present Coto Doñana owners gives no assurance of permanent protection for even that area.—E. EISENMANN.

Bird Hybrids. A Check-List with Bibliography.—Annie P. Gray. 1958. x + 390 pp. Commonwealth Agricultural Bureaux, Farnham Royal, Bucks, England. Price 50 s. This book is a very useful compilation of recorded avian hybrids. The overall organization of the book is good. Hybrids are listed under the name of each parental form, generally following the Wetmore classification as to order and family, but with the genera and species listed alphabetically under each family. For each reported cross the author gives the sex of each parent (when known), information on the fertility or sterility of the F_1's, backcrosses (if any), and literature references (with indication of whether the hybrid is pictured). Lack of success in attempts to obtain hybrids is also reported in many cases. The author shows extreme care in dealing with the reliability of the reported hybrids, the text being replete with such phrases as "presumed hybrid," "alleged hybrid," "reported hybrid," "reputed hybrid," etc.

The greatest number of hybrids are reported for the Anatidae (covering 69

pages), the Galliformes (42 pages, many inter-family crosses), and the Psittacidae, Ploceidae and Fringillidae (35 pages each). To some extent this reflects the fact that these are the groups most frequently bred in captivity. However, natural hybrids between distinct species of ducks and game birds seem to be more frequent than among many other groups (see Sibley. 1957. Condor, **59**, 166–191, for a discussion of hybridization in such groups as the Anatidae and the Galliformes).

The book seems strongest in the compilation of data from avicultural journals. Unfortunately, numerous references to wild hybrids have been overlooked. Some of these references are not easy to find, for they may not be indexed under "hybrid." Yet most taxonomic works of broad geographic scope discussing speciation or subspeciation of many species mention additional interspecific hybrid specimens. For example, many are mentioned in the footnotes of Hellmayr's "Catalogue of Birds of the Americas," in Chapin's "Birds of the Belgian Congo," and in Vaurie's series of papers "Systematic Notes on Palearctic Birds" (Amer. Mus. Novit.). Some of the putative hybrid situations overlooked, discussed lately in leading journals, involve species of the genera *Alauda, Ceyx, Chalcomitra, Contopus, Gymnorhina, Jacana, Neositta, Myzomela, Mimus, Pachycephala, Pardalotus, Petroica, Remiz, Sphyrapicus,* and *Tricholaema.* One strange oversight is that of the hybrid *Dendrocopos scalaris* x *D. villosus* reported by Miller (1955. Evolution), even though that paper is cited for another hybrid mentioned. Some major recent papers dealing specifically with hybridization were also overlooked, as for example, Sutton (1938. Auk) on *Icterus galbula* x *I. bullockii,* Huntington (1952. Systematic Zoology) on *Quiscalus,* and Williamson (1955. British Birds), Mayr (1956. British Birds), and Sammalisto (1956. Ornis Fennica) on the *Motacilla flava* complex. A surprising error is the listing of a parulid hybrid of the genus *Wilsonia* under Turdidae. The supposed hummingbird hybrid between *Melanotrochilus* and *Thalurania,* included on the authority of Ruschi, was later reported by the same author to be an artifact (Bol. Mus. Biol. Prof. Mello-Leitão, no. 10: 86, 1951).

Despite the incomplete coverage of the literature, the book is an important reference work for the aviculturist and the general ornithologist, as well as for the systematist.—LESTER L. SHORT, JR.

The Birds of Alberta.—W. Ray Salt and A. L. Wilk. 1958. 511 pp., 313 ills., many in color. The Queen's Printer, Edmonton, Alberta. Price, $5. This book is "intended to be an aid primarily to those who are not too well acquainted with the birds of Alberta," to assist in identification, and to help the observer find the birds. Every species is illustrated, usually in color. The color drawings (most of which have appeared in other Canadian works) vary greatly in quality; some of the new ones seem definitely amateurish. Certain of the color photographs are interesting. To the ornithologist the book is chiefly valuable for the maps showing the distribution and status in Alberta of each species. The main text does not treat subspecies, but these are listed in a check-list at the end. Alberta residents and visitors will find this a useful compendium.—E. EISENMANN.

Birds of Cyprus.—David A. Bannerman and W. Mary Bannerman. 1958. lxix + 389 pp., map, many line drawings, 30 pls. (16 in color). Price 63 s. Oliver & Boyd, Tweeddale Court, Edinburgh, Scotland. Glancing through this handsome book, one can hardly avoid a nostalgic regret at the passing of the British Empire. Let the British control an area and ornithology is almost always enriched by a useful, and often sumptuous, work facilitating the identification of the avifauna.

(The Western Hemisphere colonies have been somewhat neglected—perhaps a by-product of the Monroe Doctrine!) Americans have not done nearly so much for students of neotropical birds; fewer of our officials have been bird-watchers.

The chief ornithological interest of this Mediterranean island is as a migration way-station. Of the 333 species treated, only 71 are said to breed. The listed endemic forms include one species (possibly only a strong subspecies) and 13 subspecies (some doubtfully distinguishable from mainland populations). The systematic treatment is not the most modern. For each species there is a description, usually an illustration, data on habitat, nesting status, and migration. The low price of such a beautifully printed book was made possible by the support of the Cyprus government and the gift of the color plates by a number of private persons. The expense of producing each color plate (including the artist's fee) is stated to have been £50. These plates, mostly by D. Reid-Henry, have been reproduced with such superb clarity that they should make Americans blush at the sloppy jobs that we tolerate, at enormously higher costs, from our engravers and printers.—E. EISENMANN.

Mexican Bird Songs.—Recorded by L. Irby Davis. 1958. 33-1/3 RPM. 12-inch vinylite record. Laboratory of Ornithology, Cornell Univ. Cornell University Records, 124 Roberts Place, Ithaca, N. Y. Price, $7.75. We have here good recordings of 74 Mexican species. The growing number of persons interested in neotropical birds will find this a useful and evocative contribution. Its scientific value would have been enhanced had we been told, at least on the jacket, the locality and date of each recording. (The jacket only gives the technical species name and an English name—not always that of current check-lists and books; *e.g.*, "Gray" Robin for the brown bird today generally designated Clay-colored Robin.) Almost all the species have a broad neotropical range outside of Mexico. This, of course, adds greatly to the appeal of the record, but considering the likelihood of individual, seasonal, and geographical variation in voice, information on locality and date are needed that comparisons may be made, not only between different subspecies, but between different populations. This comment is not made in derogation of Mr. Davis' valuable work (for it may be assumed that he provided such data with his tapes); it is a suggestion to publishers who wish to give maximum ornithological significance to their recordings.

With the increasing use of voice as a taxonomic aid, one other suggestion may be in order. The vocalizations here generally captioned "songs" are surely in some cases merely flocking calls, or the like. Admittedly, there is uncertainty as to the function of particular bird notes, but to facilitate comparisons distinction can usually be made between the more elaborately patterned vocalizations called "songs" and those broadly designated "calls." With many neotropical birds, we may not yet know enough to be able to make even this inadequate classification. The recorder of bird voices could help other students were he to indicate (so far as he can), and forward to the laboratory where his tapes are preserved, the circumstances surrounding each vocalization recorded, the bird's behavior at the time, and whether the same individual was heard to utter other notes that were not recorded. It would not be feasible to print all this on a record jacket, but a brief descriptive leaflet could be included with the more scientific records, or at least mention could be made that such data are available to students by inquiry at the recording laboratory.—E. EISENMANN.