REVIEWS

EDITED BY WALTER BOCK

Arctic life of birds and mammals including man.—Zoophysiology and ecology, vol. 2.—Laurence Irving. 1972. Berlin, Springer-Verlag. Pp. xi + 192, 59 figs., 25 tables. $14.00.—This second volume of the series "Zoophysiology and ecology" is based on Laurence Irving's nearly three decades of work in Alaska. This distinguished comparative physiologist has played a leading role over this period in developing studies of the physiological adaptations of birds and mammals to arctic conditions. Moreover he has also found the time to make extensive natural history observations and to avail himself of the knowledge of Eskimos concerning these animals.

The book consists of four main parts. The first presents a general treatment of the geography, seasons, and history of the arctic environment. The second considers the kinds of mammals and birds indigenous to Alaska, their general distribution, and, in the case of non-resident species, their migratory movements. Particular attention is devoted in the chapter on birds to the actual movements of the Willow Ptarmigan and Lapland Longspur.

The third part of Irving's book deals with maintenance of arctic populations of birds and mammals. The chapter on birds devotes heavy emphasis to the timing of breeding and migratory arrivals and departures. The actual conditions under which eggs and young are maintained are also given extensive consideration. The brevity of the arctic summer is emphasized by the author's failure to discover any instance of successful rearing of a second brood by passerines known to do so in more temperate environments.

The final part of this book treats the physiological and behavioral characteristics serving to maintain body temperature at normally high levels in birds and mammals, including man, exposed to arctic cold. The basic conclusions are essentially those presented by Scholander, Irving, and associates in three widely cited papers published in 1950: namely, that cold adaptation in larger animals is achieved primarily by insulative means. The present discussion is enhanced by consideration of a good deal of data reported since 1950 and by more extensive treatment of thermoregulation of animals active in the cold. Irving recognizes the fact that small birds with their limited insulative capacity and (in comparison with small mammals) restricted use of shelter, may have to maintain substantially elevated metabolic rates for prolonged periods during winter. Ornithologists will probably not be enthusiastic about his endorsement of Scholander's view that Bergmann's Rule is neither reasonably based, nor regularly borne out by the natural distribution of animals.

Irving has extensively investigated peripheral heterothermy, that is, the operation of peripheral temperatures of homeotherms at variable temperatures. He provides an intriguing account of this phenomenon in birds and mammals, and ornithologists should find his description of it and the tissue adaptations on which it depends in gulls of considerable interest.

One's overall evaluation of the book will probably be determined by whether it is perceived as an attempt at a comprehensive statement concerning the biology of arctic birds and mammals, or as a personal memoir of a physiologist who has lived in rather than merely visited the environment with which he is concerned. The book has a number of deficiencies if viewed in the former light. The general

analysis of the distribution and migratory status of birds in Alaska will not satisfy sophisticated students of avian distribution, demography, or ecology. With respect to the ecology of arctic birds and mammals, it is unfortunate that more use was not made of information of the type obtained by F. A. Pitelka and associates, both independently and in the International Biological Program. Timing of major physiological events associated with breeding and preparation for autumnal migration is of crucial importance for birds in the short arctic summer, yet some of these events (e.g., molting and premigratory fattening) are virtually ignored and the mechanisms governing this timing not considered aside from a brief reference to W. Rowan's work (a surprising omission, as D. S. Farner is the Managing Editor of the series in which this volume appears).

The book is more satisfactory if viewed as a personal memoir of a warm and perceptive man writing about things that directly interest him. As such it provides an informal account of a variety of intriguing features of the adjustments of birds and mammals, including man, to the challenging requirements of arctic existence.—WILLIAM R. DAWSON.

The life of the hummingbird.—A. F. Skutch. 1973. New York, Crown Publ., Inc. Illustrated by A. B. Singer. 95 pp., 48 + sketches and watercolor illustrations. Hardbound. $9.95.—During the last 15 years illustrated books on hummingbirds have been written by C. H. Greenewalt, W. Scheithauer, and K. A. Grant and V. Grant. This latest hummingbird book by Skutch is a pleasant amalgamation of information gleaned from the previous works, from publications in scientific journals, and from the author's own experience working on birds in Central America. One of the best aspects of the book is that the information is not limited to hummingbirds of one geographical area (e.g. North America) but includes species from almost the entire distributional range of hummingbirds from North to South America. Some of A. Ruschi's work in Brazil is mentioned, and this is valuable because his papers are nearly impossible to obtain. The result is an informative, well-rounded story, written in a casual tone and geared for the layperson. The author is able to communicate his fondness for the birds without burbling overstatement.

The illustrations by Singer are quite nice and add much to the book. Previous hummingbird books usually have been illustrated with photographs that ranged in quality from the fine work of Greenewalt, often done on aviary birds attracted to feeders, to the more difficult to obtain, less successful photographs by the Grants on wild birds. As basis for his drawings, Singer often selected photographs published previously (e.g. in Greenewalt's book and in his National Geographic articles). This technique is usually successful as it results in clear images of uniformly high standards, but it occasionally results in very awkward unrealism. For example, Greenewalt's photograph of a streamlined *Patagona gigas* in linear flight was faithfully reproduced by Singer, but now with its feet clinging to a perch! The effect is one of totally unnatural perching posture.

The only other criticism I have of the book is a few cases of inadequate labeling. There is the most unfortunate omission of the names of the beautiful, intriguing, and unusual tropical flowers included in some of the illustrations, especially those on pp. 44–46. In one of these same illustrations, the name of one of the hummingbirds was also omitted. The color-coded maps on pp. 12, 14, and 15

bear no legends explaining the code. Given these exceptions, the illustrations are carefully labeled.

Typographical errors are minimal—I only detected one.

In general this is an attractive, well-designed, and informative book for the general reader and is a necessary addition to any bird lover's library.—F. LYNN CARPENTER.

Bird migrations—ecological and physiological factors.—B. E. Bykhovskii (Ed.). 1973. New York, Halstead Press of John Wiley and Sons; Jerusalem, Israel Program for Sci. Transl. 298 pp., 90 figs., 32 tables, subject index. Cloth. $31.50.—This collection of five papers, translated from Russian by E. D. Gordon, was originally published as "Ekologicheskie i fiziologicheskie aspekty pereleletov ptits," Izdatel'stvo "Nauka," Leningradskoe Otdelenie, Leningrad, 1971. Its presentation in English is timely and, for several reasons, many of the papers should be of general interest to those studying migration. First, the current Russian work reported is an outgrowth and a direct continuation of extensive studies under the earlier aegis of the Vogelwarte Rossitten by investigators such as Thienemann and Schüz. Second, in addition to more traditional features of migratory study (such as geography, phenology, etc.), certain physiological features of migrants, including adaptive aspects of their energetics, are discussed. Finally, numerous references are given to papers in Russian, documenting and expanding the known collection of translated articles with sources less generally available outside the U.S.S.R.

The first paper, "Atlas of bird migrations according to banding data at the Courland Spit," was written by V. A. Paevskii and constitutes some 40% of the book (pp. 1–124). This article is a logical introduction to the series of papers reporting, as it does, banding (ringing) activities of the Biological Station of the Zoological Institute of the Academy of Sciences, U.S.S.R., at the Courland Spit between 1957 and 1967. The spit is a strip of land separating the Courland Lagoon from the Baltic Sea, running northeast to southwest along the White Sea to Baltic Sea migration "route." During the peak of fall movement, up to one million birds can pass daily through this area. It is this "migrant swarm" that is sampled with large fixed Rybachi (Helgoland-type) traps yielding samples of 3000–4000 diurnal and grounded nocturnal migrants per day. Data on banding (403,065 individuals of 142 species) and recoveries (11,283 birds) are tabulated; 71 species are discussed in detail. Recoveries of the more abundant migrant populations are illustrated on 42 maps. More than 10,000 individuals of each of the following species were banded during the study period: Great Tit (*Parus major*), Coal Tit (*P. ater*), Willow Warbler (*Phylloscopus trochilus*), Starling (*Sturnus vulgaris*), Brambling (*Fringilla montifringilla*), Siskin (*Carduelis spinus*), and finally—the grand champion with 156,017 individuals—the Chaffinch (*Fringilla coelebs*). In analyzing the Chaffinch data, Paevskii shows clearly that more northern breeders arrive first in the spring and pass on while local breeders arrive later, males somewhat ahead of females. In the fall summer residents generally depart before more northern migrants arrive. Banding and experimental information suggest that the pulsating wavelike character of migration in this species is induced by rhythmic fluctuations of energy (fat) reserves as they are used in flight and restored during feeding stopovers en route. Many additional interesting observa-

tions are noted in the species discussions and anyone reading through this paper will gain a fair understanding of population patterns of movement in the eastern Baltic region. While one might wish for a summarizing discussion of various adaptive strategies utilized by the sampled migrants to meet the needs imposed by varying seasonal environments this information can be extracted in part from the text or obtained elsewhere in general summaries from works on bird migration.

The second paper, "Development of the fall migratory state in some wild passerine birds (bioenergetic aspect)" by T. I. Blyumental', is also a lengthy contribution (pp. 125–218), but a most stimulating one because so little attention has previously been directed to the fall migratory condition (*Zugdisposition* as defined by Groebbels). The studies reported in this paper were carried out between 1960 and 1964 at the Biological Station at Rybachi using capture data from 80,000 birds of 15 species and information from 350 captive experimentals of 2 species. The paper begins with a brief review of the relations of energetics to the migratory state and to the development and regulation of migratory behavior. The annual cycles in 15 species are characterized (note that the legend for Fig. 7, p. 154, is incorrect—it should read "h) average body weight; i) average wing length."). Discussion of these annual cycles includes topics such as nesting; molt; variations in fat and body weight; premigratory variations in behavior, habitat, and diet; summer movements; and the relations between the annual cycles of relatively long-distance and relatively short-distance migrants (unfortunately, the translator uses the literal but potentially misleading terms "distant" and "near" for these two groupings of migrant types). Blyumental' continues with observations on the relations between diurnal rhythms in activity and energetics, the role of social stimuli in feeding and flight, the wavelike character of migration, and geographical aspects of population differences in annual adaptations. While no novel conclusions are reached, the author emphasizes cogently the relation between metabolic physiology and migratory behavior and their coadaptiveness to varying seasonal environments. Short- and long-distance migrants are contrasted with parallels being drawn to the *Wettervögel* and *Instinktvögel* of Weigold and Putzig respectively. The former show greater year to year variability and less synchronization of various parts of their cycles with each other and with the environment while birds in the latter category become increasingly bound to endogenous factors timed proximately by day length, etc. Although this paper lacks both bibliographic and analytic rigor, it does make a major contribution through its documentation of the idea that dispersal and redistribution of birds require labile physiological and behavioral mechanisms that can be rapidly selected to promote new adaptations and tolerances to different areas and ambient conditions.

The third paper, "Features of swallow biology during migration," by D. S. Lyuleeva (pp. 219–272), describes the long annual migrations (to 6000 km), the temporal constancy of movements, and the marked adaptations for rapid accumulation and economical expenditure of energy reserves as the principal biological features of migration in three species of swallows.

The concluding papers, "Caloric equivalent of body weight variations in Chaffinches (*Fringilla coelebs*)," V. R. Dol'nik and V. M. Gavrilov (pp. 273–287), and "Energy metabolism during flight of some passerines," V. R. Dol'nik and V. M. Gavrilov (pp. 288–296), are related papers dealing with basic energetics. They point out that the caloric equivalent of body weight variation is a variable but can be estimated if temperature, obesity levels, and period of the annual

cycle are considered. The value of this variable ranges from about 2.5 kcal/g during molt to 9.5 kcal/g, the caloric value of fat, during periods of rapid lipogenesis or in nonbreeding birds. The equivalent of weight loss during flight (including migratory flight) is estimated to be about 6.1 kcal/g. This level of energy expenditure is approximately 12 times the standard metabolic rate, in rough agreement with other estimates of flight metabolism currently available.

In conclusion, I have a few general criticisms of this publication. First, I find the translation stilted and sometimes awkward. In spite of this problem, intent and meaning are usually preserved and the faithful translation of the original papers certainly reflects much of their character. Second, descriptive statistics are lacking and few statistical tests are reported. In certain cases, of course, the volume of data involved is so large as to make statistical analysis relatively trivial. A third and more serious criticism is that I feel that little interest in or understanding of selective processes in seasonal adaptation and evolutionary aspects of migration is shown, yet many descriptive and functional features of migration are certainly well treated. Finally, as a practical matter, the price of this volume is high. In spite of these shortcomings, I would recommend this book to serious students of bird migration and feel that it is a collection of papers that definitely should be included in reference libraries.—CARL W. HELMS.

Visible bird migration at Falsterbo, Sweden.—Staffan Ulfstrand, Gunnar Roos, Thomas Alerstam, and Lars Österdahl. 1974. Vår Fågelvärld Suppl. 8 (Falsterbo Bird Station Zool.-Tax. Rept. No. 60, Lund, Sweden). xliv + 245 pp., 1 map, 4 sets of tables. 66 Sw. Cr. (+ 12 Sw. Cr. airmail, Sveriges Ornitologiska Förening, Runebergsgatan 8, S-114, 29 Stockholm).—The book is composed mainly of photo-offset computer printouts of observations during 11 autumns, between 1949 and 1960, at the Falsterbo Bird Station. These regular observations were undertaken by the Ornithological Society of Skåne on the southwesternmost point of Falsterbo peninsula, Nabben, Sweden.

The 38 introductory pages include acknowledgments, observation routines, reliability of figures, special comments, and a listing of the publications on bird migration at Falsterbo. There are brief discussions of the influences on observation of the time of day and year, weather conditions, and local bird movements. Special comments by orders, families, or genera concern problems of species identification and the difficulty of distinguishing between local and migrant movements.

Each table is a computer printout. One table presents the intensity of observation as the number of 10-min observation periods per hour per day. Another table is devoted to daily totals for over 100 species in 16 nonpasserine and 11 passerine families during 1949, 1950, 1952, and 1953, and 6 nonpasserine and 7 passerine species and 4 groups (e.g. unidentified buzzards *Buteo/Pernis*) during 1954–60. The largest table gives numbers of individuals per hour by species, during 5-day periods for each year and for all 4 or 11 years combined. For some years within a species, tabulations are multiplied by 10 or 100 to eliminate decimals. Species with low numbers are omitted. Yearly totals for all species are presented in the last table.

The only tool that could be employed to analyze some 8 million migrants would be the computer. The field data were transferred to tape and processed

by FORTRAN programs developed at the Biological Institution at Umeå University in an attempt to predict migration intensity and distribution based on weather forecasts around southern Sweden. This is the only analysis planned, and it is not contained in this book.

The authors of this work make no attempt to portray the migrant numbers graphically as was presented for Ottenby in Suppl. 7 (see 1974, Auk 91: 646). Precise information is available from the tables, but a reader cannot discern day to day or hour to hour patterns. This is a distinct handicap, especially when available programs could be used to give graphic displays.

The potential for these data is great. The bimodal passage of *Motacilla alba* is strikingly similar at Ottenby and at Falsterbo. Comparisons should be made of these two Swedish localities for those years of mutual observations and for all years combined. Such analyses would benefit ornithologists for whatever contrasts or parallels may become evident.

A missing sentence on page xxxvi and missing cipher in annual totals on page 28 and 40 (correctly listed under the table of annual totals) are among the errors. A page was unglued upon receipt of the review copy.

In summary, this book is of limited use to students of migration except to delimit periods of passage. Numerical presentation is only the fundamental first step and those interested in migration would be wise to wait for the promised analysis.—KENNETH O. HORNER.

Pelagic studies of seabirds in the central and eastern Pacific Oceans.—Warren B. King (Ed.). 1974. Washington, D.C., Smithsonian Contrib. Zool. 158. iv + 277 pp., 170 figs., 41 tables, 12 appendix tables. Paper. $3.75.—This work is a collection of seven papers on the pelagic distribution of certain seabirds in the central and eastern Pacific. They result primarily from the work of the Pacific Ocean Biological Survey Program (POBSP), imaginatively directed by Philip S. Humphrey between 1963 and 1968. An introduction by Patrick J. Gould introduces these and future papers by discussing methods and procedures of collecting pelagic data, delimiting the geographic area and time periods covered and by providing basic background material.

Gould's introduction also gives some insight into the magnitude of the work accomplished by the POBSP in the 4⅓ million square mile area bounded by 10° S and 30° N and 148° to 180° W. Two islands were surveyed continuously and nearly all of the remainder received periodic biological surveys. At the same time pelagic work over both replicate cruise tracks and (less regularly) into peripheral areas was underway. Statistics, casually given throughout the text, are impressive: over 1,800,000 birds banded, 2747 days (over 26,000 hours) and about 260,000 miles of pelagic observation, about 100 papers published or in preparation.

The work is well edited by Warren B. King and there is little duplication of material among the seven papers. Though finished over a period of time (some as early as 1968) later revisions and additions include major literature through 1972. The various papers are well and concisely written and each contains a wealth of fact and detail. Some of the numerous figures appear confusing at first glance and require careful study because of the large amount of detail included. However in checking them against the text I find no significant discrepancies and they are extremely useful in a work of this nature. The distributional maps show the

most detailed information available for small areas. For larger regions, in contrast, the blank spaces where no information is available demonstrate the immensity of the area involved and our continued lack of information for many regions and some species. The papers are remarkably free of typographical errors.

In discussing the Sooty Tern, Patrick J. Gould describes how feeding behavior and breeding phenology affect pelagic distribution. He uses nearly 4000 pelagic sightings (during a 3-year period) to map monthly changes in pelagic density in the central and eastern Pacific. Sooty Terns are island-orientated during the breeding season, ocean-oriented during the remainder of the year. Densities fluctuate widely in space and time in response to an erratic food supply but remain uniformly higher in the food-rich Equatorial Countercurrent. The situation is complicated by the presence of two apparently allopatric (but indistinguishable) breeding populations in the north central (annual cycles) and south central Pacific (semiannual or irregular cycles). Band recoveries of northern birds indicate postbreeding dispersal into the Philippine Sea.

Warren B. King discusses the Wedge-tailed Shearwater using nearly 18,000 sightings (1963–68) to map separately monthly densities (birds/linear mile) of light-phase and dark-phase birds. Light-phase birds, which predominate in nearly all colonies above 10° N, disperse primarily to the eastern Pacific in the Equatorial Countercurrent and probably return via the Northern Equatorial Current. Dark-phase birds, which come from many colonies with apparently varied breeding seasons, show a more varied pattern. Dark-phase (wintering) birds move north in summer and peak with the breeding light-phase birds in the central Pacific. In the eastern Pacific their density peaks alternate. Tropical populations are believed to be nonmigratory. King also compares distributional patterns with surface water temperature and salinity and discusses molt and behavior.

The pelagic distributions of Laysan and Black-footed Albatrosses are the subjects of two papers by Gerald A. Sanger and one by Chandler S. Robbins and Dale W. Rice. The authors use two different means of study (analysis of pelagic sightings and band recoveries, respectively) to reach generally the same conclusions.

Sanger maps the monthly densities of each species for the area as a whole and in greater detail for two areas of intensive study—off northern Oregon and Washington and off southern California and Baja California. He discusses the relationships between density and various environmental conditions at the latter locality using data from an 8-year California Cooperative Oceanic Fishery Investigation (CalCOFI) study. Although both species breed on the same islands and have overlapping pelagic ranges, each has its own distinctive pattern within the overall range. The Laysan is primarily a bird of the western Pacific, the Black-footed a bird of the eastern Pacific. Both species exhibit major latitudinal shifts from the the southern part of their range in winter (breeding) northward in summer, apparently related to surface water temperature.

Robbins and Rice analyze data from 723 pelagic band recoveries (55% Black-footed) and find striking differences between the two species and among the age classes of each species. Young of both species spend their first season south of the adult range at comparable periods. The average population center then shifts in subsequent years, north to the western Aleutians for Laysans and nearer the west coast of North America for Black-feet. The authors also present an important discussion of the advantages and limitations of using band recovery data, the recovery methods involved and a short history of albatross banding in the north Pacific.

Using some 1300 sightings, Gould, King, and Sanger show that the pelagic distribution of the Red-tailed Tropicbird is directly correlated with breeding season followed by postbreeding dispersal throughout its pelagic range (usually bounded by the 22°C isotherm). Northern and southern populations tend to remain in their respective areas but there is some racial mixing and individuals may wander far outside their normal range. Prebreeding birds seem more likely to appear in the eastern Pacific than do breeding birds. Foraging behavior and molt are also discussed.

Richard S. Crossin presents and analyzes recent information obtained for 15 hydrobatid species recorded by the POBSP. Varying amounts of data are presented for each species under four general categories: pelagic distribution, breeding biology, molt, and taxonomy. He also includes figures of molt patterns for five forms and an appendix of measurements of collected specimens.

Crossin acknowledges that this group with its numerous sibling species and varying races presents unusual problems of identification even in the hand. Identification of the more than 12,500 sightings would indeed be questionable were it not for the extensive pelagic experience of the observers and the collection of over 650 supporting specimens in the study area. In nearly all cases field conclusions were backed by subsequent identification of museum skins. In time, detection of morphological and especially behaviorial characteristics enabled observers to identify most individuals under most conditions.

Among the many accomplishments were the documentation of migration patterns of *Oceanites oceanicus* through the central Pacific and the determination of migration patterns and wintering densities of *Oceanodroma leucorhoa* in the same waters. Crossin notes that a number of significant findings require detailed future study and issues a plea for long-range studies of hydrobatids on the small islets off the coasts of western United States and Mexico. For example, morphologically different breeding populations of *O. l. socorroensis* occur on different islets off Guadalupe Island during the summer. The situation becomes more complicated with the arrival of winter-breeding *O. l. kaedingi*, which appear before the departure of *socorroensis*. He also notes the unexpected clumping of dark hydrobatids (four species and three subspecies) along the California and Baja California coasts and suggests that gull predation is a probable reason.

The POBSP collected pelagic data on a scale unlikely to be duplicated in the near future. Although much remains to be learned, these seven papers are an important step in our understanding of pelagic bird distribution. The book is a must for students of seabirds and avian distribution and will interest all who share an interest or fascination for seabirds. The casual reader will probably consider it too detailed for general interest.—CHARLES A. ELY.

Birds of western North America. Nonpasserines.—Laurence C. Binford and Kenneth L. Carlson. 1974. New York, Macmillan Publ. Co., Inc., 224 pp., 50 col. pls. Cloth, 12½ × 9½ in. $25.00.—This book falls into the category of coffee-table volumes—the kind of book one has lying about for casual perusal by guests or the family in the den or living room. A wide-margined page of nontechnical text precedes each plate. Its verso, the page facing each plate, contains the plate number; common and scientific names, age, and sexual identity of the subject species; brief note on sexual dimorphism or lack of it; and total length

of the bird. The book begins with a preface by the author and painter followed by an 8¼-page introduction to birdwatching by Dr. Binford. This covers birding as a hobby (why, who, how, and when), and relationship of the amateur to scientific ornithology; it is designed to acquaint the western nonbirdwatcher with bird listing as well as study, especially in western North America.

Laurence C. Binford is Chairman of the Department of Birds and Mammals of the California Academy of Sciences, and a specialist on Mexican birds. He is also widely knowledgable about birds in general. His writing exhibits the stamp of his professional training and scholarship, and I am pleased to say he does very well indeed in adapting himself to the easy informal style necessary for this kind of book. Nice imagery and good anecdotes (such as the one about the puffin skillfully diving under water to remove bait expertly from the fisherman's hook) characterize the accounts. Carlson's bird paintings vary greatly in nature and quality. He paints in gouache medium and each plate features one or two birds with barely enough background for them to stand on or fly in front of.

I can accept the blank pages backing the plates, but the remainder is sheer waste—the kind it is said Americans are famous for. One last word on the kind of production this is. The dust jacket has the title "Birds of western North America," leading the buyer to expect a rather more comprehensive array of bird species than he really gets. The title page has the same title followed unobtrusively by the small word "nonpasserines," which probably means nothing to the book's intended audience. To me that represents a fairly clear attempt to deceive or confuse.—JOHN WILLIAM HARDY.

Louisiana birds.—George H. Lowery, Jr. 1974. Third ed. Baton Rouge, Louisiana State Univ. Press. xxx + 651 pp., 41 pls. (black-and-white and colored) by Robert E. Tucker and John P. O'Neill, quantities of excellent photos—most of them taken by Allan D. Cruickshank and Samuel A. Grimes, a few by other contributors. $15.00.—This edition of George Lowery's fine work brings the species count from 317 to 411. Most of the additions are vagrants, not of regular occurrence. The introduced Black Francolin and the ubiquitous Cattle Egret are exceptions to this general statement. It is interesting to note that the first edition makes the count of extinct species three, and this new edition says two extinct species. The Carolina Parakeet and the Passenger Pigeon remain extinct, but Eskimo Curlews unseen since 1889 were positively identified in 1964 and are now no longer considered extinct in the state.

A sad change in Louisiana bird life is the story of the vanishing Brown Pelican. Dr. Lowery gives an excellent account of how the Pelican State lost its pelicans, and the state's tremendous effort to reestablish the species by importing young from Florida. With his accounts of the Bald Eagle and Osprey he completes the tale of the pesticide inroads on Louisiana bird life in the past 15 years.

Altogether this volume is one of the finer state bird books. It is very well written, carefully edited, and the product of excellent proofreading. The illustrations are more than adequate for identification and the photographs by two professionals very fine. It is a joy to see an updated edition by a top scientist and author published for the Louisiana Wild Life and Fisheries Commission by a state university press that didn't pinch pennies on paper, binding, or publishing pictures, and still kept the price within reason.—ELIZABETH S. AUSTIN.

The birds of California.—Arnold Small. 1974. New York, Winchester Press. xxiv + 310 pp., 11 maps, many photos. $12.50.—This is the second book on California birds that I have reviewed in the past year. The great increase in the numbers of birders and the attractiveness of California's avifauna to residents and nonresidents alike have apparently touched off another Gold Rush.

This book is not a field guide but provides information on the geographic, seasonal, and habitat occurrences of the birds of California. It is divided into four chapters, leading off with "California and its bird life." This includes a concise review of the topography and climate of California and their influence on bird distribution, and it defines the terms used to describe the seasonal status of California's birds. Chapter 2, "Birds and bird study," which perhaps should have come first, might well be titled "The glories of birding," which the author describes with the crusading zeal of a Billy Graham.

Chapters 3 and 4 comprise 270 of the 302 pages of text. Chapter 3 presents an "Annotated list of the birds of California," 509 resident or self-introduced species and 9 established human introductions. For each species a concise statement presents information on seasonal status, habitat, breeding range (if different from winter range), and general range in California. Chapter 4 describes California's habitats for birds and the species that one might expect to see in each.

Small does more than merely list the kinds of plants and birds characterizing the various habitats. Frequently he describes in concise, yet scholarly fashion, the geologic, climatic, and ecologic factors that underlie the distribution and diversity of the plants concerned. The book is illustrated throughout with hundreds of photographs showing 304 of the 518 species treated, also a number of excellent habitat shots. Most photographs are the author's and most range from good to excellent.

The many typos suggest that the editing was not the greatest, and there are a few errors. A photograph on page 201 labeled "Bobolink-female" is of a White-crowned Sparrow. The Gambel's Quail does not travel many miles daily for water (p. 224). The Brown Towhee does not inhabit the higher slopes and mesas of the Great Basin Desert (p. 247) but occurs in California east of the Sierra Nevada only in the Argus Mountains.

The book has two major faults. First it has no California maps showing localities mentioned in the text. Surely place names such as the El Paso Mountains, Randsburg, Mugu Lagoon, and Mojave Narrows, and many, many others, would mean nothing to out-of-state readers and even a fair number of Californians would fail to recognize some of them.

Second, the absence of a bibliography in a book such as this is incredible. I found references in the preface and text to exactly five published works, all systematic, taxonomic, or distributional. A. H. Miller's "An analysis of the distribution of the birds of California" (1951, Univ. California Publ. Zool.) is not mentioned. Yet if one compares Miller's and Small's descriptions of such habitats as grassland, chaparral, riparian woodland, coastal coniferous forests, and others, it is evident that Small used a great deal of Miller's painstaking and scholarly descriptive work without acknowledgment. No botanical reference is given and many of the myriad of vernacular names of plants used to characterize habitats (sixweeks fescue, cheese bush, paperbag bush, Himalaya berry, etc.) will be meaningless to most readers. The book or books that supplied these names should have been cited, as well as Munz's "A California flora." Citation of references on California geology and climate

would have been very useful. No mention is made of any field guide to California or western birds. Authors must be sometimes work within constraints imposed by publishers, but whoever is at fault was guilty of a bad error in omitting a bibliography.

Despite these shortcomings, I would recommend this book to any birder who wants basic ecologic and distributional information about California birds. It offers less to the professional ornithologist, but some of the material on geology and climate would be of interest. The book makes good reading as the author is obviously in love with birds, birding, and California, and his fresh and enthusiastic writing style is all to the good.

In addition to this book, I have also reviewed Brown, Weston, and Buzzell's "Handbook of California birds" (1974, Auk 91: 448), primarily a field guide. I shall not compare the two, as anyone interested in such a comparison may consult the prior review. But one fact is abundantly clear to me after reading these books. Both depend very heavily on two classic works on the California avifauna. One is A. H. Miller's distributional analysis, previously mentioned. The other is Grinnell and Miller's "The distribution of the birds of California" (1944, Pacific Coast Avifauna 27), briefly mentioned in Small's preface.

These classics represent a unique blending of three sources of information. First is the tremendous personal field and museum knowledge of California birds of two exceptionally gifted vertebrate zoologists. Second is the vast amount of factual information generated by the concerted field and museum efforts of the Museum of Vertebrate Zoology, an institution with a long-continued dedication to Californian vertebrate zoology so intense that at times it appeared to be almost a morbid preoccupation. Third is the enormous familiarity with the literature of California ornithology summed up in Grinnell's "Bibliography of California ornithology" (1909, 1924, and 1939, Pacific Coast Avifaunas 5, 16, and 26, respectively). The merging of these three sources of information resulted in the publication of the two distributional works referred to previously. Without them, it is doubtful that the two books I have reviewed would have been published in their present form; perhaps they would not have been published at all. It is disappointing to find that these more recent authors acknowledge their debt minimally or not at all.—JOHN DAVIS.

Check-list of Japanese birds/fifth and revised edition.—The Ornithological Society of Japan. 1974. Tokyo, Gakken Co., Ltd. (4-40-5, Kami-ikedai, Ohta-ku, Tokyo 145, Japan). Pp. vi + 364. Limp leather. U.S. $29.00, postpaid.—This checklist is a great advance over the previous fourth edition "Hand-list" of 1958. It introduces a number of innovations in addition to the name change in the title—from which I wish they had dropped the silly hyphen and made it "Checklist" as WNI 3rd, and the CBE and GPO style manuals all prefer. Done essentially under the supervision of my long-time friend and collaborator, Nagahisa Kuroda, helped by other members of the O.S.J., the remarkably clean English text was checked by Richard De Lappe.

In his foreword Kuroda claims to have adopted "the generally accepted 'Wetmore sequence' (ending with the Passeres)" but his collaborator, H. Morioka, who edited the passerines, left the crows at the end, doubtless influenced by the sequence adopted for the "Peters" passerine volumes—which as I have pointed out before (Auk 1967: 143 et seq.) is definitely not the sequence Peters and Wetmore preferred. Otherwise, as is to be expected, the systematic treatment is thoroughly sound and conservative.

In addition to Japan proper, the checklist covers the southern Kurile, Ryukyu, Bonin, and Volcano Islands. It treats 490 (numbered) species and 626 "species-and-subspecies," assigned to 213 genera, 70 families, and 18 orders. To the original citation, distribution, and status paragraphs of the previous editions, this one adds two more useful sets of information—habitats and locality records where pertinent.

Also welcome to those who cannot read the katakana symbols in which the Japanese common names for birds are traditionally written is spelling them out in "Romaji" (English letters) so that foreign readers can at least pronounce them. This leads to an occasional gaffe. On page 15 for instance, the Japanese name for the Sooty Storm Petrel is given as "Osuton-umitsubame," a literal translation of the katakana, which is as close as that system can come to rendering "Owston" (for Allen Owston, a British dealer in natural history material in Yokohama in the 1890's, who sent the first specimens to Salvin, who named the species *Oceanodroma tristrami*). It would have been even more useful etymologically if the English translations of the Japanese names were added, in this case "Owston's sea-swallow." The Japanese have good simple indigenous names in their language for the common birds everyone knows: kamo = duck, gan = goose, taka = hawk, karasu = crow, tsubame = swallow, etc. But some of the names the Japanese ornithologists manufactured for species not familiar to the average person are even clumsier mouthfuls than such American counterparts as "Black-throated Blue Warbler." My favorite is the "Aka-eri-hire-ashi shigi," for the Northern Phalarope, literally "Red-necked fin-footed snipe."

Appendices list invalid names recognized in the previous two editions but synonymized here, and the usual hypotheticals published in the literature on uncertain evidence. Only the Japanese common names and the recognized genera are indexed; indexing specific and subspecific names as well would have been much more helpful. Boxed with the English version is a slim, separately bound list of all locality records for each species and subspecies in Japanese.—O. L. Austin, Jr.

The magnificent birds of prey.—Philip S. Callahan. 1974. New York, Holiday House. Pp. 190, black-and-white photos by the author and friends, also some by Shelly Grossman (republished from "Birds of prey of the world"), a few line drawings, a map of hawk use of an Ozark plateau, and an endpaper map of migration routes in the United States. $6.95.—The time has come when books on raptors outnumber the raptors in the world. This one seems to have started as a book on falconry; but short detours take it from the eagles, hawks, falcons, vultures, and their kin to the totally unrelated owls. After a limited course in avian physiology, behavior, and migration stressing the hawk family, the book touches on the history of falconry. The suggested reading offers nothing but English language titles and ignores the vast European and Oriental bibliography. The student who needs the general glossary would do better consulting Van Tyne and Berger's "Fundamentals of ornithology," and the falconry terms have been more fully covered in any number of publications—including "Webster's second new international dictionary" (unabridged).

I am not in sympathy with falconry. I feel that, like jousting and swan-upping, it is a relic of the past. People who are hawk fanciers should content themselves with the limited numbers of wild ones they can observe and devote themselves to preserving them. Every tethered bird of prey is one less to reproduce its own kind. Every book that encourages falconry as this does is a potential threat to

our native raptors. The last chapter of this book—full of simple directions for stealing a nestling falcon and training it—is apt to attract inexperienced youngsters who will half follow it without the necessary legal permits for taking falcons.

Falconry in Japan is preserved like a museum exhibit in the Imperial Preserve and not generally practiced. This is an ideal solution to the continuance of the "sport of kings."—ELIZABETH S. AUSTIN.

ALSO RECEIVED

Bald Eagles in Alaska.—Fred Robards (Fish Wildl. Serv., U.S. Dept. Interior) and Allan Taylor (Forest Serv., U.S. Dept. Agr.). Undated. Washington, D.C., Government Printing Office (No. 798-518). 12 pp., 10 pls. (8 in color), 1 line drawing, 2 maps. No price given.—A simple story of Alaska's eagles for the layman or the tourist—nicely done, but I wish the authors had not said "until the bird becomes adult and its head turns white." A more accurate and less confusing statement would be until the bird molts its immature plumage and grows white feathers on its head.—E.S.A.

Wonders of the pelican world.—Joseph J. Cook and Ralph W. Schreiber. 1974. New York, Dodd, Mead & Co. 64 pp., illus., 4 drawings by Jan Cook, 49 black-and-white photos (plus 3 black-and-white and 1 col. photo on jacket) by the junior author. $4.50.—This fine account of Brown Pelicans from egg to egg is full of information written in simple, good English without jargon. It will be pleasant reading for ornithologist, layman, or student. Anyone from 8 to 80 can learn all about pelican life and lore, except one bit of odd history that is not well known. American Indians used pelicans to fish for them, much as the cormorants were used in Japan and China.—E.S.A.

Fifty birds of town and city.—Bob Hines (illustrator-editor) and Peter A. Anastasi (associate editor). 1973. Washington, D.C., U.S. Dept. Interior. Foreword by Roger C. B. Morton, Secretary of the Interior, v + 51 pp., 52 col. pls., 50 line drawings. $4.00 cloth, $1.05 paper (and not worth one inflated nickel).—This government excrescence is an outstanding example of ungrammatical, unedited drivel complete with misspelled words, bad punctuation, and false information. Bob Hines' pictures are pretty and the color work fair, but how Mr. Morton dared to couple Hines' name with that of Fuertes and refer to Rachel Carson in his foreword to this publishing disaster is beyond our comprehension. The Fish and Wildlife Service should be ashamed of itself, and the editors-authors should return to elementary school. Definitely not recommended, except possibly for nursery school tots who cannot read but might enjoy cutting out the pictures. What ever happened to the staff that put together that fine "Birds in our lives" in 1966?—E. S. A. and O. L. A., JR.