

REVIEWS

EDITED BY JOHN P. HUBBARD

The birds of Idaho.—Thomas D. Burleigh. 1972. Caldwell, Idaho, Caxton Printers, Ltd. xiii + 467 pp., 12 color and 21 black-and-white photos, 1 map. \$17.50.—This long-awaited book on the avifauna of one of our most interesting western states treats 311 species, plus numerous subspecies. It is an important work on a faunal basis, but not for a person who wishes to learn more about birds through illustrative or descriptive material. The book cannot be described as a copy of any other state bird book. If anything, it brings to mind USNM publications of some years ago with their great attention to detail, but without tying it all together into a highly readable text. Prominent place in the writeup of each species and subspecies is given to the records of Burleigh and others, under the heading "Status in Idaho." Preceding is a section indicating the range of the species, and following is a short discussion under "Habits," and then separate paragraphs on subspecies. In the species and subspecies accounts maps would have been particularly helpful, as one must refer to the single outline map located at the first of the book and not all localities listed in the text are to be found on that map.

The sections on habits are all too brief, and the result is that there simply isn't enough on the birds themselves. Certainly Burleigh's broad experience and field data would have permitted more thorough accounts on each species. What is present is good, and is what one expects to find in a state book.

For the most part the illustrative material is poorly done and/or reproduced. Half the 12 color plates are photographs of mounted specimens, placed in a way to cover the stand, and the other 6 are of living birds. With the less-than-perfect color reproduction and the mounted birds, the result is poor. Furthermore, rather than being placed strategically, the plates are interspersed at random; e.g., one finds perhaps the best of the color plates, that of a Calliope Hummingbird, nestled between the writeup on Bald Eagles and Marsh Hawks, and the Cassin Finch is inserted between the accounts of mergansers!

The black-and-white photographs, for the most part, appear to have been selected more or less at random. Some are good and a few are excellent, but all suffer from less than crystal-clear reproduction. Some do not illustrate birds or habitat, and there is no information on where the pictures were taken. One must assume that the "well-camouflaged White-faced Ibis at its nest" is not pictured in Idaho, since Dr. Burleigh indicates that it is not known to nest in the state. A picture of "Mallard City" depicts a number of waterfowl rising in the air, but out of the mass of birds, the only distinct identification one can make is that of several Canada Geese. As a redeeming feature, these photos are placed near the proper species writeup.

There are several omissions from the book. For example, the Wood Duck is said not to be recorded in summer in southern Idaho, but in Julia Davis Park in Boise the birds nest yearly, and in my experience successfully. Not mentioned from the state is the Cackling Goose, *Branta canadensis minima*, which is known to occur in migration.

On the positive side, the book contains meticulously prepared bibliographic references, and there has been a tremendous amount of work in assembling and documenting the information and in Dr. Burleigh's own field efforts. This information will be fundamental to future works on the state.

This review has been approached with considerable trepidation; certainly it is not

my intent to criticize unjustly. Burleigh has done a remarkable job in assembling the data, and his book is the first really detailed one concerning the birds of this heretofore little-known western state. Prior to 1947 only a few regional lists existed for the state, and no attempt had been made to assemble even a checklist, when mine appeared in that year. Also in 1947 Malcolm Jollie worked in Idaho, and later collaborated with Earl Larrison in publishing the paperback, "Guide to Idaho birds," printed by the Idaho Academy of Sciences in 1967. The latter pointedly refrains from acknowledging any other work done in the state, claiming "pioneer" status. Through it all Burleigh continued his efforts to compile information, first begun in 1936, culminating in the present book. Now that he has completed his work, it can be said that Idaho is still in need of a well-illustrated tome emphasizing the birds themselves. Meanwhile, despite some shortcomings, Burleigh's work is the authoritative treatment on the state's birds and a valuable addition to our state faunal lists.—M. DALE ARVEY.

Symposium on the Red-cockaded Woodpecker.—Richard L. Thompson (Ed.). 1971. Bureau of Sport Fisheries and Wildlife, U.S.D.I., and Tall Timbers Research Station, Tallahassee, Florida. 188 pp., paper. No price given.—An introduction by Lawrence S. Givens puts the conference in the perspective of a gathering prepared to study a rare and endangered species, an opportunity to draw management conclusions, and to create a public awareness of the species. The opening paper by Jerome A. Jackson sets the stage for all that follows. In an interesting and convincing manner he covers a proposed evolution, taxonomic history, distribution, past populations, and current status of the species.

J. David Ligon picks up the subject of factors influencing populations. Giving details of a 1962–63 study, he generalizes on a group of Red-cockaded Woodpeckers in north central Florida pine forest. His most valuable observations are on nidification and population structure. Detailed life history data are provided by W. Wilson Baker, including a rare-in-print mention of bird behavior during an eclipse of the sun. A carefully documented discussion of home range size and characteristics is provided by Gilbert T. Crosby.

Utilization of Red-cockaded habitat by man is considered from a forester's point of view by Eugene Czuhai, and current timber management practices are reviewed by John M. Beland (federal lands), Charles R. Shaw (state lands), and Carroll J. Perkins (International Paper Company lands). Local populations are taken up by Daniel W. Lay, Ernest W. McDaniel, and Dennis N. Russell in a paper emphasizing some Texas colonies. Ted Beckett summarizes South Carolina observations and Leon Nell deals with game preserves in the Georgia-Florida border area.

Detailed work on the nest site includes a study by Melvin Hopkins and Teddy E. Lynn, and a discussion of the resin producing activity by John V. Dennis. The nesting habitat is detailed by Richard L. Thompson and W. Wilson Baker. In a separate paper Baker discusses the bird's food habits. A useful appendix by Jerome A. Jackson and Richard L. Thompson is a glossary of terms applied to the Red-cockaded Woodpecker.

This symposium presents much basic woodpecker biology and valuable discussion of evolution and taxonomy. While bringing forth considerable information about the species, it falls short of its stated goal to provide management conclusions. One is left to expect that with the greater understanding of the bird that must have come out of this conference, ornithologists, wildlife experts, and timber specialists went home better prepared to manage the species effectively. As to creating an expanded public awareness, its printing by the United States Printing Office, outside of any established journal or series, can only cause a wealth of potentially valuable data to remain in relative obscurity.—JAMES TATE, JR.

The status of birds in Britain and Ireland.—British Ornithologists' Union (D. W. Snow, Ed.). 1971. Oxford, Blackwell Scientific Publications. xviii + 333 pp., 69 drawings by Robert Gillmor. \$10.50.—This book is the successor to the "Check-list of the birds of Great Britain and Ireland," published by the B.O.U. in 1952. The word "checklist" has been deliberately omitted from the title, as the present work is three times the size of its predecessor and is written in a somewhat discursive style, with a different scope and format. Nevertheless this is effectively the latest "B.O.U. checklist," and therefore a serious and important work.

In the species accounts the same format obtains throughout. Each family heading is accompanied by an attractive drawing of a typical member of the family, certainly a departure from the usual "dry" checklist format. Next, each genus is given a heading, accompanied by a two-line summary of its world distribution. The species accounts average half a page per bird, more for local birds and less for vagrants. The world distribution of each bird is given in detail, followed by the world and local distribution of those subspecies recorded in Britain, and lastly the local distribution of the species. This format is rigidly adhered to with occasionally unbalanced results; e.g. the single occurrence of a Brown Thrasher, rates two-thirds of a page of text. First, there is the drawing by Gillmor (no other mimid has straggled to Britain), then the distribution of the genus, the species, etc.; finally the actual occurrence of the bird is noted in two lines—a charming extravagance indeed in these days of cost-cutting.

An appendix summarizes the distribution and status of each species in columnar form, with symbols. Another appendix gives important records for 1969 and 1970, the cutoff date for records to be included in the main text having been 31 December 1968.

This is unquestionably a very valuable book and the result of an enormous amount of work by a large number of people. Special mention is made of the efforts of J. L. F. Parslow, who wrote the bulk of the species accounts. The authors were not merely concerned with listing new species for the British Isles and new records of rarities; they initiated a nationwide survey to determine the status of the breeding birds and regular migrants. The work therefore carries great authority and is clearly the last word (through 1970!) on the status of British birds.

As far as taxonomy and nomenclature are concerned, the authors have not been innovative. As explained in the introduction, the book was largely compiled by the B.O.U. Records Committee, which was, apparently, without taxonomists. The committee therefore wisely decided to follow the published work of recognized authorities. The nomenclature is that of Vaurie ("The birds of the palearctic fauna"), and the sequence is that in Peters ("Check-list of birds of the world"). While some might feel that the authors "chickened out" in making taxonomic decisions, I think they were sensible not to venture into unfamiliar fields.

For English names, the insular approach has been retained: where only one member of a family or group occurs in the British Isles, it is likely to be given a single, unmodified name, as if no others existed, e.g. Teal, Kingfisher, Swallow, Wren. On a world basis it is ridiculous to talk of "the" Kingfisher, but perhaps until we have an international committee to decide on English names for birds, such mannerisms cannot be faulted; and remember that the A.O.U. Check-list (1957) is similarly guilty, containing such isolationist names as "the" Mockingbird. I do, however, commiserate with poor old *Egretta alba*, which having already been saddled with American Egret, Common Egret, Great Egret, and Great White Heron (and doubtless others) is here clothed in a new hybrid name, Great White Egret.

American names have been added in most cases for those birds common to the British

Isles and North America, though there are some curious omissions, e.g. Two-barred Crossbill (= White-winged), Waxwing (= Bohemian Waxwing). "Carolina Duck" stopped me, until I read on to *Aix sponsa*. To adopt an ancient name for British usage and apply it to a bird that goes by quite a different English name in its native country is, I think, a little cheeky.

We are not told what criteria the Records Committee used for acceptance of records included in this book. While under no obligation to do so, it would have been interesting to know whether all records were backed by specimens, or whether some were sight records, and if the latter, whether they were backed by photographs, or measurements made in the hand at banding stations, etc.

Another act of omission was the failure to discuss, even in a brief summary, some of the reasons for the changes in status of so many birds since the publication of the 1952 check-list. The authors have already departed from the "bare-bones" form of checklist, in which such a discussion might not have been appropriate, and I believe they missed a unique opportunity to discuss the kinds of questions that must occur to readers of this book. For example, how many new records can be attributed to the increased number of observers? Doubtless a great many; but on the other hand, there has also been a great increase of sightings, in well-worked, accessible areas, of large, readily identifiable birds like the Little Egret, Purple Heron, and Red-crested Pochard. Are "southern" birds extending their ranges northward, as in North America? One might guess that the growth of banding stations and bird observatories was responsible for the enormous increase of records of small passerines that are hard to identify in the field, such as sylviids in the genera *Phylloscopus* and *Acrocephalus*.—Have there also been any broad changes in weather conditions or migration patterns in western Europe during the last two decades? To what extent are conservation measures responsible for the return of former breeders like the Osprey and the Black-tailed Godwit? A page or two summarizing such possible factors would have been a valuable addition to the book.

My principal quarrel with this book concerns the undue space given to the world range of each species. While it is not only admissible but entirely desirable to include a brief summary of world range in a work of this kind, there is a time and a place for everything. I do not believe this was the place to present a 12-line essay on the world distribution of *Gallinula chloropus* (while allowing only 9 lines for its distribution in the British Isles), or a 13-line dissertation on the world range of *Falco peregrinus*. The most unbalanced ratio I could find was in the Egyptian Vulture, where the world: British range ratio is 7 lines to one. One is almost tempted to retitile the book "The world distribution of British birds." However, for those without access to the many books that provide such information, these world ranges must be of value.

In sum, I want to stress that I do not consider any of the above objections very serious. The overall worth of this book can hardly be challenged, and all those who have had a hand in its creation are to be congratulated on a fine piece of work.—
STUART KEITH.

Orientation: sensory basis.—Helmut E. Adler (Ed.). 1971. Ann. New York Acad. Sci., vol. 188. 408 pp. Paperback, 6 × 9 in. No price given.—Orientation research has now been conducted for a quarter century. Many old and new hypotheses are presently undergoing rigorous evaluation, and the scope of investigation has broadened into a phyletic approach. This monograph presents a series of papers dealing with the sensory modalities employed by a wide range of organisms. These modalities

include photoreceptors, phonoreceptors, chemoreceptors, and vestibular receptors. Experimental subjects include insects, crustaceans, fish, amphibians, birds, and mammals.

Several papers are concerned with birds. Lehner and Dennis report that Mallards can detect changes as small as 0.4 p.s.i. in atmospheric pressure, a discriminatory power that may play an important part in movements of ducks and other species. Wenzel calls attention to the avian olfactory system, the availability of odor cues to orienting birds, and describes experiments that demonstrate kiwis can find food by olfaction. Merkel reviews his work on the effects of magnetic fields on birds, especially European robins, in Kramer cages. The same topic is discussed by Southern as he presents data on Ring-billed Gull chicks.

The intent of a conference such as this, of course, is to gather information from a wide spectrum of sources and thus illumine general principles. No such principles seem to be evident at this point unless they are that orientation mechanisms are bewildering in array, polyphyletic in origin, and tend to have multiple environmental inputs. The approach is admirable and occasionally useful. The same can be said of the monograph.
—MARTIN L. MORTON.

Buffleheads.—Anthony J. Erskine. 1971 [= 1972]. Canadian Wildlife Serv. Monogr. Ser. No. 4. 240 pp., 34 figs., 47 tables, and numerous photographs. Available from Information Canada, Ottawa, cat. no. R65-7/4. Cloth. \$7.50.—By some happenstance the smallest-sized *Bucephala*, which is "quite unimportant" as a game duck, is the most completely and expertly monographed member of the genus. There is much of interest in this comprehensive account of the Bufflehead and its relation to its environment; only a few points can be touched on here.

Aside from the smallest stifftails, the Bufflehead is the smallest diving duck. Its diminutive size appears to be primarily an adaptation for nesting in tree-holes of flickers (*Colaptes*), i.e. the evolution and distribution of the Bufflehead is interrelated with the evolution and nesting distribution of a genus of woodpeckers. It is primarily a Canadian nester, concentrated in British Columbia and Alberta—especially where flicker holes are plentiful in trees near water. There seems to be little competition for these cavities. There is geographical variation in the juvenal and basic I feather generations, but evidently not in other stages. Pair formation occurs largely in April. Like the larger *Bucephala* species, Buffleheads first nest at age 2 years, and initial clutches are smaller than those produced later in life. Clutch size varies around an average of about nine eggs. The incubation period (as in the goldeneyes) is long, 28–33 days; no renesting is known. The birds need a 120-day season on breeding areas. About half of those ducklings that hatch survive to fly—at age 50–55 days.

Erskine devotes considerable space to correlating weather pressure-systems with spring migratory movements, a matter of much interest to students of various other waterfowl species. Inland the Bufflehead eats many insects, on salt water it takes crustaceans and arthropods in quantity. This small duck apparently is seldom in competition in any way with any other waterfowl. Fall migration is rather late, reaching a peak about 1 November. Information is, as yet, inadequate for formulating general statements on survival, but in British Columbia apparently most adult females do not live to age five years, and males live longer than females.

The Bufflehead population has suffered locally from habitat destruction and, in the previous century, it was a victim of overshooting in at least the easterly part of its fall-spring range. It has increased in recent decades. It is too easy to kill to be a "sporting duck" and it cannot withstand increased hunting pressure. The present spring population appears to be of the order of 600,000 individuals. "The pleasure

to be obtained from watching these lively creatures probably outweighs the rather slight value placed upon them by most hunters."

This is an excellent, also an attractive, book.—RALPH S. PALMER.

The snipes: a study of the genus *Capella*.—Leslie M. Tuck. 1972. Canadian Wildlife Serv. Monogr. Ser. No. 5. 428 pp., 92 figs., 52 tables, many photographs. Available from Information Canada, Ottawa, cat. No. CW65-7/5. Cloth. \$7.25.—This is an outstanding monograph, a result of years of study of *Capella gallinago delicata* and of the worldwide literature on snipes. Under most topics, *C. gallinago* is first covered fully, then any existing comparative information on other snipes is added. The generic name *Capella* (of Frenzel 1801) is upheld—for good and sufficient reason—and the species *C. gallinago* is treated as being comprised of eight subspecies with combined breeding range on four continents. Considerable information is presented for each subspecies, including data on preferred habitat.

The main text begins with a list of semi-snipes, aberrant snipes, and "true" snipes. Then, with emphasis on *C. gallinago*, subjects treated include: vernacular names; voice; displays; morphology, including internal structure; distribution; breeding habitat and territories; spring migration; pair formation; all aspects of nesting; the preflight period; food and feeding habits; fall migration, with band recovery data utilized; winter habitat; parasites and natural mortality; molting, plumages, age characteristics, and weight; population structure and turnover; snipe hunting; management of habitat; some band retrieval data; and methods—some very successful—of capturing snipe for study. Although treatment is consistently of a very high order, the data on habitat, the nesting and preflight periods, food and feeding, and descriptions of the physical characteristics of snipe appeal especially to this reviewer. There are a few errors, mostly typographical and all very minor.

Here are some other observations. 1. When an author's portrait is included in front matter, generally the book was issued posthumously or else is no good (or both)—but not this one. 2. It is 188 pages longer than A. J. Erskine's recent Bufflehead monograph in the same series, yet it costs 25 cents less. 3. In view of the tremendous growth of interest in shorebird biology, this book is especially timely—both for information and ideas. 4. I unreservedly recommend this book to all interested persons and—assuming levity may be permitted in these austere pages—I also rate it a "must" for any uneducated snipe.—RALPH S. PALMER.

The swans.—Peter Scott and the Wildfowl Trust. 1972. London, Michael Joseph; Boston, Houghton Mifflin and Co. x + 242 pp., 48 halftone pls., numerous text figs., 8 tables. British price, 4 pounds 20 pence; American, \$15.00.—This book, the work of eight authors and nine illustrators, is a rather easy-going approach to the subject—evidently aimed at a fairly broad audience. Most readers will learn a great deal from it; waterfowl biologists will find it a useful, but not in-depth, treatment of *Coscoroba* and *Cygnus*. Although referring to sources by number in the text may make for seemingly less-cluttered pages, a student of waterfowl will keep turning to the terminal list of numbered references to find out if he has guessed an author correctly.

After Scott's introduction, Hugh Boyd treats the swans as follows: *Coscoroba*, Black, Mute, Black-necked, Whooper/Trumpeter, and Bewick's/Whistling. Omitting *Janowskii's* as untenable, this aligns with Delacour. There are range maps for each of the entities, also a brief account of each. The chapters include classification (Boyd), distribution, numbers, migration (M. A. Ogilvie), food and feeding habits (M. Owen,

Janet Kear), reproduction (Kear), mortality (J. V. Beer, Ogilvie), art and mythology (Mary Evans, A. Dawnay), exploitation (Dawnay), and conservation (G. V. T. Matthews). Appendices list weight, measurements, food, egg measurements and weight, clutch sizes, incubation periods, and weights of cygnets on day of hatching. The illustrations are a very important feature.

As stated earlier, coverage is easy-going. Here are examples. Whether or not *bucinator* and *cygnus* are good species and whether or not *columbianus* and *bewickii* are conspecific are passed over by noting that they now are isolated reproductively. An unannotated tabulation of clutch sizes can be misconstrued as variation within a season; boreal swans lay large clutches in an early season and reduced ones or even none in a tardy season.

Perhaps all those strictures in the copyright notice are past due now with all manner of duplication and data-retrieval devices commonplace. Yet the book itself is mostly of a secondary nature, largely drawn from an alphabetically-arranged and numbered listing of 350 sources. Much of the information can—and, if needed, should—be cited from the original. I rather wish that the wolf were not treated as a symbolic predator—even in a context of folklore. I wish also that there had been included a section specifically on maintaining Mute Swans, and perhaps the Black, that would provide answers to inquiries from estate owners. But this is quibbling. It is a good book.—RALPH S. PALMER.

Tibet and its birds.—Charles Vaurie. 1972. London, H. F. Witherby, Ltd. xv + 407 pp., 3 color plates by Arthur Singer. £10.50.—Charles Vaurie has summed up here all that is known of this remote, and for the most part little known region. I say region advisedly for in a sense the title of the book is misleading. There Tibet does not mean the Chinese Autonomous Province of Tibet, but what Vaurie proposes as the Tibetan region. This he divides into three faunal zones: the Northern Plateau, which includes the northern and central part of Tibet proper, southern Sinkiang and northern Tsinghai; the Outer Plateau, which at its western end takes in part of Kashmir, and at its eastern end southern Tsinghai and extreme northwest Szechwan; and the South Eastern Plateau which includes in Tibet proper, the valleys of the Indus, Sutlej and Tsangpo (Brahmaputra) Rivers, extending eastward across the valleys of the Salween and Mekong to the west bank of the Yangtze.

The avifauna of this region has been investigated for over a century and a half but has remained little known, particularly in Tibet proper. Previous to Vaurie's study, 305 species had been recorded from the region, and he has been able to add no less than 200, making a total of 505. The region presents unique physical features, mountains of enormous heights, bleak plateaus averaging 5,000 m above sea level, and almost tropical valleys. Birds occur in Tibet up to tremendous elevations, e.g. the Alpine Chough (*Pyrrhocorax graculus*), which has been observed at an incredible 8,229 m.

In spite of the degree of richness of the avifauna, Vaurie considers only 13 species to be endemic to the Tibetan region, and of these he considers six to be "strictly endemic." By endemic he appears to mean breeding for included among others in this category is the Black-necked Crane (*Grus nigricollis*), which breeds in northern Kashmir, Tibet, Tsinghai, and western Szechwan and winters southward through Burma to northern Tonkin in Indo-China.

"Tibet and its birds" is divided into two main sections, the first comprising chapters on Geography, History, Zoogeography, and Migration, all most informative and well-written. The chapter on ornithological exploration will be fascinating even to those who are not particularly interested in Tibetan birds. It is a pity that a better map

of Tibet was not provided, for with the totally inadequate one supplied it is difficult to follow geographic discussions and to a certain extent the routes followed by the various expeditions. This fault is somewhat mitigated by three small, simplified maps detailing the explorations of Przhevalsky (between 1872 and 1885), Kozlov and Roborovski (between 1893 and 1905), and of Sheriff and particularly Ludlow, who spent four years at Gyantze and Lhasa on expeditions between 1933 and 1947.

Part two consists of a systematic list of birds, a gazeteer, and a bibliography. In compiling the systematic list Vaurie personally examined 16,000 specimens, which account for about three-quarters of all the birds estimated to have been collected in the region. The bird list is on the species level, with subspecies only occasionally mentioned. English names are supplied. The general range of the species (Palearctic, Sino-Himalayan, etc.) is followed by the "Tibetan" range, divided where necessary into the three regions of "Tibet" used by Vaurie. The exact locality at which specimens have been taken is recorded, as well as dates and status as breeder, migrant, or casual visitor. Where sufficient series have been examined wing measurements are given. The value of these is questionable for polytypic species that may show size differences, particularly in the absence of trinomial treatment. It might have been useful to indicate monotypic species by an asterisk. These records are based on specimens actually examined by Vaurie, and following them are those taken from literature.

A tour de force is Vaurie's gazeteer. Based on the International Map of the World it lists over 2,000 names, each with its latitude and longitude. The difficulty in compiling such a list may well be imagined as many places can have totally different names depending on whether the Tibetan, Chinese, Mongolian, or Turkic name is used on the map consulted. For example, Beik collected at a place he called Heitsuitse, but the place is more correctly called To-pa, and has been modified on the International Map to Dobo! Further, many Tibetan names that appear on older maps have disappeared, to be replaced by Chinese names. Anybody interested in birds of the region owes Vaurie a debt of gratitude for accomplishing this laborious task.

The three colored plates by Arthur Singer depict twelve species of birds. Curiously, nowhere is Singer's name mentioned, at least I could not find it. Plates A and B are excellent, but the figures of *Grandala* and *Podoces* on plate C are poor, and *Lep-topoecile elegans* is too brightly colored.

In summary, Charles Vaurie is much to be congratulated for producing this fine book, which fills a void in ornithological literature, and is written with his usual meticulous care.—RODOLPHE MEYER DE SCHAUENSEE.

Communication and other social behavior in *Parus carolinensis*.—Susan T. Smith. 1972. Publ. Nuttall Ornithol. Club, No. 11. Pp. 125, 22 figs., 6 tables. Order c/o Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts 02138. \$7.75.—This is a descriptive account of the displays of the Carolina Chickadee in the wild. In effect the author attempts to construct a complete list of the species' communicative behavior by concentrating on the signal emitter. A consequence of this approach is that the causation, results, and functions of the displays listed are not examined in detail.

The author first describes her study population of individually marked birds and gives a good general description of their behavior. In the second and longest chapter she identifies 20 vocal displays and describes each with the aid of sonograms. The information conveyed by vocal displays ("messages") is inferred from correlation of the vocalizations with the nonvocal behavior of the signaller. In addition, the author briefly discusses the responses of other Carolina Chickadees to the vocal displays

("meanings") and the possible functions of the displays. Chapter three deals with visual displays in a similar fashion, with 15 visual messages identified and discussed.

The display messages the author identifies and the information content of the vocal and visual signals appear to be similar to those known for other animals. The author feels that the total number of displays (35) is relatively high and suggests this is a consequence of the species' strong social behavior, but she presents no comparative information to verify this hypothesis.

Individual, developmental, and sexual variations in vocalizations are also considered, and the data are discussed with reference to the question of vocal "dialects" in birds. The author considers "dialect" a misleading label, as it encourages a typological approach to the study of variation in vocal displays.

The vocal displays of Carolina Chickadees are very similar to those of the closely-related Black-capped Chickadee, *Parus atricapillus*, and also similar to those of the titmice, *P. inornatus* and *P. bicolor*.

The general reader may find this book too closely argued for palatability, but it should appeal to those with special interests in bird communication. It is really a first step toward understanding the display behavior of the Carolina Chickadee. Once the behavior of the signal emitters has been carefully described, as the author has indeed done, the real meanings and functions of the displays can be tackled. As the author points out, this requires more extensive study of the responses of the recipients under natural (and, one might add, experimental) conditions. Only when this has been done can we know how the messages that we perceive are identified by recipient chickadees. We may then find that the vocal and visual displays of Carolina Chickadees are not, as the author suggests, redundant, but actually mean different things to the recipients.—JAMES N. M. SMITH.

Duetting and antiphonal song in birds, its extent and significance.—W. H. Thorpe. 1972. Behaviour, Suppl. 18. Leiden, E. J. Brill. Pp. xi + 197, illus. Paper. Dutch f96.—Duetting, the closely coordinated pattern of singing in a pair of birds, is the subject of this monographic report, an easy-to-read review of the work of Thorpe and some of his students (several chapters are co-authored with J. Hall-Craggs, B. Hooker and T. Hooker, and R. Hutchinson). The chapters may be read separately as informal seminar topics; there is no synthetic discussion. The first chapter catalogues species and families of birds that duet, but some families, such as grebes, are overlooked. Later chapters are restricted to certain kinds of birds, mainly African bush shrikes (*Laniarius*), but also the robin-chat *Cossypha heuglini* and four species of grass-warblers (*Cisticola*). Unusual features are a chapter on musical aspects of duetting (with several "firsts" in applying musical terminology to bird song) and a set of audiospectrographs showing sounds lower than zero Hertz (p. 112). There is also an unhappy tendency to portray bird songs with musical notation rather than with audiospectrographs.

Duetting was first brought to the attention of Thorpe in *Laniarius aethiopicus*. Members of a pair repeatedly duet in a highly predictable pattern with one bird (B) beginning its note rapidly (about 120 msec) and consistently (only a few msec deviation) after the call of its mate (A). Following psychophysicologists, Thorpe theorized that the constant, brief interval between the calls of a pair reflected some absolute minimum of time necessary for auditory nerve conduction and central nervous system coordination and response in the second bird. This "auditory reaction time" (ART) was thought variously to be involved in intraspecific or in intrapair communication, insofar as different species or pairs of birds were thought to have their own charac-

teristic ARTs. Might duetting provide understanding of a mechanism of communication, as a simple model based upon demonstrable neurophysiological principles? Or, in a more general sense, is duetting a sufficiently simple communication system to allow effective study of the development of individualistic signals, the environmental shaping of the evolution of forms of communication, and the use of signals in the recognition of individuals, kin, neighbors, or members of the same species? Unfortunately, none of these aspects is pursued in depth in this work, even though there are some interesting field observations that may be followed up.

That temporal patterning in duetting is based upon a least-time neural response to the vocal signal of the partner has not been established positively for any species, and there is reason to doubt it for some. Evidence in support of the ART theory of temporal patterning might be found in tests such as the following: (1) A change in the pattern of calling of one bird should be accompanied by a corresponding change in its partner. (2) In a repetitious duet the timing should be consistent from phrase to phrase. (3) The calling rhythm should be more regular in duetting birds than in related species that do not duet. (4) Cues other than the auditory signals of the partner should not be necessary for the timing of the duet. (5) Playbacks of taped notes of one bird should elicit calling in the partner with the same temporal patterning as in the duetting pair. (6) Microelectrode recording of nerve impulses should show times that sum to those observed in the duets.

Unfortunately, Thorpe does not test the validity of the ART theory nor cite any work bearing on it. The facts are that the first three of the preceding hypotheses have been tested, including studies on some of the species (*Laniarius barbarus* in particular) discussed by Thorpe. (1) Some birds call at the usual time even if their mates omit their notes. (2) Partners often drift in and out of phase with each other in a duetting sequence. (3) The regularity of calling rhythms is the same in solitary singing and in duetting species. These observations indicate that temporal patterning in some duetting birds results from an independent, autochthonous rhythm in each individual, once a partner initiates a duetting sequence (see Ibis 1970, 112: 106-108, 173-183; Ostrich 1971, Suppl. 8: 125-146). Regarding (4), the Hookers, in their chapter in "Bird vocalizations" (1969 (R. A. Hinde, Ed.), Cambridge, Univ. Press), report that *Laniarius* shrikes signal visually while they are duetting nearby within sight of each other, suggesting that the timing of duets is in part due to visual cues. I know of no experimental work that has been reported on (5) or (6). Obviously, the present Behavior Supplement does not advance our understanding of the perceptual basis of communication.

Duets differ from pair to pair as well as within pairs in some *Laniarius*, and variations in these duets may be involved in recognition (of mates, kin, neighbors, and species) and may have their origins in genetic differences or in the acoustic upbringing. This publication offers no solid answers to these questions. Not only are observations of the causes and results of duetting unknown, but so is the biological significance of the variations.

Thorpe's work on bush shrikes has been cited (e.g. 1972, Sci. Amer., 227(3): 55) as showing the ability of individual birds to recognize each other vocally. While this is likely, the premise was not tested here with rigor; there is no evidence that duetting birds respond differentially to each other's calls. The best evidence of individual recognition in this work is the observation that sometimes the duets of different pairs are different. The sole experimental test was with two males and a female *Laniarius aethiopicus* in an aviary. One male duetted with the female, the other was silent and subordinate. When the dominant male was removed, the other

male duetted with the female using phrases said to be like that of the absent male. The only proof of vocal imitation is presented as some quarter notes on a musical scale. Fully 22 pages show duets in sheet-music form rather than audiospectrographically! It is impossible to render the timing of notes in a precise manner with musical notation alone, and it is incomprehensible that such notation be expected to show adequately the fine structure of a song (illustrated in the audiospectrographs that *are* shown) with its fluctuations in timing, complex modulation patterns, and varied frequency envelopes. The author should have stuck with audiospectrographs for documentary and comparative purposes.

In the chapter on music, bush shrikes are said to duet usually with concordant notes (with major thirds and minor fifths) because, the authors suggest, discordant notes would interfere and cancel each other. This idea, from Thorpe's 1961 book "Bird-song," overlooks possible differences in the auditory perception and processing in the nervous systems of occidental man and birds.

As in earlier papers Thorpe suggests that duetting birds do so in dense tropical vegetation where they cannot see one another so they duet instead. Vegetation cover was not measured, but some photographs show rather open disturbed savanna (Plate III), and others look like impenetrable jungle only because of underexposure (Plate IV). In *Cossypha* and *Cisticola* we read that the habitats of duetting species are no denser than those of related nonduetting species. Social environment, rather than vegetation, may be crucial to the evolution of duetting in birds.

Each duetting species studied has vocal characteristics different from those of other species. Because this is so, Thorpe assumes that birds recognize conspecific individuals by the duets and that differences are species-isolating mechanisms. No playback experiments were reported to test responses to intra- and interspecific duets, and the view that song differences are important simply as reproductive isolating mechanisms can blind one to seeing a more interesting biology. Casual observations by the Hookers (pp. 128-129) suggested that *Laniarius erythrogaster* is dominant and interspecifically territorial towards *L. funebris*. The subordinate *funebris* imitates the more aggressive *erythrogaster*, and the two species are said to counter-duet with one another. Given this situation, where one species may mimic an aggressor's signals to facilitate its own trespass, Thorpe unaccountably comments only that: "It is difficult to believe that this duetting can be of much, or indeed any, biological significance; for if it is either one or both species in that particular area could hardly breed."

This Behaviour Supplement is disappointing in the paucity of adequately documented new field observations. It is more disappointing in the absence of an experimental approach and in the absence of critical appraisal of its subject. Perhaps the aim in writing it at all was the hope that repeating something once said will make it so.—ROBERT B. PAYNE.

At a bend in a Mexican river.—George M. Sutton. 1972. New York, Paul S. Eriksson, Inc. xx + 184 pp., 12 color and 35 black-and-white plates, 25 margin sketches. Cloth. \$14.95.—The country along the Rio Sabinas in southwestern Tamaulipas is replete with wildlife, as Red-crowned Parrots shriek overhead, eyra cats—or *onças*—slink through the *huiquilla* thickets, and clicking butterflies (probably *Hamadryas feronia*) flit under the *xoxoil* trees and ceibas. This is the river referred to in the title of the book, and the bend is some 60 km south of Victoria and firmly below the Tropic of Cancer. The title is derived from that of part one of the book, the other two parts being titled, "From the Bravo to the Balsas" and "Huastecan trails above

the Axtla." Each part describes a separate expedition to Mexico, the first in 1941, the others in 1948-49 and 1951-52.

All of the expeditions shared a common point, in that each at least touched the Rio Sabinas country (including the nearby Sierra Madre Oriental) at some time during its duration. The first expedition centered largely on Rancho Rinconada ("River Bend Ranch"), actually an abandoned house and farm, with Sewall Pettingill, Robert Lea, and Dwain Warner as Sutton's field companions. The second expedition ranged from northeastern Mexico to Michoacán and Mexico City, with stops along the way in the Sabinas Country at Pano Ayuctle and Rancho El Cielo. Sutton's companion on that trip was Roger Hurd. The third trip was the briefest, an expedition into the Sierra Madre Oriental country with the Robert Newmans, the Richard Grabers, and Charles Shaw.

George Sutton captures an essence of Mexico and its rich biota as perhaps no other naturalist, both in the present work and his earlier (1951), now classical "Mexican birds: first impressions." The essence is founded on many elements, but paramount is his ability to capture in words and as art the wonder, thrill, and detail of nature. Red-crowned Parrots really do say *heelo, heelo, cra, cra, cra*, and having read his first book before going to Mexico in 1959, I was prepared for this fact. Almost old friends, too, when I first heard them, were the *coooooo, up, cup-a-coo* of the Red-billed Pigeon and the *jay-hoo, choricky* of the Spotted-breasted Wren. Sutton continues his mastery as a conjurer of visions of nature in the present work, especially in his treatment of the Sabinas country.

At least sharing the spotlight with Sutton's prose are his paintings, of which there are 12 reproduced in color and 18 in black-and-white in this book. Some have already appeared elsewhere, including in "Mexican birds," but unless they deprive us of seeing unpublished works, their reappearance here is not lamented. The best of Sutton, in my opinion, is to be found in his field sketch approach, or at least in paintings where the birds dominate and everything else is subordinate. Excellent examples are the Mountain Trogons in color on p. 37 and the Crested Guan in black-and-white on p. 108. Some of the more complicated renderings are less successful, such as the Russet-crowned Motmot in color on p. 111; the bird does not integrate well with the rest of the painting. On the other hand, the detailed painting of the Bearded Wood Partridge, done in color on p. 147, is quite good, so that one cannot be dogmatic in assessing the success of different styles.

Other illustrations include 17 black-and-white photographs by Robert Lea, William Heed, and especially Sewall Pettingill. These photographs are an integral part of the story, which more than offsets their sometimes poor quality. The sketches in the margins of the pages are derived from the color plates, and to me they add little to the book.

This is a well laid out, well bound, and generally high quality piece of work, with good color reproduction in the plates. In my copy I did notice some blurring of the print, e.g. on pp. 70-71, and apparently in the photograph on the latter page. Errors appear to be few, although I noted "syables" on p. 103 (line 12), *Egal* (= *Equal*) on p. 131 (line 20), and "of" (instead of "or") on p. 157 (line 26).

In summary, this is a delightful book about one of the world's really fascinating places, and I only wish that it were even longer. For those of us who have been to Mexico, Sutton revives memories and evokes acute nostalgia. For others, the book may serve as a catalyst to stimulate them to go there. If one cannot return or go soon, Sutton can take you there in words and in pictures. I only hope that his optimism

about conservation is justified; otherwise he may have written as much as anything a book about the history of nature in Mexico.—JOHN P. HUBBARD.

Birds of the African rain forests.—Stuart Keith. 1971. Don Mills, Ontario. Produced by Stuart Keith and W. W. H. Gunn, published by the Federation of Ontario Naturalists and the American Museum of Natural History. "Sounds of nature" series no. 9. Album of two 33 $\frac{1}{8}$ rpm records, 12", monaural. \$12.95.—Birds of tropical forests are more often heard than seen, and most are never seen at all unless one lives by a mist net or museum. In these fine records, Stuart Keith has not only captured the voices of some uncommon and little-known birds, he has been able to track down the identity of most of the singers. Nobody knew the names of the birds giving many of these forest sounds before. Some voices recorded here from Bwamba and Amani and the Impenetrable Forest are still of unknown identity, but identified are the voices of most birds a birder will hear in a forest such as Kakamega, if there is still a forest there.

The record features the songs of 92 species, plus perhaps 20 additional background ones that are identified. The only human voice that speaks is that of Keith introducing each featured singer by common name. Running dialog is kept to printed comments on five sides and pages of the album cover, and the notes include scientific names, locality, notes on behavior, and comparisons of similar species. Recordings were made in forests in Kenya, Uganda, Tanzania, Zambia, and Rhodesia, not one of them in a studio. The natural background sounds of other birds, flies, African rivers, leaves, wind, falling fruit, and the odd cockerel or African infant add local color. And lest the reader thinks all sounds in a forest are dominated by birds, listen to fruit bats, "growly remarks" by a colobus monkey, and screams of chimpanzees.

For the first time it may now be possible to identify in the field the look-alike forest bulbul species, as 12 are identified on this record. Compare, for example, the "basic bulbul" sound of the Yellow-whiskered Greenbul (*Andropadus latirostris*) and the "happy bubbling sound" of the Joyful Greenbul (*Chlorocichla laetissima*) with the penetrating loud advertising noises of Fischer's Greenbul (*Phyllastrephus fischeri*), an active leader of mixed species bird parties. All three long-tailed cuckoos (*Cercococcyx*) are recorded, two with fantastic, long crescendo songs. These birds are so difficult to come by for normal birders that for years the only evidence of them in Rhodesian forests was a tail feather. Unusual birds recorded are two species of tiny rails (*Saurothyrura*), the African Broadbill (*Smithornis capensis*), and a *Pitta*. The ghostly tuning fork of *Saurothyrura elegans* had earlier been ascribed to a banshee, land snail, small mammal, or chameleon giving birth; the broadbill sounds like a big bug as it "loops the loop." Other sounds are hornbills woofing, bulbuls on cold mountains saying "It's not so chilly," tokking of tinkers, strangled starlings, and a "gray, little song" of a Gray-throated Flycatcher (*Muscicapa griseigularis*). (The expressions are Keith's; his comments are almost as interesting as the songs.)

Vocal mimicry of the robin-chats includes a long mimetic sequence by Ruppell's Robin-chat (*Cossypha semirufa*) of the call of a Crowned Eagle (*Stephanoaetus coronatus*), dipping over the forest canopy; the eagle itself calls earlier on the record. In mimicry these singers sound just like their song models, but as Keith notes, they follow mimicry with typically robin-chat phrases, so "you can tell them by the tiddly-poms." A Blue-shouldered Robin-chat (*Cossypha cyanocampter*) whistles a duet with Keith and one-ups the birder himself. Bird-with-bird duetting is recorded for 11 species in the sample of 92 featured forest singers, about the same proportion (16 of 104) as in a sample I found of African birds of mainly open country (Ostrich Suppl.

1971, 8: 125-146). Some of the same species were involved in these two samples (e.g. *Laniarius* bush-shrikes of edge habitat). Apparently duetting birds are not particularly associated with dense forest habitats.

Although the records have some data for students of behavior, bird songs, and relationships of African birds, I'm sure there is no more sinister intent behind the album than to help birders recognize African forest birds when they hear them. Anyone who takes pleasure in hearing bird songs for the natural sounds themselves, whether they are named or are mystery voices 150 feet overhead in the rain forest canopy, will enjoy these records.—ROBERT B. PAYNE.

Guide sonore des oiseaux de Québec, vol. 1.—Jean Bédard. La Société Zoologique de Québec Ltd. 33 $\frac{1}{3}$ rpm, 12 in phono-disc in jacket. Publication date and price not given.—This recording contains the voices 82 species of birds of eastern North America, principally limited to the species-specific calls or songs. It was conceived and produced by Dr. Bédard, a professor at Laval University, with the assistance of several other persons and the Department of Biology at the university. The production is entirely in French; I question the advisability of not having some pertinent information in English, on the jacket at least. First, with other discs available covering the same species in English, I doubt that the producers of this recording can expect very good sales. All the species are listed only by their "common" names in French, corresponding to those given in "The birds of Quebec" by Quellet and Cayouette, and, yes, I said *only*, because sadly, no scientific names are given either! Thus, the producers cut themselves off from what might have been a considerable audience. The sound reproduction, by the way, is of high standard. How frustrating!—J. W. HARDY.

Bird songs of the Mountain Lake Sanctuary.—Dan Gibson Productions, 197 Bloor St. West, Toronto 5, Canada. One 7-inch 33 $\frac{1}{3}$ -rpm stereo phono-disc in jacket, with cover illustration by T. M. Shortt. Recorded by producer, with additional recordings by W. W. H. Gunn and narration by Bert Devitt. Price \$1.50.—This disc treats 20 common species apt to be heard by visitors to this Sanctuary and its famous Bok Tower, near Lake Wales, Florida. Perhaps the most interesting portion is the combined chorus of Screech Owl, Chuck-will's-widow, and Common Nighthawk at the end of side two. Most excerpts are less than a minute long per species, although the Mockingbird goes on for almost twice that, sharing part of the time with a carillon concert. General quality of the record is fair, although many of the birds sound distant. In essence the record may be viewed as a memento, as its value ornithologically is limited to the most casual birders.—JOHN P. HUBBARD.

The birds of the Malay peninsula, Singapore and Penang.—A. G. Glenister. Revised paperback ed., 1971. London, Oxford Univ. Press. Pp. xiv + 291, 16 pls. (8 in color), 54 text figs., 5 appendices, 8 $\frac{1}{2}$ × 5 $\frac{1}{2}$ in. \$7.00.—The first edition of this valuable handbook was published in 1951 and reviewed favorably by S. Dillon Ripley in the *Auk* (70: 97, 1953). The present paperback is slightly revised as described by the author in a note preceding the Foreword. The revision does not involve the main text. A new appendix (D), essentially reprints the "Pocket checklist of the birds of Malaya and Singapore" based on H. F. McClure's important list of English vernacular names of Malaysian birds (*J. Malayan Nature Soc.*, April, 1963). Another new appendix (E) lists eight species, with descriptions, admitted to the Malayan list since 1951. The new edition is attractively and sturdily bound in heavy weather resistant

paper. It is described on the back as "a cheap reprint." The original hardcovered edition when published cost only \$6.00, but it probably is difficult to find now and more expensive as well.—JOHN WILLIAM HARDY.

Physiology and biochemistry of the domestic fowl.—D. J. Bell and B. M. Freeman (Eds.). 1971. New York, Academic Press. In three volumes. Vol. 1, pp. xxii + 602, illus., and index. \$29.50. Vol. 2, pp. xxii + 603–1152, illus., and index. \$29.50. Vol. 3, pp. xiv + 1153–1488, illus., and index. \$23.50.—In these three volumes 53 contributors present in 62 chapters a comprehensive review of the biology of the domestic fowl. Volumes 1 and 2 deal with the anatomy and physiology of organ systems, blood chemistry, and metabolic function, including thermoregulation. Volume 3 is devoted entirely to the reproductive system. The numerous illustrations are almost all of good quality and easily understood. Most authors have reviewed the literature rather thoroughly up through 1970, and there seems to be a nice balance between the review material, new data, and synthesis of ideas.

The treatment of endocrine and respiratory systems is especially strong. These volumes are probably worth their cost to people in poultry science. Beyond that they will be an important reference and perhaps even an inspiration to others doing avian research.—MARTIN L. MORTON.

Comparative osteology of the chicken and American grouse.—Lyndon L. Hargrave. 1972. Prescott, Arizona, Prescott Coll. Studies Biol., No. 1. xvi + 94 pp., 45 figs., 15 tables, colored frontispiece. 7 × 10 in. Paper. \$7.95.—Variation in the bones of North American grouse is large, and there is a need for comparative studies that summarize interspecific variation and its significance. Despite its title, Hargrave's paper does not shoot at that target. Rather, its major purpose—first clearly spelled out in the summary—is to provide archaeologists with a means of differentiating the bones of grouse from those of chickens. The cultural history of native peoples is often strongly reflected by the animals they domesticated. Since the history of *Gallus* in the New World has been the subject of much speculation, the archaeological evidence bearing on this point is important. Thus Hargrave properly cautions archaeologists not to assume blithely that all galliform remains are those of native species, but to keep an open mind and to ask for the help of specialists.

Hargrave assumes little ornithological background on the part of his readers, and provides them with outline drawings of the major avian skeletal elements. He points out that bones of immature birds are poorly ossified as compared with those of adults and illustrates the progression of ossification. Useful drawings show that elements of immature turkeys and chickens can be distinguished on characters other than size. And a long series of figures compares the major elements of the chicken with those of several native grouse. These drawings are adequate for rough-sorting grouse from chicken bones; they are not, nor are they intended to be, of sufficient detail for ornithological use.

As an archaeological field guide, the publication seems adequate, but it will not be of general interest to ornithologists. There is no attempt to interpret differences in terms of functional morphology. The literature cited suggests that the manuscript was completed some time ago. Short's paper (1967, Amer. Mus. Novitates No. 2289) on grouse classification is ignored, and even some important older papers are overlooked. Hargrave's implication (p. 5) that "no ptarmigan bones have yet been recovered from any archaeological site," for example, disregards Friedmann's studies in Alaska (J. Wash. Acad. Sci., 24: 230–237, 1934; op. cit., 31: 404–409, 1941). In this regard it

should be noted that the map (p. 27) showing the former distribution of North American grouse, which is credited to "Aldrich and Duvall, 1955," is actually poorly adapted from that publication. Hargrave's version totally ignores the distribution of ptarmigan, even though his accompanying text gives that information, quoted from the A.O.U. Check-list (1957, fifth ed., Baltimore, Amer. Ornithol. Union).

As this is the first in a new series of papers, comment on the format and editing is warranted. They are poor. Tables 2 through 12 each require a full page to present 33 measurements of a maximum of two individuals of any species. These tables could have been combined into one (maximum two pages) at great savings in cost, not to mention the increased usefulness of direct size comparisons. Specimens are identified by collection number, but data on sex are not included—a serious omission in view of the great sexual size dimorphism in grouse. Further the unnecessarily small sample size precludes statistical treatment, so we do not know what the measurements given actually mean. My own measurements of a large series of *Dendragapus obscurus* (1969, Trans. San Diego Soc. Nat. Hist., 15: 165-174) do not compare very closely with Hargrave's sample.

The figures are also poorly designed. For example, in Figures 24, 30, and 36, the scapula and coracoid of the same chicken are compared, respectively, with those of a Blue Grouse, Greater Prairie Chicken, and Sage Grouse. Six drawings (three identical) on three pages are used where four drawings on one page would have sufficed and facilitated comparison. The same is true for drawings of the other major elements. Thus, Figures 22-39, which require 18 pages, could easily have been condensed to six.

Apparently in their efforts to launch this new series successfully, the editors chose to include a colored frontispiece. Superb photographs of most species of North American grouse are available; but beauty was foresworn, and we are treated to a snapshot of *Gallus gallus*.

With reasonable editing and the omission of a costly and useless color plate, the cost of this publication could have easily been held to about \$3. At that price it might have been a useful tool for beginning archaeologists. At \$7.95 it will find limited use anywhere.—JOSEPH R. JEHL, JR.

ALSO RECEIVED

How to talk to birds/and other uncommon ways of enjoying nature he year round.—Richard C. Davids. 1972. New York, Alfred A. Knopf. 242 pp., 28 black-and-white photos. \$6.95.—This book is in no way essential to the library of a working ornithologist, but it could be a great time-saver when he puts it into the hands of scout leaders, biology teachers, Audubon field trip guides, garden club bird buffs, and just plain armchair nature hounds. It is a well-written, informative, reader's entertainment—full of sugar- or humor-coated information on all the wild creatures that "whinnie or mew or growl or bark" and those that don't (including birds and plants) and how or where to buy everything of interest to a naturalist.—ELIZABETH S. AUSTIN.

Kookaburras.—Veronica A. Parry. 1972. New York, Taplinger Publ. Co. 110 pp.; 50 illus., 39 of them black-and-white and 6 col. photos, the best of them mediocre and most unacknowledged; 5 drawings, 3 reproductions of antiques and 2 modern poses; also 3 graphs, 2 diagrams, and 3 maps. \$6.50.—Anyone expecting this book to be a fine scientific monograph will be greatly disappointed. It is a tale of glorified bird-watching by a charming little girl with pigtails who watched kookaburras so devotedly at the San Diego Zoo that she worked herself into a scholarship in Australia

and this book. While she did put colored wing tags on an unstated number of birds, not a word is said about putting bands or rings on them. As the book has an inadequate bibliography, no table of contents, and no index, it is a blessing that it will be unnecessary for busy people to look in it for facts.—ELIZABETH S. AUSTIN.

Flying birds.—David Urry and Kate Urry, with foreword by Peter Conder. New York, Harper and Row. 192 pp., 165 black-and-white photos, 6 drawings. Cloth. \$7.95.—The intent of this book is to show birds in flight and thereby reveal their often supreme beauty among flying creatures. There are also brief chapters on "How birds fly" and "Photo technique," but these and the other verbiage are secondary to the pictures themselves. The generally good and well-reproduced photographs illustrate 26 species of British birds, all but the Starling (misspelled *Sternis* on page 192) and the Rook nonpasserines, and even the lowly Rock Dove is worthy of inclusion. Among the best illustrations are those of the Gannet, alcids, gulls, Arctic Tern, and the Fulmar. The book should appeal to a wide audience but is not essential to anyone, except perhaps bird photography buffs and artists seeking poses of actual flying birds that the public will accept as authentic.—JOHN P. HUBBARD.

The complete ecology fact book.—Philip Nobile and John Deedy (Eds.). 1972. Garden City, New York, Doubleday & Co., Inc. Pp. xxii + 472, numerous figs. and tables, $8\frac{1}{2} \times 5\frac{3}{4}$ in. Cloth. \$10.00.—A handy compendium of facts on population, endangered species, pollution, detergents, food supplies, pesticides, mineral wastes, and solid wastes, this work supplies the data and the kinds of information necessary to allow one to participate in the war on our eco-catastrophe. Not so complete as its title indicates, the book seems to be the kind of volume good to have near your desk for quick reference in order to supply, for example, a curious student or telephone inquirer with a necessary fact or two. It seems to me that the categories of bird species of endangered or uncertain status need some rethinking. Who, for example, decided that the northern Green Jay (*Cyanocorax yncas luxuosa*) is endangered but the Brown Pelican (*Pelecanus occidentalis*) is merely of uncertain status?—J. W. HARDY.

A guide to northeastern hawk watching.—Donald S. Heintzelman. 1972. 35 Church Street, Lambertville, N. J. 08530. Published privately, order from author. 64 pp., 13 black-and-white photos, 9 figures including 5 maps and 2 tables, cover drawing by Earl L. Poole. \$1.50 + 25¢ postage and handling.—This little book will give the hopeful hawk watcher the where, when, and how in his pursuit of the flights of migrating raptors in the northeastern United States. Included are tips on identification and directions for getting to 8 major and 11 minor flight areas, along with comments on what to wear, equipment, and general information on lodging and restaurants. There is also a short list of selected readings and a listing of raptor conservation organizations.—JOHN P. HUBBARD.

CBE style manual.—Council of Biology Editors, Committee on Form and Style. 1972. Third ed. Washington, D. C., Amer. Inst. Biol. Sci. Pp. xii + 297. \$6.00.—This is the manual Auk is following and, by and large, a most useful and dependable vade mecum it is. But just to show that none of us is perfect and how editors somehow just can't always win, we find the A.O.U. Check-list (1957) bibliographed in three different ways on pages 68, 271, and 275, none exactly the format we use in Auk based on the manual's recommendations. Thus consistency is not only Emerson's "hobgoblin" and White's "paste jewel," but a will-o'-the-wisp only the foolhardy (and nitpicking editors) pursue.—O. L. A., JR.