# ORNITHOLOGICAL LITERATURE

AN INTRODUCTION TO ORNITHOLOGY. 3rd Edition. By George J. Wallace and Harold D. Mahan. Macmillan Publishing Co., Inc., New York, 1975: xiv + 546 pp., drawings, graphs, maps, photographs. $14.95.

THE LIFE OF BIRDS. 2nd Edition. By Joel Carl Welty. W. B. Saunders Company, Philadelphia, 1975: xv + 623 pp., drawings, graphs, maps, photographs. $18.50 (U.S.) and $19.50 (Canada).—In the 12 years or so since the earlier editions of these 2 books appeared there have been many new developments in avian biology. Not only are there new facts, but attitudes and the general orientation toward certain topics have changed as well. Both of these revised editions show evidence of the 2 types of change.

*An Introduction to Ornithology* by Wallace and Mahan is just what the title implies. Although it has an extensive bibliography, it is by no means an exhaustive treatment of ornithology today. It does present a generally excellent summary of the main topics in avian biology. Basically the new edition is organized like the previous one, but there are minor rearrangements of the contents into different chapter divisions. The chapter on behavior (ch. 8) was revised by Harold D. Mahan with an expansion of the discussion of ethological terms and concepts.

Although much of its content has been retained, the chapter on ornithological methods from the 2nd edition has been eliminated. It strikes me as a regrettable loss that the suggestions on note-taking and methods of describing bird song in the field have been omitted from this edition. To be sure, the more modern, more technical methods of song analysis by sound spectrographic procedures are described, but these are not readily available to the average field observer, and much valuable information can be obtained from old-fashioned note-taking with pen and paper in the field.

Diane Pierce's new drawings and her revisions of old ones improve the appearance and in some cases the accuracy of the illustrations, although in a few instances (e.g. fig. 6.9, Structure of an egg) there is poor correlation between the text and the illustration. The directions for preparing a bird skin have been supplemented with photographs of the main steps, helping to clarify the descriptions, but I find the photographs less explicit than drawings might have been.

One feature of the book that I find objectionable is the arrangement of the references. A few major references are listed at the end of each chapter, while others are relegated to a much longer listing at the end of the book. Since the "more important" ones are not listed there, it is often necessary to look both places. I found it safest to look first at the end of the book, since the majority of sources are there. I understand that the omission of the basic references at the end is a space-saving (and cost-saving) arrangement, but the space saved is relatively small, whereas the increased trouble of finding a source is considerable.

Welty's new edition of *The Life of Birds* is arranged exactly like his first, except for the addition of a new chapter on birds and man. Some of the topics in this new chapter have been lifted from various places in the earlier versions, but much of the material, as far as I can tell, is new. All the chapters are considerably revised, and those treating the most active areas of avian research, such as chapter 8 on environmental controls of reproduction, chapter 9 on behavior, chapter 11 on songs, calls and other sounds, and especially chapter 23 on the origin and evolution of birds, show some of the reorientation of current thought, and very extensive revision of factual detail. Like Wallace and Mahan, Welty also gives basic references at the end of each chapter, but they are by title and author only, with the complete references in the list at the end of the book.

There are relatively few typographical errors in either volume. The new Wallace and Mahan book has gone from glossy to nonglossy paper, while the new Welty has gone from nonglossy to a semigloss. I found the old Welty much easier to read than the new. There is something about the new print on the paper that made me feel I was reading through a haze. The old nonglossy paper and dark print had great contrast, and facilitated reading. Having the old and new editions side by side made the difference very conspicuous.

Which book would be preferable for a course in ornithology depends on the instructor's philosophy toward textbooks. Wallace and Mahan are less explicit and expansive on basic biological concepts, but do include other types of information that a beginning ornithologist might find helpful, such as the procedure for making a bird skin, some information on ornithological collections, and a listing of foreign ornithological publications.

Welty, on the other hand, deals at length with such topics as flight mechanisms, speciation, and photoperiodism, which are rather glossed over in Wallace and Mahan. The latter have missed some of the more recent literature on fundamental topics such as that by Schmidt-Nielsen on the mechanics of breathing in birds. *The Life of Birds* has a greater wealth of detail on avian biology (there are roughly 3 times as many references listed in Welty as in Wallace and Mahan), and less on ornithological procedures and organizations. If you prefer a work that introduces the subject and whets the appetite, but does not probe very deeply, you will like Wallace and Mahan. On the other hand, if you want a broader treatment, in greater depth, you will probably prefer Welty.—William L. Thompson.

Birds of New York State. By John Bull. Doubleday/Natural History Press, Garden City, New York, 1974: xii + 655 pp., many maps, black-and-white photographs, 9 color plates. $29.95.—This long-awaited updating on the birds of New York is a welcome addition to the library of any serious birder or student of the state's bird life. This work will serve as an often-quoted reference for years to come and therein lies the justification for its price: it is an investment for the future.

The author covers an interesting range of background matter. He reviews the diverse habitats of the state and discusses some of the more noteworthy birding areas. Because numerous changes have occurred in the birdlife over the past 60 years, he uses the works of Eaton (1912, 1914. *The Birds of New York.* Two volumes. 64th and 66th Annual Report of the New York State Museum, Albany.) as a basis for comparison in dealing with changes in occurrence and distribution of the state's 410 recorded species and 228 breeders.

Each species is given rigorous treatment. The author's critical style on record verification and acceptance, which became apparent in his earlier work, *Birds of the New York Area* (1964), is preserved here. Typically, he discusses each species' range, status (breeding and non-breeding), occurrence, egg and nestling dates, and clutch size. Data on maximum field sightings are given for coastal and inland areas. Reference is also made to specimen and photographic records for some of the more unusual reports. The breeding records for unusual or newly recorded species are graphically represented on maps. These as well as other graphic representations add much to the value of the text.

Noteworthy in a work of this sort is the author's treatment of banding data. The recovery distribution on 55 species are represented on maps, and there is commentary on some

extraordinary banding records including longevity. I would question, however, the completeness of the recovery data represented on some of the maps. Surely for a species that is as frequently banded and recovered as the Evening Grosbeak, one would expect considerably more congestion on the recovery map. Nevertheless, it is heartening to see some of these banding data represented.

The work is liberally graced with photographs, many of which represent various habitat types. Having been contributed by the state's birders, whose photographic skills vary, the photographs themselves are of variable quality. In that regard, the publisher can be relieved of responsibility for their reproduction quality. However, for the 9 colored plates, the publisher must accept responsibility for a poor quality job in the harshness of contrast and reproduction of the plates of Eckleberry and Malick, whereas Singer and Tudor's plates are superb.

These liabilities, while unfortunate, are very minor in comparison to the overall authoritative character of the work. Its value as a comprehensive reference cannot be emphasized too strongly. It will serve the serious researcher as a landmark of the times, and it will provide the list chaser a mark at which to aim for many years. An enormous amount of effort went into collecting, organizing and presenting the information. The birders of the state are indeed indebted not only to the author for his considerable effort and sacrifice, but to those people who financed and encouraged this review of New York's ever changing avifauna.—ROBERT P. YUNICK.

VERGELIJKENDE STUDIE VAN DE PTERYLOSIS IN ENKELE AFRIKAANSE GENERA VAN DE PLOCEIDAE. BIJDRAGE TOT DE MORFOLOGIE EN DE SYSTEMATIEK VAN DE PASSERIFORMES. (COMPARATIVE STUDY OF PTERYLOSIS IN CERTAIN AFRICAN GENERA OF THE PLOCEIDAE. CONTRIBUTION TO THE MORPHOLOGY AND SYSTEMATICS OF THE PASSERIFORMES.) By Maria Morlion. Verhandelingen van de Koninklijke Vlaamse Academie voor Wetenschappen, Letteren en Schone Kunsten van Belgie, 33 (119), 1971:584 pp. Order from the Secretariat, Koninklijke Vlaamse Academie voor Wetenschappen, Letteren en Schone Kunsten van Belgie, 43 Kunstlaan, 1040 Brussels, Belgium. No price given.—This work is bound in 2 soft-covered volumes, the first being part I, the text (xvi + 328 pp) and the second comprising part II, the figures and part III, the tables (iv + 256 pp). Unfortunately it is written in Flemish. This drawback, however, is offset to some extent by the clarity of the diagrams and tabulated data. There is a 3½ page English summary.

The object of the investigation was to provide a basis for future studies and to this end detailed descriptions of the pterylosis of some African ploceids are given. Morlion examined 179 alcoholic specimens representing 40 species in 19 genera, although the generic classification used is not that currently employed by most students of African birds. In the Ploceinae, Estrildinae, and Viduinae the distribution of feathers is very constant. The general configurations and regional subdivisions of tracts are similar. "No striking differences are found, but several minor distinctions can be seen." Morlion believes that the long-debated recognition of 2 families, Ploceidae and Estrildidae, would not be justified on the basis of these small pterylographic differences alone. She concludes that additional studies of passerine and nonpasserine families are needed before the "exact taxonomic value" of pterylosis can be assessed.

The bibliography is convenient, though incomplete in some respects. However, the fact that different papers published by the same author in a single year are not distinguished

by "a", "b", etc., can lead to confusion. Citation errors are common. In the first 12 pages there are 6 instances in which the years of publication given in the text are not found in the list of references.

Factual information in this work should be useful to systematists, particularly if it is considered with material in other recent publications (e.g.: Clench, Auk 87:650–691, 1970; Markus, A preliminary survey of the occurrence of neossoptiles in South African passeriform birds, with special reference to natal pteryloses, order no. M-2297, Univ. Microfilms, Ann Arbor, Mich., 1969; Sibley, Bull. Peabody Mus. Nat. Hist., no. 32, 1970; Stettenheim, pp 1–63 *in* Avian Biology, Vol. 2, Farner and King, eds., Academic Press, N.Y.; Lucas and Stettenheim, Avian Anatomy: Integument, Agriculture Handbook no. 362, U.S. Gov. Printing Office).—MILES B. MARKUS.

ECOLOGY OF POMARINE, PARASITIC, AND LONG-TAILED JAEGERS IN NORTHERN ALASKA. By William J. Maher. Pacific Coast Avifauna. Number 37, Cooper Ornithological Society, 1974: 148 pp., 27 figs., 37 tables. Paper cover. $3.75.—In recent years some of the most widely heralded ecological studies of birds have been based largely on theory. Some of these have provided important insights, but in too many cases critical readers have been forced to discount the conclusions because the author's understanding of the subject did not extend to the *biology* of the species. At times, it has almost seemed as if knowledge about real birds evolving in a dynamic environment was no longer as important, say, as a speculative interpretation of the length of their bills.

William J. Maher's important paper on the comparative ecology of 3 species of jaegers should do much to redress the balance. It is based on 5 seasons of solid field work in northern Alaska, and contains a wealth of information on ecological adaptations that allow these potentially competing species to coexist. All 3 jaeger species are treated, but most information concerns the Pomarine Jaeger which nests along the low-lying coastal plain. Maher shows that breeding in this species is totally dependent on the presence of microtine rodents, particularly the brown lemming, for prey. To exploit this unpredictable fluctuating resource, which may be superabundant one year and unavailable the next, the Pomarines migrate into potential breeding grounds in loose flocks of up to 100 individuals; this maximizes their chance of encountering high prey concentrations. The birds settle and breed in great density—up to 23 pairs per sq. mile—where lemmings are common. Since territories are small and must provide nearly all of the requirements for the pair, they are defended virogously for the entire season. This species is essentially nomadic, and "forms no permanent territorial attachment".

Feeding habits and foraging techniques of the Parasitic and Long-tailed jaegers are more varied, though Parasitics depend to a large degree on birds and Long-tails on rodents. Because these species can usually depend on an adequate and predictable food supply, they migrate to the nesting areas in pairs or small flocks and apparently return to territories of past years. Territories are much larger but are defended strongly only early in the season, until spacing is accomplished. Densities never approach those of the opportunistic Pomarines: the highest recorded for the Parasitic was 0.36 pairs per square mile, for the Long-tail 2.3.

All 3 species are physiologically capable of breeding at the time of their arrival, and all have similar incubation periods and growth rates. However, the pre-egg stage of the Pomarine is longer and more variable, and the fledging period is several days to a week longer than in the smaller species. These factors, Maher argues, are probably significant in limiting the northern extent of the Pomarine's breeding range, and give the Long-tail "an advantage in areas where the potential breeding season is critically short."

The annual breeding success of jaegers, like that of other arctic species, varies considerably, but that of the Pomarine is extreme. Between 1949 and 1960, the species bred in significant numbers at Barrow only 5 times, and then only when lemming numbers were high. In 1958, Pomarines were not known to nest anywhere in northern Alaska. Although the extent to which this species may wander in search of breeding opportunities is unknown, it seems clear that most individuals do not nest annually—and some might nest as infrequently as 1 year in 4. The corollary—that survivorship is highest in this species—remains to be tested. Further, the presence of lemmings is no guarantee of nesting success. Despite a high in 1956 apparently no Pomarine chicks fledged because of an early snowfall. This also suggests greater longevity and adult survivorship in the Pomarine.

One of the most important aspects of this paper is the inclusion of data on the behavior of non-breeding birds. Such data—for any species—are almost non-existent in the literature, and in the present case they are essential for understanding variations in annual breeding patterns. These data emphasize the importance of making long-term studies in one area.

The paper is also important for the questions it raises that cannot yet be resolved. For example, in 1956, when lemmings were abundant, Pomarine Jaegers migrated into and bred at Barrow in large numbers; in 1957 and 1958, when lemmings were rare, spring migrants into the area were virtually nonexistent and no birds bred. How, then, does this species assess the presence of a potential food supply without even visiting an area? Do jaegers instinctively recognize lemming cycles and shift their explorations to new regions after years of (usually) successful breeding? Did they not return in 1957 because of the nesting failure in the previous year? Or did they perhaps not return to the breeding grounds at all, remaining at sea? Students of pelagic birds on the west coast might be able to clarify the situation by making more detailed observations on summering jaegers.

Much remains to be learned about jaegers. Maher's study deals only with adaptation and interactions on the breeding grounds. But for 9 months of the year jaegers are pelagic, and adaptations that may allow them to coexist are unstudied. Data will be hard to get but are essential to a full understanding of jaeger ecology.

The paper is well presented, and the occasional redundance necessitated by the volume of material presented is not objectionable, but serves to reinforce important points. Except for pp. 109–114, where scientific names are misspelled with distressing frequency, there are few typographical errors. The offset printing suffers from unevenness, and the format of the Avifauna series is quite dated and deserves an overhaul. I would have appreciated photographs of the habitat and even of the species, but the paper stock is probably inadequate for successful reproduction of photographs. But no quibbles are really justified. Maher's paper deserves wide circulation. It is an important reminder that hard and prolonged field work remain the only basis for sound ecological studies. Editor Tom J. Cade is due congratulations for making such an important publication available at a bargain price.—J. R. Jehl, Jr.

BIRD RINGING. By Chris Mead. British Trust for Ornithology Guide No. 16, 1974: 68 pp., illus. by many drawings, maps, photos, and graphs. Paper cover. $2.00. (includes surface mail postage) from B.T.O., Beech Grove, Tring, Hertfordshire, England HP23 5NR.—An authoritative, interesting, and occasionally delightful treatise on British banding, written for the bird *watcher*. American birders, banders, and research ornithologists alike will find much of interest here, for it includes concise and well-written discussions of the purposes, history, techniques, and practical and research potential of banding—most of which is world-wide in application. Particular emphasis is placed on non-game species (refreshing to an American bander) and on the information that can be obtained from the live bird in the hand as well as from recoveries. "Spectacular" recoveries of 100 species are mapped, as are selected records from 25 species that have interesting or typical migration patterns. Each map is accompanied by several paragraphs on the species, some of which discuss the contributions banding has made to environmental, biological, or conservation problems. Mixed in with the purely expository writing and the technical explanations are several captivating bits, such as the difficulties of coding the cause of death in cases like the rather sad Blue Tit that "Entered kitchen, flew against closed window, fell into bowl of custard and drowned" or the Mute Swan that "hit wires, chased by a cow which sat on it." These compete successfully with my favorite (now discontinued) American code of "Caught by or due to: Clam."

It is particularly gratifying to see a national, but privately-financed, banding program go to the effort and expense of producing such an excellent pamphlet on its work. Note to the USF&WS Bird Banding Laboratory: go thou and do likewise.—MARY H. CLENCH.

Alauda, Supplément Sonore, 1974. Disque No. 1, "Les Oiseaux de l'Ouest Africain". Accompanying commentary by Claude Chappuis, "Illustration Sonore de Problèmes Bioacoustiques Posés par les Oiseaux de la Zone Ethiopienne", *in* Alauda 42:197–222.

An announcement accompanying the disc states that beginning in 1974, the Société d'Études Ornithologiques will publish a sound supplement to *Alauda*, consisting of a series of high-fidelity 12-inch discs accompanied by corresponding studies in the Journal *Alauda*.

This disc is the first of a series, which is good news, assuming the others maintain its excellent quality. Side A contains the voices of 12 species and 5 hybrids of Columbidae, and Side B illustrates 18 species of Cuculidae. I have been informed by the Editor of *Alauda*, J. Vielliard, (pers. comm.) that future discs will include not only further African species but also birds from South America and other continents. Such an ambitious program must be applauded by the ornithological community, since the expense of publishing records and their limited market have tended to dry up the flow of such productions in recent years. Generally the jacket costs more than the disc to produce; herein lies the secret of *Alauda*'s budget. The discs do not have individual jackets (my review copy came in a plain cardboard mailer) though in the announcement we are promised "boxes", presumably to house a series. Lack of a jacket means that extra care must be taken lest the discs be scratched and some loss of sales on the popular market may occur since an attractive jacket can add greatly to a record's aesthetic appeal. However, if the resultant savings mean that a larger series of jacketless discs can be produced, the omission is worthwhile.

Technically the production is excellent, and the recordings are of high quality. Most are by Chappuis himself, other contributors being André Brosset, J. Brunel, C. Erard, M. Laferrère, and Dale Zimmerman. The birds are correctly identified, something that cannot always be taken for granted. Most recordings were made during trips spanning 1967–1972, all in West Africa except for one trip to Kenya-Tanzania.

The only spoken words on the disc are the names of each species; this results in a commendable saving of space. Commentary is confined to the pages of *Alauda* which are bound separately and accompany the disc. The commentary includes general introduction to the proposed program of discs, an outline of the scientific objectives, and comments on each species. For the latter, French, English, and scientific names are given with details of each recording (locality, date, recordist, and symbols for technical details).

The introduction states that the discs are not intended merely to aid identification or give aesthetic pleasure, but also to illustrate or resolve certain bioacoustical problems or suggest further avenues of research. The tone is a little apologetic, as though there is some doubt that the material is "scientific" enough to warrant publication by *Alauda*. I feel that no apology is necessary even if the records confined themselves to identification, since anyone who has worked with birds in a tropical forest knows the immense amount of time that would be saved could one but identify the birds he hears all the time but cannot see. I suspect that some sort of catalog of vocalizations is hoped for because for *Columba arquatrix* and *Pachycoccyx audeberti*, which do not appear on the disc, there is an insert in the text to the effect that "we have not yet received a recording of this species". Also, a number of species' vocalizations appear to have no particular "point" to them, since they are simply listed in the text without comment.

The disc contains only new, unpublished material, of which Chappuis and others have gathered a vast amount; nearly 700 African species have been recorded. Nevertheless, I am a little disappointed that this grand enterprise could not have become an even grander international production, with material from already published discs and contributions solicited. For Africa, the student will still have to dart back and forth from the *Alauda* discs to the works of North, Haagner, Stannard, myself, and others in order to make comparisons. Perhaps one day such a grand design can be achieved. I do not mean to fault the Supplément Sonore for not going further, but congratulate it for going this far. The most important thing is to make the material available for study, which is being done. Later, we may hope that some dedicated soul will piece the whole thing together in systematic order.

Going beyond simple identification, the scientific problems that it is hoped the discs will illustrate include behavior (especially the duet), speciation and taxonomy, species recognition, and the evolution of song types. In the present disc, Chappuis contends that vocalizations evolve more slowly than do morphological characters, especially plumage. He illustrates this with a recording of wild *Columba livia*, whose voices are essentially the same as those of our city birds, though the latter appear in a wide variety of plumages. The point is further illustrated by the song of *Streptopelia roseogrisea*, which closely resembles that of its descendant, the domesticated *S. risoria*, though the 2 are morphologically different. *Streptopelia lugens* is shown by vocalization to be the African dove most closely related to *S. turtur* of Europe. A most interesting section contains recordings of *Streptopelia* hybrids, with input from *S. roseogrisea*, *S. risoria*, *S. decaocto*, *S. senegalensis*, and *S. turtur*.

The African Green Pigeons (*Treron*) have weird voices, quite unlike any other bird, but I would not on that account take the bold step proposed by Chappuis and elevate the Treroninae to family rank. Apart from general considerations of "how different is different?" at the family level, one must also consider the green pigeons of Asia which certainly belong in *Treron* but have more "normal" pigeon voices, quite unlike their African cousins.

There is further interesting material among the cuckoos. Chappuis believes that the vocal differences between *Cuculus canorus* of Europe and *C.* (*canorus*) *gularis* of Africa show that 2 different species are involved, and I have long believed this myself. It is a pity that alongside his excellent recording of *C. gularis* he couldn't have inserted one of *C. canorus* for comparison. The tremendous variation in plumage of the Black Cuckoo, *Cuculus cafer*, has resulted in the description of numerous races and even the erection of a full species, *C. gabonensis*, for birds from Uganda west. Chappuis here provides a recording of *C. gabonensis* that shows it is clearly just another morph of *C. cafer*. The recording of *Chrysococcyx flavigularis* is another of Chappuis' many "firsts", of special merit since the call has never been properly described before, let alone recorded. Finally, we have a fine selection of the voices of *Centropus* species which are notoriously difficult to tell apart in the field.

In conclusion, if the succeeding discs in this series maintain the quality and interest of the prototype, all those involved in bird vocalizations are in for a great treat. M. Chappuis and the editors of *Alauda* are to be congratulated on having made a fine beginning to a grand undertaking.—Stuart Keith.

To the Arctic by Canoe 1819–1821. The Journal and Paintings of Robert Hood, Midshipman with Franklin. Edited by C. Stuart Houston. McGill-Queen's University Press, Montreal and London, 1974: xxxv + 217 pp., 14 col. pls., 5 maps, numerous other illus., cloth. $17.50.—This is an outstanding contribution to the literature of the north. The book is beautifully produced, with large type, fine illustrations, and a sturdy sailcloth binding. Its editor knows the north and its natural history and he has real knowledge of and empathy for native peoples. Furthermore, there are plenty of medical topics in this narrative and Dr. Houston's expertise is obvious in the relevant footnotes.

Hood was born in Lancashire, England, and became a midshipman in 1811 at age 14. In 1819, he and George Back (their names are perpetuated in the names of two great rivers) were chosen to accompany Franklin's overland arctic expedition. Hood had many talents. He performed diverse duties, such as studying the weather (including magnetic phenomena), terrestrial magnetism, making maps, collecting natural history specimens, and making a pictorial record of matters of interest. He was not strong physically and, while in debilitated condition, he was shot through the back of the head by an Iroquois member of the party who was suspected of having turned cannibal. Although Hood's journal and pictures have survived, his specimen collections disappeared.

Ornithology does not bulk large in this book. Yet, in view of Hood's many duties and often appalling circumstances, the wonder of it is that he recorded as much as he did. The book includes 4 bird plates in color and one in monochrome; all are composites, having 5 to 8 species per plate. All figures appear to be based on close observation of dead specimens. They are stylized in various ways; most, for

example, have undersized heads. Some are of considerable historical and scientific importance: Wood Duck, Eskimo Curlew, Evening Grosbeak, Hoary Redpoll, and others. The birds and other subjects depicted—seascapes, landscapes, native peoples, quadrupeds, and fishes—are discussed in important commentary by Dr. Houston. He also has provided a short account of each member of the expedition (with portraits of some of them) and a brief bibliography. There is a detailed index. An excellent book in every way.—RALPH S. PALMER.

SPIRIT OF SURVIVAL/A NATURAL AND PERSONAL HISTORY OF TERNS. By John Hay. Dutton and Company, New York, 1974: x + 175 pp. $7.95.—John Hay has found that the lives of terns reveal something central and common to all manifestations of life: the primacy of association and integral connection in the natural order. Exploring the "otherness" of a tern's world as something apprehended only by an empathic fascination with another form, the author tries, while engaged in a personal odyssey of identification with his subject, to grasp what the common essentials of existence are, what primal roots of being "imply a lasting trust in the face of all finality" (p. 2).

In *Spirit of Survival*, we are treated to the gradual unfolding of the author's perceptive awareness of terns, from his happening upon the deceptive simplicity of a pair of Least Tern eggs ("What is more common than an egg?"—p. 1) through his informational and emotional survey of the breeding season of terns in general. Because it is very much a personal vision, the book defies classification as pure natural history; it appears at times to be more a critique of the clinicism of the strictly scientific investigation of otherness. There are consequently minor errors which reveal the author's bias toward a broad and poetic revelation of natural affinities: in discussing various aspects of tern behavior, the author states: "Their habits have worked well enough, on balance, to keep the race alive; to think of them only in terms of adaptability might not be wise enough on our part" (p. 2). In a biological sense, working "well enough, on balance, to keep the race alive" is the very essence of what is meant by the adaptability of a trait. One must keep in mind that John Hay may not intend strictly biological definitions for "biological" terms. More specifically (p. 13) he indicates that Roseate Terns have an all-black bill during the breeding season. Breeding roseates undergo a series of bill-color changes and actually have a red and black bill during much of the breeding season (Donaldson, Auk 85:662–668, 1968.) The seemingly authoritative description of the terns' route southward during fall migration (p. 13) is actually a tentative overview that awaits further investigation. It is perhaps unfair to continue an analysis of *Spirit of Survival* on the "fact" level: the author's ultimate objective is clearly outlined in the Acknowledgments: "As far as the book itself is concerned, I only hope to convey the dimensions of the subject and some of the fascination I found in it" (p. x). The author's style is poetically evocative of his own subjective experience of another living form, of an alien cycle of life closely attuned to the vagaries of the environment, a life whose "discipline" he admires: "I envied its constancy" (p. 21). The human desire to be other is trapped in the eternal paradox; desiring the apparent spontaneity of a tern's life means desiring the state of what appears to be "non-reflection" (p. 7). Perhaps the human burden of transcending self weighs too heavily upon John Hay. He dedicates his book to those who are trying to "narrow the gap between men and nature" (p. 1). One hopes that narrowing the

gap means returning periodically to tap the sources of the "spirit of survival" in other living forms, while rejoicing in the separateness and reflectiveness that makes that gap real, the gap that permits the creation of the poetic prose at which John Hay often excels: "Water currents shifted in the sunlight, and I heard the 'wheep, wheep' of a startled shorebird. In the distance, the terns uplifted and drew across the water again, and I felt in me all the tugs of water and wind and the long, long, pressure of change in that smoky sky. September was beginning to pull away" (p. 5).

John Hay's ultimate message, garnered from his observations of terns, is a plea for a more responsive relationship to our environment; in this sense, *Spirit of Survival* is a didactic, revelatory work. We cannot know what it is to be a tern. Our ignorance about the lives of terns and other living things is emenable to reduction by what we like to think of as rigorous investigation. John Hay appreciates the fascination of scientific study: "Could I not usefully spend another lifetime on this formality of daily change?" (p. 129). But his approach is poetic. His book cannot be judged as an information source; it possesses no index. It may be easily dismissed by those currently engaged in scientific studies of the lives of terns, as reminiscent of the vitalism of such early ornithologists as Eliot Howard (i.e. *A Waterhen's Worlds*. 1940). But it should be read for an insight into another human viewpoint, replete with its own insights; in it one could perhaps glimpse some of the "unguarded" thoughts about the lives of terns and humans, not admitted to in writing, that have materialized in the subconscious minds of the most meticulous field workers.—KATHLEEN E. DUFFIN.

LOUISIANA BIRDS. 3rd Edition. By George H. Lowery, Jr. Louisiana State University Press, Baton Rouge, 1974: xxxii + 651 pp., frontis., 41 plates (12 in color), 147 figures, many photographs (1 colored). $15.00.—Although the author's stated objective is ". . . to introduce the people of Louisiana to the absorbing subject of ornithology . . . ," the appeal of this book should be wider. Much of the appeal derives from the varied avifauna of Louisiana. A major factor contributing to the avifaunal diversity of that state is the extensive, indented coastline, which provides breeding habitat for many aquatic birds, the first landfall for trans-Gulf migrants, and a barrier to the further progress of vagrants from more westerly regions. Other factors include a mild climate that permits an exceptional number of insectivorous land bird species to winter there, and occasional tropical storms. The list of visitors from the southwest (southern Texas and Mexico) presents intriguing problems.

Another area of interest is in the changes that have occurred since the 1st edition was completed in 1954. In that interval the State List has grown from 377 to 411 species, despite the net loss of four species as a result of changes in the A.O.U. Check-list. Most of the increment is a consequence of additional coverage and the contributions of colleagues are acknowledged generously in this respect. However, 2 species (Cattle Egret and Black-whiskered Vireo) have been added through expansion of their ranges, and some others unknown earlier have been recorded several times, suggesting more or less regular occurrence. A few species (e.g., White-winged Dove, Great Kiskadee), admitted to the state list earlier, now nest locally. Changes in status are evident in many accounts, notably the Northern Gannet (sighted more frequently), Red-headed Woodpecker (diminishing rapidly) and, sadly, the Brown Pelican. The last-mentioned account should be studied by

anyone contemplating the restocking of a species that has been extirpated locally. The updating in this 3rd edition serves to orient observers to gaps in knowledge, and may, for example, lead to confirmation of nesting status for some of those summer resident species not presently starred in the convenient charts of seasonal occurrence (Table 3).

As in the 1st edition the format is in keeping with the author's objectives. Thus, chapters on topics such as "How to Identify Birds" and "Attracting Birds" are included. I was surprised that the section on "Migration" was unaltered in view of the recent contributions of the author and his colleagues cited in the annotated bibliography. The text presents few problems. Information on habits and field marks is presented in a style that is easily read, conveying the author's enjoyment of his wealth of field experiences. However, the term "fully webbed" toes in the discussion of loons (p. 102) may be confusing when the uninitiated reader encounters ". . . full, or totipalmate, webbing . . ." in the introduction to pelecaniform birds (p. 119). The legend for Fig. 31 ignores the letter designations for the component elements. Endangered species are not mentioned as such in the chapter on conservation, but the topic appears in individual accounts (e.g., Wood Stork). The breeding range of the Green-tailed Towhee (p. 568) does not extend, as stated, to central western Texas. In my judgment the pastel backgrounds of the black and white plates of the 1st edition provided a sharper contrast than the present gray ones (especially Plate III).

Trusteeship of the state list is executed with reason, and the need for documentation with specimens is justified repeatedly. One senses here and there a minority report relative to the actions of the A.O.U. Checklist committee. One case is the author's retention (amply justified) of the Baltimore Oriole in preference to Northern Oriole as a vernacular for the consolidated species. The use of the long-established name has particular merit in this case since many casual observers in the West never were aware of Bullock's Oriole as a separate entity anyway. Some of the author's proposals concerning the wood warblers (notably the inclusion of *Oporornis* in *Geothlypis*) also represent departures.

Too frequently the publication of a state bird book marks the author's crowning achievement. It is gratifying, therefore, to see as a chronicle of change the 3rd edition of "Louisiana Birds." This continuing enterprise should accelerate the progress of ornithology in Louisiana, and it may promote ornithological tourism as well.—KEITH L. DIXON.

THE RED-TAILED TROPICBIRD ON KURE ATOLL. By Robert R. Fleet. Ornithological Monographs No. 16. American Ornithologists' Union, 1974: vi + 64 pp., 34 figs., 5 tables. Paperbound. $5.50 ($4.50 to A.O.U. members).—Except for the presentation of numerical data, this account of the breeding biology of the Red-tailed Tropicbird, *Phaethon rubricauda*, could be regarded as a model for the conduct and write-up of a 2-year study of a single species.

The introduction is brief, concise and informative. It clearly introduces the bird, the study area, the methodology and its limitations, and the relevant literature. The main body of the text covers: population dynamics, aerial display, role of non-breeding birds at the colony, molt in relation to the breeding season, nest site selection, nest construction, territory and nesting density, eggs, egg-laying, incubation, hatching, brooding, development and feeding of nestling, fledging, causes of nest failure, renesting, nest site attachment, pair bond maintenance and successive breeding cycles.

The discussion contains a good argument for the hypothesis that the breeding cycle is

regulated mainly by seasonal changes in the availability of food. Social synchronization and predators are discounted as having a major influence on the breeding cycle.

The description of the aerial nuptial display (p. 14) is the best I have read for any species of tropicbird. Marked birds were found to perform the flight only in the vicinity of the nesting colony where they were marked. This is at variance with the conclusion reached by Diamond (Auk 92:21–23, 1975) regarding birds at Aldabra, where he found the display "performed over open water and dense vegetation on the main islands as well as over the islets used for nesting." My own unpublished observations at Christmas Island, Indian Ocean and Lord Howe Island, Tasman Sea, agree with Fleet rather than Diamond in that the courtship flights of the Red-tailed Tropicbird were over the sea and over the forest in the vicinity of nesting colonies on steep cliffs, and rarely over other areas of these islands.

Table 2 (p. 40) is unfortunately an example of how not to present measurements. It would have been quite sufficient to have given the range and mean to the nearest millimeter and gram. The remaining figures, decimal fractions of millimeters and grams, obscure the presentation of information and are biologically and statistically meaningless. It is not clear whether the figures after the ± symbol are standard deviations, standard errors or some other statistical parameter. At several places on pp. 39 and 40 it should be "tarsus" and not "tibiotarsus."

The author and the A.O.U. are to be congratulated on producing a first rate monograph on a scientifically interesting and beautiful bird.—GERARD F. VAN TETS.

THE SEABIRDS OF BRITAIN AND IRELAND. By Stanley Cramp, W. R. P. Bourne, and David Saunders. Taplinger Publishing Co., Inc., New York, 1974: 287 pp., 12 photographs, 4 color plates, 32 maps, drawings, tables. $14.95.—This recent addition to the swelling volume of information on seabirds has resulted from "the strenuous labours of more than a thousand observers who surveyed all the coastal breeding seabirds of Britain and Ireland during 'Operation Seafarer' in 1969–70." Operation Seafarer attempted to bind together all the scattered and continuously accumulating knowledge on British seabirds in order to provide a comprehensive view of the breeding distribution and abundance of every coastal-nesting species. It was designed as a baseline study that could provide a reference point against which future censuses of equal scope could be compared, for the authors and organizers were keenly aware of the need to measure the effect of man's increasing activity upon the birds that nest on their shores. Throughout the book, the changing fortunes of each species are discussed in terms of the probable forces, most of them human, that have resulted in the waxing or waning of local or area-wide seabird populations. Interestingly, the majority of species have increased in the last century, primarily because of protective legislation.

The book begins with introductory chapters on seabird biology, threats to seabirds, and an overview of their population trends within the study area. The main body of the text consists of accounts of each of the 24 species breeding in the British Isles (2 procellariids, 2 hydrobatids, 1 sulid, 2 phalacrocoracids, 2 stercorariids, 11 larids, and 4 alcids), each headed with a black and white drawing by Robert Gillmore. David Lack once remarked how indispensible Gillmore's drawings were in increasing the interest in what he liked to call his "dull books." This book is not dull, and Gillmore's drawings greatly enhance it. Each account is divided into 6 sections: "identification," "food and feeding habits," "breeding," "movements," "world distributions," and "status in Britain and Ireland in

1969–70 and past history." Very useful maps, locating all major colonies and their sizes, and 27 appendices, conclude the work. As the authors point out, this is the first time all the coastal colonies of a large country have been mapped, and the total numbers estimated accurately enough for meaningful comparisons in the future.

The first 5 sections of each account are essentially summaries of known information, and are very good. The sections on status form the major new contributions in the work, and they are dependent upon the degree of accuracy of the "more than a thousand observers" conducting the censuses. The difficulties in estimating the number of breeding pairs (the unit used) of such divergent species, over a 2-year period, and under such greatly differing colony conditions are fully discussed by the authors, who freely admit that it is a "formidable undertaking." How well did they do? The author's candid assessments seem the best. They feel that the estimates of 17 of the 24 species are accurate enough to detect changes of 10% to 20% of total population if comparable future censuses are conducted. The 4 alcids and 3 of the Procellariiforms presented the most difficult problems. The alcids could be counted, but the numbers seen do not tell how many are nesting. Population figures for them are estimates only, and only major changes in future censuses would show up, although accurate surveys of the extent of many colonies will provide some indication of future population trends. The nocturnal, burrow-nesting storm petrels (*Oceanodroma leucorhoa* and *Hydrobates pelagicus*) and Manx Shearwater (*Puffinus puffinus*) are nearly impossible to estimate, and the authors candidly present only orders of magnitude for them. Given these difficulties, it is best to consider Table 1 (p. 42), which ranks all except the above Procellariiformes in order of abundance, as only a general guide to relative abundance. Some rank positions may not be reliable, because differences in censusing accuracy between species may preclude discerning which have the greater total population.

This book has been well edited and has few errors. Most noticeable are the misnamed gulls in Table 1 (p. 42): *Larus fuscus* and *L. marinus* are called the Lesser and Greater "Black-headed," rather than "Black-backed," Gull, respectively. Leach's Petrel has been spelled in alternate ways by different authors over the years, and both *O. leucorrhoa* (p. 42) and *O. leucorhoa* are found here. Gillmore did an excellent job depicting all species in his 4 color plates, especially the terns, but somehow has stretched the wings of his soaring adult Gannet (*Sula bassana*) into an albatross-like length.

In summary, it seems clear that Operation Seafarer achieved in large measure what it set out to do, and the results of this impressive survey have been brought together in a highly readable manner, with the wealth of information clearly presented and easy to find. The authors are to be complimented.—Cameron B. Kepler.

Pelagic Studies of Seabirds in the Central and Eastern Pacific Ocean. Warren B. King (ed.). Smithsonian Contrib. Zool. No. 158, 1974: iv + 277 pp., many maps, charts, graphs, and black-and-white photos. Paper cover. $3.70. For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.—This report on the distribution of pelagic seabirds is based mainly on the results of the Pacific Ocean Biological Survey Program organized by the Smithsonian Institution and carried out during 1963–1968. Following a general introduction to the program by Patrick J. Gould, there are chapters on the Sooty Tern (*Sterna fuscata*) by Gould; the Wedge-tailed Shearwater (*Puffinus pacificus*) by Warren B. King; the Black-footed Albatross (*Diomedea nigripes*) by Gerald A. Sanger; the Laysan Albatross (*Diomedea immutabilis*) by

Sanger; the storm petrels (Hydrobatidae) by Richard S. Crossin; the Red-tailed Tropicbird (*Phaethon rubricauda*) by Gould, King, and Sanger; and on recoveries of banded albatrosses by Chandler S. Robbins and Dale W. Rice. The general emphasis is on a detailed account of the distribution of these species in relation to their ecology.—R.J.R.

AUTUMN HAWK FLIGHTS. By Donald S. Heintzelman. Rutgers University Press, New Brunswick, New Jersey, 1975: 398 pp., 88 photographs, 48 maps, 60 tables, 40 charts, drawings, and graphs. $30.00.—*Autumn Hawk Flights* is divided into 6 parts. Part 1 contains an introductory chapter that is devoted to field study methods and a chapter on hawk identification. The emphasis of Part 2 is on hawk lookouts and contains 7 chapters, each of which covers a particular geographical area. Raptor morphology, anatomy, and flight are the subjects of Part 3, and Part 4 elaborates on hawk migrations in relation to general weather systems, local weather variables, mountain updrafts, and thermals, and includes a chapter on daily rhythms and noon lulls in autumn hawk flights. Part 5 covers migration routes, diversion lines, and wind drift in relation to geography, and discusses hawk counts as indices to raptor population trends. An interesting and speculative account on the migration and evolution of Broad-winged Hawks completes the regular text of the book as Part 6. The book contains 2 appendices: one gives the scientific names of the birds mentioned in the text, and the other contains the tables of data referred to in the various chapters. The literature cited section has 22 pages of references, and I found the 20-page index compiled by Lisa McGaw very thorough and helpful.

This book, although somewhat useful to the serious student of migration, is written primarily for the amateur or non-professional. Technical terms are avoided whenever possible, and those that are used are defined in footnotes. For instance, on p. 205 Heintzelman gives an accurate description of roll vortices but never uses the term. In contrast, terms like *wind drift, thermals,* and *accidentals* are footnoted and defined when they first appear. In general I found the text quite easy to read.

The book contains too many black-and-white photographs, some of which are not of the best quality and are redundant. There are 7 photographs of Red-tailed Hawks in the text and at least 6 photographs showing kettles of migrating Broad-winged Hawks. Many of the photographs portray hawk lookouts with observers staring into the sky. One or 2 of these would suffice instead of 11. Chapter 2 on hawk identification occupies 20 pages and does not contribute enough new identification points to justify its inclusion. Little that is not already in field guides appears in the chapter.

The diagrams are well done, especially those in Parts 4 and 5. Parts 3 through 5, consisting of 150 pages, are Heintzelman's best and contain most of the real biology in the book. It is here that Heintzelman speculates that pesticides or other factors, by reducing energy production of flight muscles in Ospreys, have contributed to the increasing numbers of Ospreys using updrafts at mountain flyways in recent years. One finds that most hawk flights along the northeastern mountain ridges occur more or less with the typical weather pattern of a low-pressure area in New England and a cold front passing the vicinity of the hawk lookouts. In the discussion related to wind drift and diversion lines, Heintzelman mentions the Trans-mountain Drift hypothesis that he and Armentano put forward in 1964, in an attempt to explain the interaction of mountain ridges and coastlines with broad-front hawk migration. The hypothesis also explains why observers at nearby lookouts along a line of flight do not record the same birds and

may tally markedly different counts of hawks on the same day. Based on this and other factors, it is Heintzelman's opinion that the greatest caution must be exercised in considering northeastern raptor population indices based on autumn hawk counts. If this is indeed so, why has he devoted 40 pages containing 44 tables to data on yearly hawk counts and the number of hawks banded? Perhaps more synthesis and less tabulation of the data would have been in order.

On page 96 there is mention that many hawks do not cross water gaps, because no thermals develop over water, but thermals or at least convection cells do develop over water at night when the water temperature is warmer than the air above it. This has important implications for the Broad-winged Hawks that move southwest from Key West and Dry Tortugas, Florida. Another question that was left unanswered in the book was whether hawks deposit fat reserves for their migrations in the same manner as other migrant birds.

Admittedly most studies of hawk migration have originated in the Northeast, but is the almost cursory treatment of hawk migration south of the Great Lakes, the Appalachians, and Virginia the result of no data or an oversight on the part of the author? Whatever, there is clearly a need for more work in these geographical areas. Two omissions in the book are bothersome. There is no mention of the migration of kites, and more importantly, the word "spring" does not even appear in the index, and for good reason. The only mention of spring hawk migration in the book appears on p. xxix in the Preface. How a book of 398 pages can be devoted to autumn hawk flights without making comparisons with spring hawk flights is a bit staggering.

My final comment concerns the price of the book. As is usual, the smaller the projected audience for a given book, the higher the price per copy, but $30.00 for this book is the best guarantee that sales will be limited. If the price were halved the circulation would certainly more than double.—SIDNEY A. GAUTHREAUX, JR.

TRAITE DE FAUCONNERIE. By Hermann Schlegel and A. H. Verster de Wulverhorst. Chasse Publications, P.O. Box 906, Denver, Colorado, 1973: viii + 115 + 90 + viii pp.; 16 monochrome lithographs. $32.50.—This is a translation from the original French edition published in 3 parts between 1844 and 1853. The authors saw a need for a modern treatment of falconry, encompassing the methods of acquiring, training, and caring for raptorial birds. Much of the book traces the history of the sport in the lands where it was practiced and with the various birds used.

The authors went to considerable effort to describe 3 variations of *Falco rusticolus* (Gyrfalcon) which they maintain are distinct species. We mention this in order to illustrate the confusion at the statement (p. 20) that "The Gyrfalcon is irritable and obstinate, ill-tempered and so malicious as to attack other falcons of any species." We are uncertain about what bird they are really referring to as the Gyrfalcons of our experience are usually one of the easiest of all raptorial birds to tame and often develop a strong attachment to their trainer. It is further stated (p. 14) that the progeny of the White Falcon (Gyrfalcon) "Are already capable of propagation the year after they are born." Our research suggests that the time is closer to 4 or 5 years of age. Similar confusion exists with respect to other species discussed.

Methods of capturing hunting birds begin on p. 47, and although the descriptions of the various trapping devices may be difficult to understand, it is interesting to note the elaborate pains that early falconers went to. A line on p. 47 describes a man seated in

a blind on the plains of Holland, patiently waiting for a falcon to approach his trapping station. "Seated on a chair in the small hiding place with his gaze constantly fixed on the shrikes (used to alert the trapper of an approaching falcon), he has no pastime except his pipe." Much of the equipment and furniture described in the book is no longer in use. This is also true of many ancient training methods.

Falconers of the 19th century shared with modern falconers an understanding of the non-social attitude of most raptorial birds. In the section on training a good comparison is made between the temperament and treatment of dogs and hawks while in training. Much unnecessary effort and energy was expended by 19th century falconers to train and fly birds. The book states that 4 to 5 months are needed to train a falcon. Modern falconers rarely take more than a month to accomplish this.

The authors worked extensively to describe the history and practice of falconry in many parts of the world. This section of the book contains a great deal of extraneous rambling interspersed with a few interesting stories. The Shahs of Persia made gifts of falcons to great nobles and provincial governors. "They put jeweled hoods and bells of gold on the birds. The lords also had gloves which are bordered with jewels for holding the birds and they put jesses and swivels of gold on their birds." A description of an eagle trained to kill men ended with the bird plucking out the eyes of the dying man.

On p. 20 is described a particularly good year of falcon trapping and subsequent destruction of the excess birds "for fear that their abundance would cause a subsequent depreciation in price." Yet a law in the code of the Burgundians says that "anyone who is guilty of stealing a hunting bird shall pay the owner of the bird six sows or shall suffer the punishment of having the bird take six ounces of flesh from his buttocks."

The circumstances that caused the decline of falconry in Europe were "The French revolution and the wars which followed it and enveloped almost the entire continent of Europe. The complete overthrow of the old order of things and ideas and more than twenty years of troubles the like of which Europe had not suffered for centuries sufficed to bring about the disappearance of a sport which recalled the luxury and extravagances of the past far too openly not to incur henceforward the disapproval of the public."

We feel that the authors spent too much time delving into historical rhetoric for the book to have been of much value to aspiring novice falconers of the 19th century. Besides, the aristocracy of the time had on their payrolls professional falconers who learned their trade through apprenticeships. For the modern falconer, the book would serve well as an addition to his library on falconry. We have never read a more complete historical account of the subject. The book provides a feeling of identity and an explanation of some of the terminology used by modern falconers.

We experienced difficulty in locating the footnotes. On p. 2 footnote 14 is missing, and on p. 8 footnotes 6-2, 6-4, and 6-6 are missing. The introduction by the translator and editors does not make it immediately clear that the book is a translation of an old work. Some areas of the book are a bit vague, but readers of the era in which it was first published might not have found this to be so. The book is attractive in its binding and printing and the type of paper used adds greatly to the look of the facsimile.—WILLIAM F. JOHNSTON, JR. AND HEINZ MENG.

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