ORNITHOLOGICAL LITERATURE

LIFE HISTORIES OF CENTRAL AMERICAN HIGHLAND BIRDS. By Alexander F. Skutch. Publications of the Nuttall Ornithological Club, No. 7. Cambridge, Massachusetts, 1967: 6¼ × 9¼ in., vi + 213 pp., 1 table, 6 figs. $6.00 (obtainable from N.O.C., c/o Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts 02138).

Excluding the work of Alexander Skutch, life history studies of Central American birds are seldom seen in the literature. Scientists from North America and elsewhere, whose time in the field generally is limited to a season or two, are reluctant to study a particular bird whose nest, breeding season, and habitat may be uncertain or even unknown. The possibility of wasting much valuable time in a fruitless search is too great. For this and other reasons, past work in the tropics has consisted largely of general collecting or ecological studies of a particular community where the objectives of the study could be broad and adjustable, and nearly any information obtained could be a meaningful contribution. This has been especially true of graduate students whose degree plans and financial limitations might allow for only one or two visits to the tropics.

Alexander Skutch, however, by establishing permanent residence at a farm near San Isidro del General in Costa Rica, has been able to accumulate data on tropical birds in one area for over a quarter of a century. He has studied also for considerable periods in other parts of Costa Rica and in other Latin American countries. While one season may bring him little or no useful information on many birds of the area, in his accumulated notes the general pattern of breeding and behavior of more and more species is becoming clear. In the "Life Histories of Central American Birds," volumes I and II (Pacific Coast Avifauna, Cooper Ornithological Society, Nos. 31 and 34), plus numerous shorter papers, Skutch has put together life history reports on many tropical species. The present work is the continued fruition of these years of study.

Thirty-nine species are included in this book, all characteristic of the highlands at elevations above 1,300 m (4,000 ft). As Skutch indicates, rather complete biographies are given of some birds, while others that are less well studied are included because of some interesting aspect of their life cycle. Notable here is the vivid description of the singing of the Brown-backed Solitaire (*Myadestes obscurus*). In the introduction Skutch describes in detail the nine localities at which most of his highland work was done. Six of these are in Costa Rica, two in Guatemala, and one in Ecuador. He spent about a year on the Sierra de Tecpam in Guatemala and at Montaña Azul in Costa Rica, and three to six months at several of the other localities. In writing of these areas Skutch takes space to describe the climate, vegetation, birds, and his own work there in very readable terms. His lucid prose gives a real sample of the flavor and excitement of highland birding.

Also included in the introduction is a section on altitudinal and local migrations, a subject which has not been worked out carefully for most tropical species. Some birds that Skutch studied apparently move to a lower elevation after breeding, some to a higher elevation. In the last part of the introduction an excellent discussion is given on altitudinal distribution. In describing the Tropical Zone, Subtropical Zone, Temperate Zone, and Paramo as they occur in Costa Rica, Skutch emphasizes the great amount of overlapping that can occur between these areas and thus the difficulty of defining their limits clearly. He also points out that in southern Central America, not unexpectedly, increasing elevation usually goes along with a decrease in the number of species and,

possibly, a decrease in the abundance of each species as well. The reduced number of birds in colder areas may be due to slower growth and lower reproductive rates of the organisms in the lower part of the food chain, the plants and poikilothermic animals upon which birds feed.

The life histories included in this volume cover five hummingbirds, six tyrant flycatchers, four thrushes, six wood warblers, seven fringillids, and eleven other birds of nine families. A good job has been done of ferreting out the work of others who may have studied any of these species from Mexico to South America. One of the more complete studies is on the Green Violet-ear (*Colibri thalassinus*). It emphasizes the singing of the male; the timing of the nesting season, which extends in one area or another from July to March; and the rearing of the young. After observing at length the tireless singing and intermittent feeding of a male, Skutch concludes that the bird is "a highly efficient machine for turning nectar into squeaks."

Many interesting details are brought out in the accounts, including: the way in which the male and female Blue-throated Toucanet (*Aulacorhynchus caeruleogularis*) share incubation; the nest structure of the Spotted Barbtail (*Premnoplex brunnescens*); the courtship display of the White-ruffed Manakin (*Corapipo leucorrhoa*), and comparisons with the display of other Central and South American manakins; the pugnacity of a Mountain Elaenia (*Elaenia frantzii*); the mellow song of the Rufous-browed Pepper-Shrike (*Cyclarhis gujanensis*); the nest building of the Flame-throated Warbler (*Vermivora gutturalis*); the feeding of the Common Bush-Tanager (*Chlorospingus ophthalmicus*) on the nectar of the *Salvia* blossoms despite their deep corolla tubes; the unique song of the Large-footed Finch (*Pezopetes capitalis*); and the hitch-hiking of some Rufous-collared Sparrows (*Zonotrichia capensis*) that showed up at sea level in Puerto Limón, Costa Rica.

Notable throughout the book is the vast botanical knowledge Skutch, a botanist by training, brings to his discussions. Plants are seldom mentioned without being identified to family or beyond. Accounts of hummingbird feeding are made more meaningful by the naming and description of such plants as *Salvia nervata*, with its long, furry, crimson corolla tubes, and the large scarlet passion flowers (*Passiflora vitifolia*), in which only the longer billed hummingbirds can reach the floral nectaries.

Though there is much valuable information in every account, few are so complete as to discourage additional work. Detailed studies on behavior, territoriality, social relations, the nesting cycle, and other topics are still needed for most of these species. However, even the briefest of the Skutch accounts is a usful starting point for any detailed study and, most importantly, can often answer the questions of when, where, and how to look for the bird and its nest. For most readers, who will not be planning an immediate trip to the tropics or additional work on any of these species, this book offers a chance to share some rewarding experiences with one of Central America's great naturalists.—Hugh C. Land.

The Wild Turkey and Its Management. By Oliver H. Hewitt, Editor. The Wildlife Society, Washington, D.C., 1967: 9 × 6 in., xiv + 589 pp., 3 col. pls., 2 fold-out maps. $6.00.

This is a large book (589 pages), but of high quality, both in make-up and content. The 18 individual chapters are authored by specialists in the various aspects of the history and life history of the Wild Turkey. Chapter 1, on historical background, is brief, but adequate. A more thorough coverage can be found in "The Wild Turkey: Its History and Domestication" by A. W. Schorger (University of Oklahoma Press, 1966). There

is little to quarrel with in Chapter 2 on taxonomy, distribution, and present status. In discussing the distribution of the eastern Wild Turkey, however, one reads through 22 lines of distributional notes including recent introductions in Wisconsin only to find the next paragraph gives the "much more restricted" range as of 1967.

Physical characteristics and physiology were covered in one chapter. The physiology section included a weak section on the various senses and ended with comments on "behavioral characteristics." The latter could have been better handled in the chapter on behavior. In general, this chapter is well done and, by omission of detail, points up what is still to be investigated.

The chapter on behavior is short on comparative behavior with other birds and some of the flat but important or interesting assertions could have been strengthened by documentation (e.g., shelter-seeking, investigative and imitative behavior, orientation, homing, and sex and age relationships). The brief section on the stimulus for molting dangles since it is too brief to be comprehensive and its relationship to behavior obscure. The conclusion is inadequate for a chapter with much fine information.

The section on population dynamics touches all the standard statistical bases. The data, however, come in the main from the Eastern and Florida Turkey and only two tables (6.2 and 6.7) use data from western subspecies. The text does not push the data excessively, but makes them available for those who may wish to do so. A closer tie-in with the relationship of the statistics to on-the-ground management would have enhanced the section.

Feeding habits and foods of Wild Turkeys are well treated and the literature on the subject well covered. Most data come from the hunting season collections (e.g., spring-fall). Late spring and summer information comes largely from dropping analysis. Such analysis requires difficult separation and measurement procedures. The section is well written but could have had a summary statement.

The section on limiting factors points out the time, place, or activity that could limit population size. Weather, habitat destruction, and hunting appear to be the most important factors bringing about reductions in Wild Turkey populations. Other factors such as diseases, parasites, accidents, introductions, etc. are described with qualifiers indicating that documentation (as a limiting factor) is meager or lacking. The most carefully worded paragraphs are found under predation and predator control (e.g., "Control may occasionally be warranted on limited areas" (p. 209)). The text, concluded by this statement, did not require so guarded an attitude toward either predation or predator control.

The brief but well-stated chapter (9) on highlights of management acts as an abstract for the next seven chapters that deal with management problems and programs of various geographic areas.

In general, the management chapters give a good insight into regional problems associated with the maintenance of Wild Turkey populations. Multi-authored books suffer in part from repetition. For example, after reading in great detail about food habits in an earlier chapter (7) we encounter much the same treatment on a local level in Chapter 14 (Table 14.1).

The role of the transplanted turkey, including failures and successes, is documented; a plea for forest management is made in reviewing Wild Turkey habitat in the Ozarks. The concluding remark underscores the difficulty facing both the wildlife and forest managers. It reads (p. 400): "Therefore, before any substantial increases can be made in over-all habitat improvement for forest game species, management must have access to the 90 per cent of forest lands in private ownership."

Some of the "limiting" factors are dealt with on a regional level. The chapter on the Rio Grande turkey sums up the basic limiting factor for most turkey range (p. 492): "The future of the [Rio Grande] turkey depends primarily on land use programs on ranches within its range."

Turkey hunting means just what it says. One must know his quarry, place himself in the proper place at the proper time, entice his prey into gun range (a feat requiring more than a little skill) and finally to bag his bird. The brief chapter (17) on hunting covers these salient points.

The final chapter (18) begins thus: "The wild turkey has responded so well to modern management that it has become the outstanding success of wildlife management in this decade."

In the same two and one-half pages are found these statements: "There yet remains a monumental task in gathering information on many facets of the turkey's requirements which may vary widely from one range to another," and "A discussion of research needs would consume volumes." One wonders if these researches are academic or are the *needs* to be met in order to make the management of the turkey an outstanding "outstanding success." Research will always be needed on game animals in order to achieve adequate management because the biology and social factors affecting a hunted animal are never static. To overstate the case for research may cause legislatures and public administrators to become either skeptical or antagonistic and certainly gun shy of researchers.

An appendix of scientific names of organisms listed in the text follows the last chapter. The literature cited section covers 24 pages and the index requires seven pages. Chapter authors and personal communication contributions are included in the index.

The photographs are excellent and plentiful. Three colored plates by Ned Smith, George M. Sutton, and L. A. Fuertes enhance the volume. The two folded maps on life areas and Wild Turkey distribution are informative and do not physically encumber the book.

There is a sprinkling of split infinitives and an occasional lapse into the mid-Victorian passive. All aspects considered, however, this is a thorough, well-documented work. There should be no doubt in the mind of the reader that he has been enlightened by a group of experts.

A compilation by numerous authors is a difficult chore for an editor. Dr. Hewitt has done a fine job. The book will appeal to the administrator, researcher, ornithologist, hunter, and layman. The Wildlife Society has sponsored a winner. I recommend this reasonably priced volume for all who are interested in the Wild Turkey.—ROBERT A. MCCABE.

SEABIRDS OF THE TROPICAL ATLANTIC OCEAN. By George E. Watson. Smithsonian Publication 4680, Smithsonian Press, Washington D.C., 1966; 8⅛ × 10¾ in., xxx + 120 pp., 12 bl. and wh. pls. by Tina Abbott Clapp; map by William A. Risley. $3.75.

With the present growing interest in the biology of tropical seabirds, there has been a need for a single work on the identification and distribution of those occurring in the tropical Atlantic as a whole. The author and publishers of the present manual are to be congratulated on the manner in which they set about their task. In March 1965, following a commission from the Bureau of Commercial Fisheries for illustrated keys to identify seabirds encountered during tuna surveys, a preliminary edition of the manual was issued "for immediate test use at sea and for critical appraisal by specialists in

seabirds." The present edition was then prepared, incorporating the corrections, comments, and criticisms that resulted, and should be invaluable not only in assisting observers at sea but also by improving the standard of seabird identification generally. In particular, it is to be hoped that fishery personnel will now feel equipped and encouraged to make available those ornithological records that they are in a unique position to provide. Publication costs have been kept down by reproducing the original—and impeccable—typescript itself as the main text and this arrangement should enable the manual to be kept up-to-date and even further improved by subsequent editions.

The main area covered in detail extends approximately between 35 degrees north and 35 degrees south—that is, from Bermuda and Madeira in the North Atlantic to the mouth of the River Plate and the Cape of Good Hope in the South Atlantic. Reference is also made to the Azores and the Tristan da Cunha group (including Gough Island) which lie in slightly higher latitudes. A double-page map shows the area and all place names mentioned, together with the direction—though not the limits—of the main ocean currents.

The introductory section opens with a useful outline and discussion of seabird distribution in relation to water conditions, with particular reference to nutrient enrichment and the availability of food. Species are then classified (Tables 2 and 3) according to the relevant surface water zones (polar, subpolar or temperate, tropical) in which they occur and their oceanic habitat (coastal, offshore, pelagic). The long-held belief that frigatebirds occur only rarely far from land (p. xvi) must now be seriously questioned, for evidence is accumulating—see, for example, Bourne, Ibis, 108:187–188, 1957)—that these incredibly aerial birds may be extremely pelagic at certain stations but are overlooked because they soar so high. The author next gives instructions on the use of the manual as an illustrated key, together with brief comments on various seabird characters. Although information on these is to be found in the species accounts later, it would have been valuable at this point if further tables had been compiled classifying the seabirds along the lines already offered under surface water and habitat zonation; in particular, size, plumage-type, manner of flight, and feeding could well have been covered. Suggestions are also given for preserving and shipping specimens, and the introduction closes with a comprehensive list of references to important works on seabird identification and biology.

The plates, executed mainly in line and wash, follow next. Though simple the plates adequately fulfill their object and are certainly better for the most part than anything yet available in this particular field. All except the last (topography of a seabird) consist of a double-page spread, with the drawings alone on one half and the explanatory text on the other, overlaid in the case of Plates 2 through 11, on faint, "shadow" versions of the figures. On Plate 1, there are 15 highly effective silhouettes of characteristic types of seabirds in flight, plus a cormorant and gull on the water; these usefully establish the relative sizes of the birds—though no scale is given, either here or on any of the plates—while the accompanying captions supply the identification points. Plate 11 compares the bills of seven species of albatrosses, three jaegers, five prions, three shearwaters, and a gadfly petrel.

The majority of the plates, 2 through 10, illustrate the various families of seabirds, mainly in flight and often grouped with other families with which they might be confused at sea: Plate 2, albatrosses, large petrels, gannets and boobies; 3, shearwaters and petrels; 4, frigatebirds, pelicans, and birds of prey (Black Kite and Osprey); 5, cormorants, alcids, and penguins; 6, adult gulls; 7, immature gulls; 8, tropic-birds and some terns; 9, remaining terns (including the noddies) and skimmer; and 10, skua,

jaegers, phalaropes, and storm petrels. The groupings are mostly sound but, in Plate 2, the necessity of showing so many large species on a single page has resulted in overcrowding and too small a scale—the gannets and boobies would have been better placed on a separate plate, perhaps together with the pelicans. For this reviewer, the gannets and boobies are particularly disappointing. On this tiny scale, it was obviously difficult to show adequately their differing sizes and proportions, both specific and (in the case of the two smaller boobies) sexual. The Masked Booby is drawn the same size as the larger gannets and its neck is too short and thick-set. The distinctive plumage of the juvenile form of this species, with its dark head and back but white collar and underparts, should also have been included—also the various immature plumages of the gannets and the dark, white-tailed-only, adult phase of the Red-footed Booby. The upper facial area of the latter species is incorrectly shown as feathered instead of bare. The frigatebirds are another group that would have benefited from more space. The choice of the so-called "light phase" to illustrate the Ascension Frigatebirds is unfortunate in a species that is typically all-dark in both sexes; moreover, the "immature" of this species has a much wider and darker upper-breast band than figured.

The bulk of the book is devoted to a systematic account and, though planned primarily for identification purposes, it also collects together a surprising amount of information of wide biological interest that is otherwise scattered through an extensive literature. A diagnosis of characters is given for each family, followed by a key to species, with cross reference to the keys of similar groups where necessary. The species accounts themselves are organized under the following headings: (1) Characters (overall length and wingspread, descriptions of most distinctive plumages and appendages, comparisons with related or otherwise confusing species); (2) flight (manner of flying, height above sea, relation to ships); (3) food (type of prey taken, hunting behavior, flocking and relation to schools of predatory fish); (4) habitat (zones frequented), and (5) distribution (breeding and dispersal ranges, migrations, and vagrancy). Shorter accounts appear separately of a few species that occasionally enter the fringes of the tropical Atlantic from high latitudes or breed only in the Tristan group. In an appendix, there are distributional lists of breeding and non-breeding species for the various islands and coasts, together with local references and egg and migration dates (where known). Schedules of species likely to be seen during selected ocean transects would also have been welcome but probably difficult to compile accurately.

A few inaccuracies still remain in the text, of which the following may be mentioned. Audubon's Shearwater is given as a breeding species at Ascension, unequivocally on page 13 and with reservations on page 102, yet there is in fact no direct evidence of breeding and the bird has only once been recorded there (on Boatswainbird Island in March 1959). The Madeiran Storm Petrel is said to follow ships regularly (p. 20) but this was not the reviewer's experience during three transects to or from Ascension (see also "Handbook of North American Birds" (1:237, 1962)). The "immature" Brown Booby is characterized as having a "greenish yellow" bill on page 27 and a "conspicuous straw colored" one on page 30. In fact, the situation is more complex than this: at Ascension (at least) the juvenile form has a dark slate-gray bill and facial skin, the latter being the first to change to shades of cinnamon or yellow and then the bill itself to a fleshy-mauve—but at no time is the bill ever yellow (or green) in life. Only the adult male of this species has the facial areas and feet bright yellow (nuptial stage) or greenish (non-nuptial). It must be added here that a certain amount of confusion is caused throughout the book by imprecise terms for the plumage categories below the adult—e.g. "young" and "immature." In some cases it is the true juvenal

dress that is described (or figured), in others not. On page 50, the characters of the Slender-billed Gull are wrongly stressed for, as shown by Wallace (Brit. Birds, 57:242, 1964) and others, the bill of this species is not slender at all but, compared with that of the Black-headed Gull, is "clearly longer, deeper and heavier looking with a markedly decurved upper mandible." Because of local turbulence and upwelling, seabirds are said to be more numerous around Ascension than St. Helena (p. 102) but this statement overlooks the former existence of a large and varied petrel fauna on the latter island (see Ashmore, Ibis, 103B:390–408, 1963). Further, the Ascension Frigatebird is given as occurring formerly on St. Helena whereas the extirpated frigatebird there was almost certainly *Fregata ariel*, as correctly stated on page 38. Finally, as pointed out by Bourne (Ibis, 108:426, 1966), a number of vagrants to the Canaries—the Razor-billed Auk, Puffin, Dovekie, Great Skua, Great Black-backed, Common, and Mediterranean Gulls—have been listed in error under the Cape Verde Islands (p. 109), though not in the species accounts themselves.

The book closes with an index of colloquial names, containing scientific names and colloquial synonyms, but there are no separate indices to scientific or place names. The nomenclature followed is up-to-date and uncontroversial for the most part. The suggestions of Alexander et al. (Ibis, 107:401–405, 1966), to which the author himself was a signatory, for that difficult group, the Procellariiformes, have been followed in the main, including the use of the generic names *Calonectris*, *Procellaria*, *Bulweria*, and *Hydrobates*—though *Adamastor* is maintained. Among the few questionable colloquial names, one wonders particularly why Dove Prion was preferred to the much more familiar Fairy Prion for *Pachyptila turtur*.

In brief this well-produced book is warmly recommended to all workers on seabirds, both as a guide to the identification and distribution of these fascinating birds in the tropical Atlantic and, also, as a compendium of much information on their general biology—K. E. L. Simmons.

Birds of South Vietnam. By Philip Wildash. Charles E. Tuttle Co., Rutland, Vermont, 1968: 6 × 9 in., 234 pp., 25 col. pls., 21 bl. and wh. illus., map. $7.50.

A short foreword by Jean Delacour, the expert on birds of Vietnam, is followed by the author's preface, an account of the geography and history of the region, a linear list of species to be found east of Laos and Cambodia and south of 17° N, and a figure explaining the indicative terms used in describing a bird's plumage. With his preface the author modestly, and one hopes permissively, quotes Roger Ascham (1515–1568), an expert on archery of his day, as follows: "If I have said amisse I am content that any man amende it, or if I have sayed too little any man that will to adde what him pleaseth to it."

Mr. Wildash is a British diplomat, attached to the embassy in Saigon for some time; he has done an admirable job in preparing this first field guide for the birds of southern Vietnam. He has described 586 species and illustrated 215 in color himself.

Sixty-nine families are briefly characterized. Perhaps it might be said that some of these remarks are not particularly helpful to the birdwatcher. True cuckoos are "Parasitic birds which lay their eggs in the nests of others" is an example. Descriptions of species will be found most helpful, although there is no indication of size nor are the birds drawn to scale. To these descriptions are added brief notes on habits (which sometimes include notes on status and habitat) as well as distribution within this restricted area— for example: "southern South Vietnam" or "throughout South Vietnam."

It is certainly true that "ecology and behaviour of birds [of Vietnam] have been

ignored by most naturalists in the rush to collect new species," as the author remarks. To be sure, after a long walk Deignan's "Birds of Northern Thailand" and Stuart Baker's "Fauna of British India" (2d ed.) may be consulted after reaching home, for they are bulky books. For example, Mr. Wildash says of *Garrulax leucolophus*: "Frequents lowland forest and brush. Sings most strikingly in unison. Sociable. Unafraid of human habitation. Very common." Both Baker and Deignan correctly observe that these birds are extremely curious. It could be said that they come to look at you and when they see you they set up a babble, a strident, almost hysterical cacophony resembling laughter. A day's walk in any part of the world will reward you with no more fascinating bird.

Subspecies have been omitted, presumably in order to restrict the size of a book designed to be used out of doors. The author correctly points out in his preface that many of such subspecies are quite different to their representative counterparts in China, Siam, and India. For example, Number 536, "Red Headed Tit," has a gray head in Vietnam. Here it might properly be said that Mayr characterized 803 species and subspecies in his "Birds of the Southwestern Pacific" in a volume smaller and lighter than this one.

"If I have sayed too little any man that will to adde," said Sir Roger Ascham. It appears that a good many species such as *Plegadis falcinellus*, recorded as a migrant in Cambodia, and *Botaurus stellaris*, taken just north of 17° N, might well be taken in southern Vietnam soon.

Advertised on the dust jacket, and claimed in the preface, is the statement that this book should be useful in ten countries and islands in southeastern Asia. A count of the species of the genus *Garrulax* in both northern and southern Vietnam reveals that fourteen species have been omitted from this book because they have not been recorded south of 17° N. And so it seems doubtful that the book would be altogether adequate even in northern Vietnam. It would be useful, in fact presently indispensable, to the bird-conscious traveler to Vietnam and Thailand, and there is no doubt about it.—JAMES C. GREENWAY, JR.

PENGUINS. By John Sparks and Tony Soper. David & Charles, Newton Abbot, 1967. 263 pp., 33 photos, 24 main text illus. by Robert Gillmor. 45s ($4.95 in Great Britain; $8.95 from Taplinger Publishing Company in United States).

To write a popular yet accurate book on penguins can be a difficult task. For the sake of popularity, the temptation is to emphasize anthropomorphic interpretations of penguin stance and behavior. John Sparks and Tony Soper have admirably converted "cute" penguins to real birds. Inaccuracies tend to be minor and limited to missing decimal points (on page 60, only 1.5 per cent of territory-holding Adélie Penguins change rookeries, not 15 per cent), erroneous temperature conversions (on page 76 we find −40°C converted to −30°F), perhaps some unwarranted generalizations about thermoregulation and finally a few confusing phrases (on page 212, Adélie Penguins "nest at the foot of gentle ice-cliff slopes").

After a brief introduction, the authors thoroughly convince their readers that penguins are birds supremely adapted to an aquatic way of life. The two following chapters on breeding behavior and movements seem too brief and ignore many fascinating problems concerning social behavior and population dynamics. In the discussion of feeding habits and predation, the reader finds good illustrations of high-latitude food chains and the depredations of South Polar Skuas, leopard seals, and man. I most enjoyed the final chapters concerning evolution, discovery, and exploitation. Here

the authors rely heavily on obscure and exciting accounts by early sailors and explorers.

Although there are severe inequalities in what we know about the various species of penguins, the book "Penguins" presents a well balanced picture of all penguins, both their differences and similarities. The combination of easily understood language and wonderfully correct illustrations by Robert Gillmor make this a fine book about a popular group of birds.—R. L. PENNEY.

THE SUNBIRDS OF SOUTHERN AFRICA: ALSO THE SUGARBIRDS, THE WHITE-EYES, AND THE SPOTTED CREEPER. By C. J. Skead, assisted by Cecily M. Niven, J. M. Winterbottom, and Richard Liversidge. Published for the Trustees of the South African Bird Book Fund, by Balkema, Cape Town and Amsterdam, 1967: 7½ × 9¾ in., vii + 351 pp., 10 col. pls., 12 bl. and wh. pls., 41 line drawings. $12.00.

The interest of South Africans in their bird life can be gauged by the sale of Austin Roberts' "The Birds of South Africa." This excellent, well-illustrated guide, with synopsis of habits, was published in 1940, and had already sold 28,000 copies before its revision in 1957. The present volume on sunbirds, etc. is the second of a pioneer series (the first published in 1960, covering the canaries and buntings), and invites comparison with Bent's "Life Histories" and the A.O.U. "Handbook." It aims at covering all that is known about the life histories of South African birds, and in addition, discusses some of their taxonomy and nomenclature.

There is a mine of information in this volume, especially on nectar, flower structure, and flower-feeding habits, and the role of this in pollination by sunbirds and sugarbirds. The sunbirds (20 of the more than 100 known species occur here) despite their adaptation in tongue and bill for flower-feeding, emerge as active, energetic, acrobatic birds, part of the hop-and-flit brigade. They may glean insects from leaf and twig, fly out to snap them up on the way, and eat berries, as well as feed at flowers. Of especial interest is the unique habit of some sunbirds in building their pendant, domed nest by first making "a hanging rope" of material into which the female forces her way. As she pushes out the walls of the cavity she adds material to the inside. Within a species, nest-building may be accomplished in two days, or prolonged to thirty, apparently not a matter of necessity but of motivation.

The sugarbirds, here kept as the family Promeropidae, peculiar to South Africa and with two species, have two striking behavioral differences compared with sunbirds. They have a display flight and build an open, cup-shaped nest. But the main reason for keeping them separate from the species-rich honey-eaters (Meliphagidae) of the Australian area is one of geography.

The three white-eyes (family Zosteropidae) are rather "ordinary" birds, with a predilection for fruit and nectar, but also they eat many insects. This is a family that has its center of abundance in the Indo-Malayan area.

The single African creeper, *Salpornis spilonota* (family Certhiidae), does creep on tree trunks, and is brown, but aside from this has little to indicate relation to the Brown Creeper. However, nothing has been found in its life history to indicate other surer relationships, and it is retained in Certhiidae for lack of a better place for it.

As I have said, this book is a mine of information, but it needs digging out. Skead's readable, narrative text, used for a multitude of detail, at first palls as reading, and then seems an encumbrance to finding information. For the sake of the general reader, references are usually omitted to avoid the destruction of the "flow of the narrative." This is combined with an encyclopedic approach, synonymies, and color descriptions

keyed to Ridgway's color standards. These seem strange bedfellows. I cannot help wondering if more synthesis and succinctness would not have been advisable; to state clearly, even in synoptic form, in places where such would be useful, and then where appropriate, as for general behavior and habitats, use Skead's smooth-flowing narrative prose.

The following illustrates the arrangement and coverage. Each family has an introductory section, varying from seventy-eight pages for the sunbirds to two pages for the creepers, followed by species accounts with such headings as: Local Names (English and others), Distribution in South Africa, Field Characters, Habits, Habitats, Food, Voice, Song, Call Notes, Breeding Season, Courtship, Territory, Nest Site, Description of Nest, Nest Building, Clutch Size, Egg Color, Egg Size, Incubation Period, Nesting Period, Nest Sanitation, Post Nestling Period, Breeding Success, Parasitism, Sundry, and Taxonomy (with synonymies, description and subspecies with diagnosis where appropriate). There is also a bibliography, a gazetteer, and an index.

There are ten very attractive color plates showing male, and occasionally female, and an egg of each species; 12 monochrome plates showing such things as habitats and nests; and 41 line drawings illustrating such things as tongues, bills, feeding habits, poses, and displays. There are also maps of the ranges of each species. In a pocket inside the back cover is a phonograph record of sunbird and white-eye voices.

As a practical point, it is interesting to project the completion of this series if it is to cover all the 813 species listed for South Africa. The first volume, covering the 17 species of canaries and buntings, was published in 1960, this second volume, covering 26 species, in 1967.—AUSTIN L. RAND.

LETTERS TO THE EDITOR

SHARP-SHINNED HAWK MIGRATION IN THE NORTHEASTERN UNITED STATES

Sir:

Mueller and Berger's (Wilson Bull., 79:50–63, 1967.) criticism of my (Wilson Bull., 76:257–264, 1964.) interpretation of Sharp-shinned Hawk migration in the northeastern United States requires comment. However, neither my time nor your space will permit a full answer.

Our interpretations differ concerning the role that wind plays in causing concentrations at points along the Atlantic coast. A part of all hypotheses proposed by Trowbridge (1895, 1902), Stone (1922, 1937), Allen and Peterson (1936), and now, Mueller and Berger (1967) is that wind drifts hawks off course and that northwesterly winds drift hawks from inland to the coastal region, where they continue southward until they are concentrated by the large bays. My hypothesis is that the wind's direction differentially affects the hawks' migratory behavior, northwesterly winds being most effective in causing the passing hawks to divert, that is, to drop to a lower altitude and to fly along the shorelines, while a varying proportion of hawks continues across the bays.

(1) Mueller and Berger contend that a correlation exists between hawk concentrations and northwesterly winds. Such a correlation cannot distinguish between the two hypotheses because each hypothesis states that a northwest wind is most effective in causing concentrations; the one, by drifting hawks, the other, by diverting hawks.

(2) Mueller and Berger attempt to show that there are too many hawks at Cape May to be accounted for by any hypothesis that does not include wind-drift as a component. Their analysis is faulty. First, Mueller and Berger assume that hawks are