REVIEWS

EDITED BY WALTER BOCK

Type specimens of birds in the American Museum of Natural History. Part 1. Tinamidae . . . Rallidae.—James C. Greenway, Jr. 1973. Bull. Amer. Mus. Nat. Hist., vol. 150 (3): 207–345. $5.10.—In this volume Greenway covers the types in the first 34 families in the Wetmore-Peters sequence or "almost half of the types of nonpasserine birds" in the world's largest bird collection. Thus he starts to fill a major gap in the published lists of bird types (skins only). Each name is listed in its original form with citation to the publication. Then follows: current allocation; status of, and information on the types now in the American Museum of Natural History; rarely, notations from the label or field notebook; and more often, remarks on the status of the form, but not always supporting his preceding formal allocation of the taxon. Thus the reader should not stop at the opening statement, e.g., "Now *Leipoa ocellata* Gould. See Hartert, 1929b, p. 44." The work closes with an extensive bibliography and index.

Unusual in such a work is a two-page introduction on the acquisition of certain important parts of the American Museum collection such as the purchase of the Rothschild collections and the results of such expeditions as the Whitney South Sea Expeditions, the Archbold Expeditions to New Guinea, and the Chapin Expeditions to Africa. Unfortunately Greenway does not describe the criteria used in determining holotypes, syntypes, and lectotypes. And it appears that he accepts, too readily and uncritically, lectotype designations and restrictions; one example is *Haliastur sphenurus saracini* Mathews (see p. 260). I would urge that these criteria be outlined in detail in one of the subsequent parts of this type catalog.

Of special interest are Greenway's analyses of speciation in *Pterodroma* (*axillaris* group), *Puffinus* (*assimilis*, *lherminieri*), *Rallus* (*mirificus*), and *Rallicula*. But he fails to explain his manner of measuring, and why he uses "wing-tail index" and "wing-tail ratio" as synonyms (p. 309). I do not understand how W $\times$ T/100 qualifies as a ratio (unless it is a misprint for W/T $\times$ 100, which cannot be expressed in mm), or what he means by "relative lengths of tail to wing" (p. 230), which also cannot be expressed in mm if they are ratios. Remarks on subspecies are, of course, more numerous.

Of the 703 names treated, over one-third are synonyms created by C. L. Brehm and (mainly) Gregory M. Mathews. Surely anyone with stomach enough to tackle the Mathewsian scientific garbage-heap, even with the great help from Hartert (curator of the Rothschild collection, which contained the Mathews' Australian collection), the staff of the AMNH Department of Birds, and especially Charles O'Brien who, among his many other duties, organized the separate type collection, may be pardoned the considerable number of typographical errors (largely in dates, unfortunately), and a few *lapsi* and inconsistencies.

Careful reading of Greenway's list of types shows that the most difficult problem in this compilation stemmed from the scientific and nomenclatural irresponsibility of G. M. Mathews. The current Code of Zoological Nomenclature is ill suited to deal with the plethora of names combined with a lack of concern for designating type specimens that characterized Mathews' work, not to mention clear descriptions of how the new taxon differed from its close relatives. Hopefully the age of such taxonomic work is over. And once workers such as Greenway complete their

monumental task of cataloguing type collections, the work of other avian systematists will be eased considerably.—ALLAN R. PHILLIPS.

Buller's birds of New Zealand.—E. G. Turbott (Ed.). 1967. Christchurch, Whitcombe & Tombs, Ltd. Pp. xviii + 262, 48 col. pls., 6 figs. In slipcase, no price given.—In 1888 Sir Walter Buller published the monumental second edition of his "History of the birds of New Zealand" (609 pp. in 2 vols.), followed in 1905 by his "Supplement to the 'Birds of New Zealand'" (378 pp., also in 2 vols.). The present book purports to be a new edition of Buller's second edition, "now edited and brought up to date." A great deal has been lost.

Condensing a large and important work into a modern edition is never an easy task, and compromises must be made. Turbott's stated solution was to tailor the book for environmentally oriented readers, selecting only the "popular history" from Buller's text, and omitting the technical aspects (Latin diagnoses, detailed plumage and egg descriptions, taxonomic discussions) as well as material derived from other authors and collectors, some of Buller's excursuses that wandered far from the subject at hand, and many of his descriptions of field collecting "likely to give offence" today. I can agree with some of these omissions, but it seems a shame to have lost those excellent plumage descriptions, especially of juvenile stages, that field guides seldom have space for. I also occasionally found important behavioral and other information lost in the bowdlerized passages on collecting, and the omission of field reports by others.

This new "edition" has a superficial similarity to the old: the page and text type bed sizes are almost as large as in the original; and the predominant type size and style are similar, although Turbott avoids Buller's extensive use of small type for introductory material and footnotes. As a result this look-alike edition, with under half the original number of pages, has lost at least two-thirds of the text. An editor and publisher more interested in content than appearance could have reduced type size or enlarged the type bed to include more of the original text.

My strongest objection, however, is in the preoccupation with colored plates. Turbott deleted almost all the species covered by Buller that were not illustrated in color. Hence this is not Buller's "Birds of New Zealand" but only those 70-odd species that were illustrated in color in the second edition, plus a few others that were supplementary to the species on the plates or had especially important field accounts. Given this deplorable limitation, I find it curious that Turbott did not include at least some of the 12 colored plates in the "Supplement." Buller clearly published those later volumes as an enlargement of the second edition, and they contain much valuable information and several handsome plates. As a result, however, we find in the new "edition" such oddities as an editorial note stating that in 1888 Buller did not know of the existence of a fourth species of *Xenicus*, the Stephen Island Wren; yet in the "Supplement" Buller had included an account, with colored plate, of this remarkable species that he and Lord Rothschild independently described in 1894–95.

Color comparisons between the new plates and J. G. Keulemans' beautiful original lithographs are difficult because the latter are now more than 80 years old. In general the colors in the new plates are good, sometimes brighter, sometimes duller, than in the 1888 lithographs. The crisp lines in the originals have been blurred somewhat in reproduction, but perhaps they are as sharp as possible with modern mass printing methods. One inexcusable aspect of the plates is that they

have been reduced (slightly to moderately) without correcting the scales given in the original captions. The most striking example is the Kakapo (*Strigops*) plate; in the original the maximum length of the bird on the plate is 262 mm, on the reproduction it is 229—yet both plates are labeled "one-half natural size." In a few instances the attempt was made to adjust the stated body size to the reduction, but in most cases it was not. If Buller's original sizes were in error, the editor should have noted them.

Other aspects of the overly popular, verging on unscholarly, approach to this book include the lack of distinction between editorial and original remarks; both are enclosed in square brackets, e.g. p. 8 [editor's] and p. 16 [Buller's]. Nor are scientific names retained in the plate captions—a hindrance to readers not familiar with the many Maori vernacular names. The editor also could have done a great service to readers by including a glossary of Maori terms, heavily used by Buller, and another of modern scientific names of the many plants mentioned. The index is inadequate, even for bird names.

On the positive side, Turbott has written a lucid introduction to the edition, with a brief biography of Buller, the publishing history of his books, and an explanation of the present editorial changes to the original text. Turbott has updated the scientific names of the birds and added generally excellent introductory paragraphs to each species account, putting Buller's text into perspective for modern readers, with notes on the species' current status and distribution, remarks on related species, and often brief plumage descriptions and other items of interest. The editor also has obviously been as scrupulous as possible in his presentation of the Buller text. Wherever part of a sentence has been omitted, the usual . . . notation has been used. Deletions of whole sentences and paragraphs were not marked, but in view of the number of these, any notation of them would have resulted in an unacceptably chopped-up looking page for a popular book.

A modern edition of Buller would be extremely useful to have. The original work was limited to 1000 copies, is now virtually unobtainable, and unfortunately printed on a grade of paper that has not withstood the years. This "edition" has fairly good plates, but much of the treatment of the text—and of Buller—I found depressing.—MARY H. CLENCH.

Biochemical and immunological taxonomy of animals.—C. A. Wright (Ed.). 1974. New York, Academic Press. xii + 490 pp. $29.00.—Although this book is not concerned exclusively with birds, it should be brought to the attention of ornithologists for several reasons. First it contains several general discussions on biochemical and immunological approaches in systematic research. Second, a survey of the application of these techniques to birds comprises almost one-fifth of the volume. Finally, two chapters, devoted exclusively to techniques, are sufficiently detailed and informative to be useful to veterans in the field and to workers in related areas who wish to use them.

The body of the text is a series of chapters organized by taxa in which taxonomic techniques, systematic problems, and the results of specific investigations are discussed, but with differing emphases on techniques and interpretations. Thus, the entire book should be read by ornithologists interested in biochemical systematics regardless of whether the chapter happens to deal with mammals, fishes, or insects. Some of the exciting topics discussed are biochemical adaptations in enzymes and

metabolic pathways, but with little positive data as comparative studies in this area are just beginning. Somewhat depressing is the lack of definite conclusions on actual relations between taxa based on biochemical evidence. I feel that this reflects the commonly used survey approach rather than attacking specific problems of evolutionary relationships. Biochemical techniques provide exquisite tools for testing clearly stated hypotheses.

C. G. Sibley and his colleagues have assembled the most complete review of the use of biochemical techniques in birds that I have seen. Under each technique, groups of papers are discussed in roughly chronological order. For some, i.e. the work of Irwin on columbid red blood cell antigens, this is essentially the only review available. The difficulty with this approach is the lack of correlation of data from different techniques. It would be nice, for example, to compare Irwin's work with that of Corbin on tryptic peptides of ovalbumin.

The chapter on birds is devoted primarily to immunological and electrophoretic data, but includes discussion of about a half-dozen miscellaneous techniques applied to several systems. Attention is given to both intraspecific studies and problems of higher categories; an impressive amount of systematic relevant information is included. In some cases this information is difficult to quantify or to interpret. In other cases, either no conclusions are drawn, or the conclusions of the original authors are uncritically accepted without reference to work of others using different techniques applied to the same taxa. In this way, the chapter resembles the compilation approach typical of the "Annual Reviews of . . ." series.

The chapter on microcomplement fixation (Champion et al.) treats a single technique in great detail. MC'F is an extremely sensitive, quantitative method for the investigation of protein similarities. Unfortunately most of the examples are non-avian. This technique is especially appropriate to avian material where purified blood, egg white, or tissue components can be obtained in sufficient quantities. In addition to presenting a lucid, usable protocol, the relationship between immunological distance and sequential differences is explored. Work now becoming available (e.g. Prager et al. 1975, J. Mol. Evol. 3: 243) not only has taxonomic value, but also strong evolutionary implications.

The appendix is an attempt to bring together protocols for collection of protein material and a variety of techniques. As might be expected, much of this information is available in a variety of other sources. I feel that the appendix is rather unbalanced and slights chromatographic techniques, especially molecular sieving and ion exchange chromatography. Relatively little is presented on combination techniques such as two-dimensional electrophoresis and peptide mapping. Such potentially powerful techniques as isoelectric focussing and DNA hybridization are omitted entirely.

The value of this book is that it provides a real feeling for the potential role of molecular techniques in systematics, and presents enormous quantities of data for subsequent analyses. To a limited extent it indicates important directions for future research, but no mention is made of using numerical techniques to analyze biochemical data. My major criticism of this volume is that the current rapid growth of the field has dated much of it. The chapters were completed in 1969–70 and, even with the addenda and postscripts, a considerable amount of exciting recent work is omitted. The editing is spotty and, while the scholarly treatment is of high quality, some authors are given to unnecessary prolixity and verbosity. Yet this is the first comprehensive attempt to review the field on a large scale and is therefore valuable.—Alan H. Brush.

Territory.—Allen W. Stokes (Ed.). 1974. New York, Dowden, Hutchinson and Ross, Inc. (Benchmark Papers in Animal Behavior, vol. 2). Pp. xiv + 398. $20.00.—According to the Series Editor (M. W. Schein), this book is one of a series of "single-topic volumes . . . each . . . a collection of what an expert considers to be the significant research papers in a given area." The topic of this volume is considered by the Series Editor as one of several classical concepts in which "the great work was done several decades ago," an area that has "now subsided into a semi-dormant, but still rumbling, state." Fortunately the group of papers Allen Stokes brought together demonstrates a healthier condition for this field of investigation.

This collection consists of 26 selections (19 dealing with birds) clustered in 8 groups, with the Volume Editor's comments (2–5 pages) introducing each group; most papers (16) date from 1960 or later. Eighteen of the selections are complete papers, the others are abridged in varying degrees. The first four selections are historical and descriptive, from the period 1903–37, and are followed by Hinde's review (1956) of the biological significance of the territories of birds. Seven papers (all dealing with birds) are directed to the "still unsettled" question, "Does territory limit density?" Colonial and group territories are considered in three selections, and intraspecific variation in social systems in three others. Food and energy relationships are addressed next (leading to an examination of mating systems), then evolutionary considerations and, finally, experimental approaches to territory.

In the comments introducing each section a historical perspective is developed, and orientation to significant problems is provided as the sequence unfolds. The editor is to be commended for the diversity of viewpoints represented, and for his guidance to areas of controversy. Although attention is directed to historical "firsts," occasional oversights are evident. For example, territoriality in anurans was documented prior to the late 1960's (Martof 1953, Ecology 34: 165–174). In some instances he might have called attention to particular points in the papers, such as Anderson's extended definition of territory (p. 239). Most investigators would regard lek species (p. 218) as promiscuous rather than polygynous. Subject and author indexes are provided, and the reproduction is excellent, although this reviewer found the extent of reduction of two articles rather annoying.

In some instances the articles selected do not illustrate adequately the problem identified in the editor's introductory remarks. Repeatedly he refers to the lack of a sharp distinction between territoriality and social dominance (pp. 3, 81), recognizing that these phenomena are extremes on a continuum. However the selection supporting this position deals largely with captive subjects, and its author calls attention to a paper that expressed the view earlier. While few would disagree with the observation (p. *x*) that "there are dominance-subordinance relationships in all territorial behavior," this conclusion would have been supported more convincingly by examples from Brown's study of Steller's Jay (1963, Condor 65: 460–484) or Willis's investigations of the Bicolored Antbird (1967, Univ. Calif. Publ. Zool. 79: 1–127). Perhaps the editor was under some constraints to avoid overlap with other volumes of the series.

The titles included in this collection lead one to infer that the concern of the editor is directed largely toward the consequences of territorial behavior, especially the question of limitation of breeding population density. This focus is important for the advanced student, but it diverts attention from those species of other life styles in which the manifestations of area defense may be instructive.

The teacher engaged in the instruction of undergraduates will welcome the accounts of territorial behavior in the early sections of this volume, and the bases for comparative study provided by Orians' account of the blackbirds and the examples discussed by Jerram Brown. He may wish for more accounts illustrating the diversity of territorial patterns, such as territory in ducks and a harem system. A paper dealing with the role of the recognition of the songs of individuals would have been a useful addition. The reading of original papers is of definite value, but more variety could have been achieved by further abridgement of the papers included.

This volume is a useful one in that important papers from varied and sometimes inaccessible sources are included, and the reader is guided to the divergent viewpoints of the authors represented. The latter chapters, which stress quantitative and experimental approaches, demonstrate the vitality and bright future of this area of investigation.—KEITH L. DIXON.

Traité de fauconnerie.—H. Schlegel and A. H. Verster de Wulverhorst. 1844–1853. The Hague, Holland. (Translated by Thomas J. Hanlon, edited by Steven M. Hannon and Barrie D. Watson at Yale College in 1972. First English edition with photographic reproduction of original French text 1975, Denver, Colorado, Chasse Publications, P.O. Box 906.) Pp. viii + 1 + 90 + viii, 18 black-and-white pls. (reproductions reduced to 44.4% of the colored lithographs J. B. Sunderland and Joseph Wolf executed for the authors). $32.50—This "Treatise on falconry" is probably the best work on this subject ever published in the Western world. It is a remarkably fine book, beautifully produced and reproduced. The senior author, Hermann Schlegel (1804–84) was a distinguished zoologist who contributed importantly to science and ornithological literature of the 19th century and was director of the Rijksmuseum van Natuurlijke Historie in Leiden, Holland. Chevalier A. H. Verster de Wulverhorst had authored several books on hunting before his collaboration on the Traité. Although neither the translators nor the editors of the Traité say anything about Verster de Wulverhorst (1796–1882), I was able to find out about him through the efforts of the staff of the University of Florida Libraries. He was an ardent hunter and close personal friend of Schlegel's and contributed many interesting specimens to the Rijksmuseum. In 1833 he was appointed forester and inspector of hunting and fishery in the province of Zuid Holland. In later years his son, Florentinus Abraham Verster de Wulverhorst (1826–1925), became administrator of the museum and held the post for 60 years before retiring at the age of 93 in 1920.

From the dedication "To His Majesty William III, King of the Low Countries, etc., etc., etc.," to the final period following the word "Fin" at the end of the French text, this work is informative, authoritative and fascinating, as well as strangely modern. The authors' foreword is followed by an introduction by the modern editors, the only addition that has been made to the text. In this introduction, the editors explain the standards adopted in translating the 18th and early 19th century French terms for falconry into English and other mechanics of this new edition, as well as giving a brief introduction to the two authors. This is followed by a detailed table of contents, errata for the French text, terminology, instruments, and birds used for hawking. The authors then give detailed descriptions of plumage, range, behavior, and other information—and the sources from which it came—of species of what they term as high-flying and low-flying birds used for hawking.

The nomenclature and systematics are obsolete but not quite as obsolete as one might expect. The material on capturing, caring for, educating, and training hunting birds is far superior to anything by any modern writers on the subject, in any Western language.

Mr. Schlegel and Chevalier Wulverhorst make it very plain to their readers, as do two of the illustrations, that falconry, the "sport of kings," was essentially a spectator sport. The kings, the court, and the guests rode out and watched the professional, paid falconers release and fly their falcons at the particular game each falcon was trained to hunt. The flight at the heron, the flight at the kite, and flights at buzzards, harriers, magpies, partridges, or hares were the spectacles the devotees of hawking enjoyed most often.

The second half of the book tells of falconry history and practices in Asia, Europe, Africa, and *America*. Brown and Amadon's work, "Eagles, hawks and falcons of the world," says (page 147) "None of the African people (except the Arabs of the extreme north), the Australian aborigines, nor the American Indians developed any knowledge of falconry of their own accord." But Schlegel and Wulverhorst report that Herrero, historian of Cortez's expedition to Mexico, found falconry practiced at the courts of Montezuma. In North America neither the native red man nor the settlers from Europe practiced falconry. It is not a part of North American tradition or heritage. In Mexico the Aztecs abandoned it with the practice of human sacrifice after the arrival of the Spanish conquerors.

The book concludes with a chapter on modern (ca. 1850+) falconry, which had died out in Europe almost completely as an aftermath of the French Revolution and the wars that followed it. This book was the result of a small revival of the art under the patronage of a "society of amateurs of falconry" established at Loo in Holland. The last paragraph tells of the major problems the survival of falconry faces and ends with this phrase, "An art once practiced with avidity but generally abandoned in indifference today."

The book has a wonderful annotated bibliography, ca. 1853, in 17 languages, with titles and pertinent materials, both the French and the English versions. While this bibliography is in many ways obsolete, more modern works used by the translators are referred to in the introduction and footnotes.

Any ornithologist who wants one good, authoritative reference work on the dying art of falconry in his library would not err in picking "Traité de fauconnerie" in spite of the total absence of scientific names in the text.—ELIZABETH S. AUSTIN.

Birds of the Harold Hall Australian Expeditions. 1962–70. A report on the collections made for the British Museum (Natural History).—B. P. Hall (Ed.). 1974. Publ. No. 745, London, Brit. Mus. Nat. Hist. xi + 396 pp., 1 color and 10 black-and-white pls., 1 map. £12.00.—When news first reached Australia of the Harold Hall Australian project, a series of expeditions planned by the British Museum (Natural History) and financed by Major Harold Hall to gather comprehensive collections of Australian birds with full biological data, many ornithologists believed that Australian birds were already well known and represented in museums. The Hall expeditions proved otherwise as summarized in this publication. Some of the tangible results are the discovery of a hitherto unknown species, *Pomatostomus halli*, new localities for the rare *Amytornis housei*, extension of the range of *Conopophila whitei* to South Australia, distinctive new subspecies of *Petrophassa albipennis* and *Colluricincla harmonica*, nests of *Petrophassa albipennis*

(with eggs) and *Meliphaga albilineata,* and recognition of the forgotten species *Sericornis keri.* Equally impressive are the 32 papers that have already been published, mainly in The Emu, cataloging the new records and reappraising the status and relationships of races and species of Australian birds based on the expedition's collections. Even more valuable for taxonomic research are the collections themselves—4709 study skins, 786 skeletons, and 910 fluid specimens (all with full field data) and collections of parasites and bird tongues representing 395 species recognized in the present report, including several introduced species. It can hardly be disputed that the Hall expeditions were the most important ornithological expeditions in Australia in the last 150 years.

The present report summarizes their results. An introduction covers the establishment and program of the expedition, outfitting and equipment, collecting techniques, and summarizes new taxonomic results. Following, a detailed narrative of the expeditions provides a comprehensive account of their itinerary and the environments in which the birds were found. An end map provides ready reference to the collecting sites. Virtually all regions of Australia were visited except Tasmania.

The main bulk of the report comprises an annotated "Systematic list of bird specimens," with the species arranged according to the "CSIRO index of Australian bird names" (1969), the only modern list of Australian birds available at the time. For each species the following information is given: specimens taken and data; distribution and abundance on the expeditions; habitat; behavior; food; annual cycle derived from correlating gonad condition, molt, and immatures; impermanent (soft part) colors; parasites; and geographic variation. Appendices cover parasites identified in collected birds, a bibliography of the publications from the Hall expeditions, and account of a supplementary trip to midnorthern Queensland and specimens collected on it, a glossary of botanical "terms" or more appropriately "names," a valuable gazetteer of camps and collecting localities, references cited in the text, a list of vernacular names with scientific equivalents, and an index of scientific names. The last is especially valuable as the main reference to each species is given in bold numbers. (After completing this review, I was informed by staff members of the Sub-department of Ornithology that the list of species given in appendix 3 of the C. B. Frith Queensland expedition had not been checked prior to publication and contains a number of errors.)

The goals of the Hall expeditions were essentially an avifaunistic survey and the infraspecific taxonomy of Australian birds—so must the report of these expeditions be ultimately judged. Geographically, the expeditions' coverage of ornithologically critical areas of Australia is impressive. Of gaps left, those in the Cape York Peninsula and in central Queensland to central Northern Territory are the most significant. In Queensland especially lie the answers to the most demanding questions of taxonomic relationships between and within species groups of major genera of the Australian land bird fauna. These questions can only be answered with further selective collecting in critical areas.

Taxonomically, the report is equally comprehensive. No ornithologist interested in doing taxonomic work on Australian birds in the future can afford to be without it. Under the heading of "Geographic variation," new or summarized taxonomic data are given for some 115 of the species collected. It is somewhat distracting that no references are given to the synonymies and type localities for each species and any forms (subspecies and synonyms) treated taxonomically under each species entry. It might be argued that to include such information borders on pedantry, but it would definitely add to the understanding of ornithologists not familiar with

the systematics of Australian birds. Inconsistencies exist in grouping species under higher categories. Thus grebes and flycatchers are placed under the respective family names Podicipitidae (sic) and Muscicapidae while megapodes and quail are included together under the Galliformes.

There is, as well, a fairly wide disparity in the thoroughness and depth with which the various species have been treated. For some the thin treatment can be quickly excused on the grounds that either insufficient material was collected or that there is, in fact, little to say because the species does not vary throughout the continent, as for example most ducks and herons, which are highly nomadic. In other cases, this cannot be done so easily. Further explanation could have been given in support of lumping the races of *Turnix varia, T. maculosa,* and *T. pyrrhothorax.* And more could be said about variation in most species of *Pardalotus* (except *melanocephalus*), many honeyeaters as for example *Myzomela* (= *Certhionyx*) *pectoralis*, most birds of paradise and most bowerbirds (excluding *Chlamydera nuchalis*) to bolster decisions made on them. The sort of bold statement that "these and other specimens examined substantiate Peters' (Checklist of the Birds of the World or other references) opinion that 'race y' should be considered a synonym of 'race x' " is difficult to accept when no reasons are given. These statements stand out perhaps because of the many perceptive and in depth analyses of racial limits and relationships found throughout the volume. Often the value of the taxonomic treatments of each species is compounded by carefully catalogued data on times of breeding and molting, sequences and types of juvenile plumage, and food and general behavior (as in the two races of *Petrophassa*, the parasitic cuckoos, *Mirafra javanica, Lalage sueurii, Rhipidura rufiventris, Myiagra ruficollis*, and *Seisura* (= *Myiagra*) *inquieta*). In most cases, these data are new for Australian birds. So well has this been presented that one often wishes for even a little more to round out each story fully. Thus the careful dating of molt from juvenile to adult plumage in *Coracina papuensis* is marred somewhat by its failure to take into account possible differences in timing of breeding between local populations.

Owing to no fault of their own, the authors' unfamiliarity with the Australian environment and continuity of habitats often led them to separate the end points of apparent primary clines subspecifically, and even, having recognized such clines, to distinguish racial entities within them. Examples of this are to be found in *Butorides striatus*, eastern Australian populations of *Trichoglossus haematodus* and *Podargus strigoides, Cacatua roseicapilla*, and southeastern populations of *Acanthiza lineata* and *Eopsaltria australis.* The converse, i.e. failure to recognize isolates, is seen in discussions of *Halcyon macleayii* and *Malurus coronatus.*

Unequivocal mistakes are few. The sight record of *Menura alberti* from Tenterfield almost certainly refers to the northern isolated population of *M. novaehollandiae*, the observation of *Philemon argenticeps* from Tully is almost certainly of *P. buceroides yorki,* and the "yellow-billed" specimens of *Poephila acuticauda* seen at Pine Creek are probably *P. personata.* The specific epithet of *Corcorax melanorhamphos* is misspelled. The records of *Malurus callainus* from Lake Frome at locality 85 surely represents a double slip of the pen; if not, this is the first record of this form from east of the Flinders Range and within the range of *M. melanotus.* It is also a pity that, insofar as the names and delimitations of some species were changed from the CSIRO Index of 1969, others equally well established or documented were not made also in the interest of nomenclatural stability. Examples are *Acanthiza pusilla* instead of *A. katherina* for the northern rain forest isolate of *A. pusilla* that is just as close to *A. muvina* of New Guinea and Keast's

arrangement of *Amytornis* that includes the *purnelli* groups in *textilis* instead of in *modestus* as well as several nomenclatural changes.

In summary, the Hall report clearly identifies and then goes a long way to fill a hiatus in gathering the basic taxonomic information on Australian birds that has unconsciously hampered systematic study for the last several decades. Extensive collecting of Australian birds all but ceased 50 years ago and by then ornithologists had accumulated sufficient, if poorly documented, data to account for the species of Australian birds and show enough of the patterns of distribution within species groups to denote contact zones and to allow prediction and speculation about infraspecific relationships and the environmental factors responsible for them. But there it stopped. Until the Hall expedition, systematic follow-up sampling in contact zones and areas geographically intermediate between closely related taxa had not begun. Everyone associated with the work of the Hall expeditions, as summarized in this excellent report, must be congratulated for their contribution to this major modern filling in of the gaps in systematic ornithology of Australia. But the work is far from completed.—RICHARD SCHODDE.

The birds of the Bahamas.—P. G. C. Brudenell-Bruce. 1975. New York, Taplinger Publ. Co. Pp. 1–142, illus. by Hermann Heinzel, 4 col. pls., 9 black-and-white pls., 2 maps. Cloth. $10.95.—This guide is the same as the one published in Britain (1975, Collins) entitled, "Birds of New Providence and the Bahama Islands." The latter title is more appropriate as the author did almost all of his bird-watching on New Providence, with the result that species found only on other islands of the group are treated in a cursory and inadequate fashion. It is astonishing that the Bahama Yellowthroat was "not encountered," for this is an abundant warbler on Grand Bahama and Abaco and, at least until the late 1940's, was fairly common on New Providence. There is no mention of Andrew Paterson's "Birds of the Bahamas" (1972, Durrell Publ. Inc.), which lists 16 species omitted in the 1975 guide. Both men have accepted some dubious sight records like that of Fernandina's Flicker on Grand Bahama, and neither book has a hypothetical list.

The illustrations by Hermann Heinzel are very good and will be of great help in identification of birds throughout the Bahamas. It is unfortunate that the Yellow-throated Warbler depicted is a North American migrant rather than the very distinct Bahama race. Also it should be pointed out that the sexes of adult *Loxigilla violacea* are similar, not dimorphic as indicated on plate 12. There are drawings of the Ring-necked Pheasant and Chukar Partridge that were introduced, probably unsuccessfully, on Eleuthera, but no mention of the Turkeys brought to Andros.

In its favor, I must say that Brudenell-Bruce's guide is attractive and well arranged and is almost devoid of misspellings. It is the most useful book yet published on birds of the Bahamas.—JAMES BOND.

Manitoba bird studies/A bibliography of Manitoba ornithology.—Martin K. McNicholl. 1975. Winnipeg, Manitoba, Province of Manitoba Dept. of Mines Resources and Environ. Mgmt. (Box 9, 989 Century Street, Winnipeg, Manitoba R3H 0W4). Pp. 146, 1 frontispiece map of Manitoba. Free for the asking.—This work was the A.O.U. annual dinner party favor and it is very impolite to criticize a gift, but I was asked to review it and the truth will out. The book covers the

literature of the last 50 years quite thoroughly and that of the preceding 25 fairly well, but the author completely neglects the considerable and important literature on the avifauna of the province in the 17th, 18th, and early 19th centuries, which he evidently considered adequately covered in Preble's (1902) bibliography. Preble missed Hakluyt's voyages, and the accounts of many other early visitors to the west coast of Hudson's Bay that Elsa Allen dug out and listed in her fine "The history of American ornithology before Audubon" (1951). Another fault I find is no cross-references. A paper by Stewart and Aldrich is listed under Stewart, and Aldrich's name never appears under the A's. C. Stuart Houston's book published in 1974 is not mentioned, although "To the Arctic by canoe" was written in Manitoba where the artist, Robert Hood, whose drawings are a major part of it, was buried.

I hope the publication will be carefully revised, updated, backdated, and cross-referenced to make it more useful.—ELIZABETH S. AUSTIN.

Let them live/A worldwide survey of animals threatened with extinction.—Kai Curry-Lindahl. 1972. New York, William Morrow & Co., Inc. xxii + 395 pp. $9.95.—This excellent picture of the state of animal evolution in the last half of the 20th century will, I am sure, remain a classic on extinction of fauna during the present period of history for many years to come. It is a pleasure to read a book as well written as this one and as sound in its philosophy, especially compared to some of the hysterically written outbursts of fanatical conservationists during the past two years.

I apologize sincerely for the delay in reviewing this book. It arrived when I was hospitalized and temporary household help filed it in a closet with a shelf of 100 cookbooks, from whence I just rescued it. I hope every biologist will make it prescribed reading for himself and his students because it is a top book that has been overlooked too long.—ELIZABETH S. AUSTIN.

Flamingos.—(29 authors from 15 countries) Janet Kear and Nicole Duplaix-Hall (Eds.). 1975. Berkhamsted, England, T. & A. D. Poyser, Ltd. 246 pp., 7 col. pls., 48 black-and-white plates and numerous drawings and maps by numerous people. £8.00.—This work is a collection of papers presented at the International Flamingo Symposium held at Slimbridge in July 1973. The authors and participants came from 15 nations. Some were ornithologists—most of them from zoos, some were veterinarians, some pathologists, and some wrote like dieticians. They have written on the distribution, breeding, life histories, lice, feeding, plumages, eggs, migrations, banding (ringing), pigmentation, and love life of the flamingos. I have learned more about flamingos than I really wanted to know, and one piece of dogma I doubt—that the family is divisible into three genera and six species. Except for the dissenting voice of Jean Delacour, the vote for recognizing three genera and six species was unanimous. As Dr. Delacour was the only really qualified taxonomist present and his diagnosis is accepted by most other thoughtful systematists, I tend to follow him. As the plumage of flamingos is so easily affected by diet and allopatric "species" freely interbreed, I cannot understand how the group can represent more than four species with two subspecies in a single genus.

The writing of the various papers differs greatly one from another, which is to be expected in a volume of this kind; but I believe the editors could have been more thorough in smoothing out the English before publication.

Peter Scott's introduction would be more meaningful if he had enlarged on flamingos in legend and history and the uses man has made of flamingo flesh, feathers, and eggs. In spite of its faults, parts of this book are very interesting, such as the feeding of very young chicks on flamingo milk, called "crop milk," a substance akin to pigeon milk. One discussion of nutrition may be Greek to many ornithologists, but some articles written in jargon have English summaries and one in verse by D. L. Fox (p. 179) will entertain as well as enlighten the reader. The book ends with nine appendices of material that couldn't very well be fit in elsewhere and a useful, selected 303-title bibliography.—ELIZABETH S. AUSTIN.

To save a bird in peril.—David R. Zimmerman. 1975. New York, Coward, McCann & Geoghegan, Inc. 286 pp., a frontispiece and 11 other black-and-white drawings and maps by Nancy Lou Gahan. $9.95.—When a fine professional writer specializes in scientific subjects for lay readers, the research done for the projects is usually thorough and the results often bring a new point of view to the scientists and the public. Mr. Zimmerman has bound together in this volume seven essays previously published in periodicals and six written for it. They tell of the efforts made to save endangered species: Peregrine Falcon, Osprey, Cahow, Whooping Crane, Nene Goose, Griffon Vulture, California Condor, Kirtland's Warbler, Lesser Spotted Eagle, Saddleback, and assorted Pacific island species. Most of the accounts are quite optimistic but his concluding chapters, titled "Clinical ornithology" and "Epilogue," are pessimistic, pointing out directly and indirectly that species will continue to be extinguished if man continues to destroy their habitats. Mr. Zimmerman has written a good book, and I hope some professors make it prescribed reading for students in ornithology, biology, wildlife management, forestry, and zoology. While the book has no bibliography as such, the appended "notes" serve the same purpose adequately.—ELIZABETH S. AUSTIN.

Bird illustrators/Some artists in early lithography.—C. E. Jackson (Mrs. Andrew B.). 1975. London, H. F. & G. Witherby Ltd. 155 pp., 14 reproductions of hand-colored lithographs, each by one of the artists whose biographies form the major part of the text; 3 black-and-white vignettes by Thorburn. £7.00.—After a 1-page preface and 1½ pages of acknowledgments the author has written an introductory chapter on the techniques of hand-colored lithography and a sketch of its history from 1820 to 1956. The fifteen following chapters are short biographies of fifteen lithographers, some of them short, short biographies. A half-dozen of the artists—Swainson, Lear, Gould, Wolf, Smit, and Thorburn—are well covered, but it seems to me that Mrs. Jackson treated some of the later men cavalierly. Surely artists that died as recently as 1938, 1946, and 1955 are survived by people who could have given more information on them than the author has unearthed.

The book draws attention to the few changes in the advertising and sales promotion of bird books between 1830 and today. The author also stresses the quite obvious traits of Gould as a fine businessman who used and sold other people's art under his own name. He evidently felt that if he paid for a picture it was his.

As far as it is possible to judge from the samples of original hand-colored lithography I have available in Ibis and the "Catalogue of the birds in the British Museum," the reproductions of the plates are good.—ELIZABETH S. AUSTIN.

Falcons return.—John Kaufmann and Heinz Meng. 1975. New York, William Morrow and Co. 128 pp., illus., 106 black-and-white photos, each credited to the photographer, many by the authors. $5.95.—This book has been listed in several places as reading for junior high school students, so before reviewing it I turned it over to two grandchildren, Kristin (13) and O.L.A. III (14). They read it without collusion and reported to me separately. Kristin said, "It's very hard to get through in the middle, but there was only one word I didn't understand." O.L.A. III said, "The part about falconry was very boring, but I liked the beginning and the end." So even our unfledged young are antifalconry, and we've never voiced an opinion to influence them. "Falcons return" is a well-written book, and I agree with the grandchildren. The beginning and the end are the best parts of the book. Anyone, young or old, who has seen the exciting "Peregrine Palace" in Ithaca, New York, will delight in its simply told tale, and those to whom it is a new adventure will be fascinated.—ELIZABETH S. AUSTIN.

A guide to bird watching.—Joseph J. Hickey. 1975. New York, Dover Publ., Inc. Pp. xxii + 252, illus., black-and-white vignettes by Francis Lee Jaques and bird tracks by Charles A. Urner. $3.00—Originally published in 1943, this study of how to do intelligent birdwatching and add to ornithological knowledge is still an excellent source of advice for students and tyros. The introduction to this Dover edition by John L. Bull points out that in the two decades since its original appearance many new techniques have been introduced to bird study. I found only one omission in the text not mentioned by John Bull. A number of birdbanders were netting birds in the 1930's. Oliver L. Austin, Jr., introduced Italian bird nets to birdbanding in 1928, just as he introduced Japanese mist nets some two decades later.

Suggested references (revised in 1974) is a fine addition to the annotated list of bird books that comprises Appendix D and brings that list up to date.—ELIZABETH S. AUSTIN.

Non-game birds of the West/An annotated bibliography.—Steve Trimble. 1975. Denver, U.S. Dept. Interior, Bureau of Land Management (Denver Federal Center, Building 50, Denver, Colorado 80225). 320 pp., 2 maps, 5 unacknowledged mediocre black-and-white drawings on the cover. No charge (but anyone trying to use this work should receive a cash reward and a medal for bravery).—The entries are neither in chronological or logical order. It is misleading from the title straight through to the last piece of annotated jargon. Non-game birds include hawks, owls, herons, shorebirds, and other orders this excrescence of government jargon and invented words ignores. Without an index it is a useless waste of taxpayers' money. The only advantage gained by calling a habitat a biome is in cost of printing.—ELIZABETH S. AUSTIN.

Birds of the South/Permanent and winter birds.—Charlotte Hilton Green. 1975. New York, Dover Publ., Inc. Pp. xiv + 277, 63 halftone plates made from the original color pictures secured from the National Audubon Society—many of them fine portraits by the late R. Bruce Horsfall. $3.50.—The author's South is North Carolina where her book was originally published by that state's University Press. Sixty some odd, short, pleasant, chatty life histories of common birds of the eastern seaboard were originally written for the "Raleigh News and Observer." The book would make an excellent stocking stuffer or birthday present for a teen-age bird enthusiast.—ELIZABETH S. AUSTIN.