LITERATURE

Edited by G. W. JOHNSTONE

BOOKS

Handbook of the Birds of India and Pakistan together with those of Bangladesh, Nepal, Sikkim, Bhutan and Sri Lanka by Salim Ali and S. Dillon Ripley, 1973. Sponsored by Bombay nat. Hist. Soc. Bombay, Lond., NY: OUP. Vol. 8, Warbles to Redstarts. Pp xiv + 277, col. pll (paintings) 8, line drawings, maps. 253 × 180 mm. $A18.00.

Volumes 1–7 have already been reviewed in these columns (70:37; 71:144; 72:119; 73:141; 74:107). The names of several Indian territories have been changed recently (hence the altered title of the present volume) and these are listed (p. xiv). For example, Stuart Baker's old stamping-grounds, the Khasi and Cachar Hills, are no longer in Assam, but in Meghalaya, one of five States into which Assam has been carved.

Volume 8 covers the warblers and some thrushes. Hall and Moreau (1970, An Atlas of Speciation in African Passerine Birds: 204) remark: 'The warblers . . . contain a relatively high percentage of species, and even genera, of uncertain affinities. This is partly due to the lack of definitive "warbler" characters and is aggravated by inadequate knowledge of their anatomy and, in several species, of juvenile plumages, nests and eggs'. One might add that generically the warblers have been over-split; though Hall and Moreau have done much to elucidate generic limits and relationships among African species, an appraisal of the group is badly needed.

Ali and Ripley list ninety species of warblers in twenty-two genera, beginning with the ground-warblers *Tesia* and the bush-warblers *Cettia* and *Bradypterus* (to this little group one could add *Locustella* of Eurasia, *Hemitesia* of Africa, *Nesillas* of the Malagasy region and *Psamathia, Vitia, Ortygocichla* and *Cichlornis* of the Pacific). The authors' description of the antics of *Tesia cyaniventer* is a good example of the delightful cameos that enhance this work: 'Extremely inquisitive and restless; dances ceaselessly among the stalks, now clambering up one, now hopping to the next or jumping up and down the same stem like some clockwork toy . . .'

Although Ali and Ripley place the grass-warblers some distance from the bush-warblers, the two groups may be closely related, if not inseparable. Four species of grass-warblers are listed, in the genera *Megalurus, Graminicola, Schoenicola* and *Chaetornis*. Hall and Moreau (op. cit.), writing of *Schoenicola*, remark: '. . . it is probable that future study will show that there are no valid generic divisions between many of the larger grass-warblers. In Africa *S. platyura*, though smaller, does not seem very different from *Sphenoeacus* . . . nor in Asia from *Graminicola* . . .' In the grass-warblers I would include also *Eremiornis, Cincloramphus* and *Dasyornis* of Australia, *Megalurulus* of New Caledonia, *Buettikoferella* of Timor and *Bowdleria* of New Zealand. In gross morphology, nests and eggs the grass-wrens *Amytornis* closely resemble some members of this group (but see Harrison 1969, Emu 69: 1–8).

A second large group of warblers is the *Prinia-Apalis-Cisticola* assemblage, best represented in Africa. Most species have strongly graduated tails (except *Cisticola*); their eggs are often brightly coloured and many species lay eggs of more than one type. In the Indian subregion the group is represented by *Prinia* (wren-warblers, twelve species), *Scotocerca* (one species, possibly congeneric with *Prinia*), *Cisticola* (fan-tailed warblers, two species) and *Orthotomus* (tailorbirds, three species). Ali and Ripley treat the Plain Wren-warbler *P. inornata* as conspecific with the African *P. subflava*, though Hall and Moreau keep them separate. Four species of *Prinia* and one of *Orthotomus* are reported as taking nectar from flowers of the Bombacaceae, Leguminosae and Lythraceae.

Of thirty-six species described in *Cisticola*, only two occur outside Africa; both (*exilis* and *juncidis*) are found in India and Australia. These two are also notable in being the only two members of the genus said to build two types of nest. One of the types ascribed by Ali and Ripley to *exilis* is a fragile cup sewn to an upright leaf; elsewhere only the African species *erythrops* and *cantans* are known to indulge in leaf-stitching. Because differences between species of *Cisticola* are often very small, one wonders whether two species are not involved, though single species of *Prinia* have also been reported to build two or three types of nest and according to Ali and Ripley, a pair of *P. socialis* may build two types.

Though tailored nests are known in *Prinia* and *Cisticola*, true tailorbirds are species of *Orthotomus*. The authors' account of the nest-building of *O. sutorius* is detailed and fascinating: 'At other times the knots, not being large enough, pull through [the leaf], thereby ruining the labour of perhaps a whole day; but the bird's patience is inexhaustible and as often as a strand snaps, so often is it renewed and strengthened'. Apparently the female alone stitches the leaves. Ali and Ripley note that the dark spots on each side of the throat of *O. sutorius* are primarily because there are no feathers on an area of darkly pigmented skin. This is interesting; for, Hall and Moreau describe a similar condition in two of the three species of *Bathmocercus*, a little-known African genus that may possibly belong to the *Prinia-Apalis* group.

In a third group of warblers I would place the reed-warblers *Acrocephalus* (including *Bebrornis* of the Seychelles and Rodriguez, *Phragamaticola* of Asia, *Lusciniola* of Eurasia and *Calamocichla* of Africa), *Chloropeta, Sylvia* (including the African *Parisoma*) and the tree-warblers *Hippolais*. Of these genera only *Chloropeta* is not represented in the Indian subregion. Ali and Ripley retain *Lusciniola* for the Moustached Warbler and place it between *Bradypterus* and *Cisticola*, but Parker and Harrison (1963, Bull. Br. Orn. Club 83: 65–69) placed it in *Acrocephalus*; it is mainly a winter visitor to India but has bred there. The Thick-billed Reed-warbler '*Phragamaticola*' *aedon* is another winter visitor to India and recent mist-netting has disclosed that it is more widespread than supposed. Ali and Ripley retain the reed-warblers *A. orientalis* and *A. australis* as full species, but others regard them as subspecies of the Great Reed-warbler *A. arundinaceus* and the

Clamorous Reed-warbler *A. stentoreus* respectively. *A. a. orientalis* is a rare visitor to New Guinea and Australia (LeCroy 1969, Emu 69: 119-120), and Crawford (1972, Emu 72: 143) has suggested how it might be distinguished from *A. stentoreus* in the field. In the Indian subregion, as in Australia, *A. stentoreus* seems to be partial to stands of *Phragmites* and *Typha*. The Large-billed Reed-warbler *A. orinus*, known by a single specimen collected in November 1867 (i.e. in winter) in the Sutlej Valley (West Punjab), is considered by Ali and Ripley to be perhaps a rare and isolated form of *A. stentoreus*.

Two of the six species of *Hippolais* occur in India, *H. caligata* and *H. languida*, both breeding. Five species of *Sylvia* are also listed, with the forms *althaea* and *minula* included in *S. curruca*, Lesser Whitethroat; to judge from the authors' description, the song of these two forms seems very similar to that of nominate *curruca* of Europe. Whereas the four genera of this group are not greatly different from one another in the external morphology of their species, the eggs of each are quite distinct.

A fourth group of warblers, absent from Australia, contains the leaf-warblers *Phylloscopus* (including *Seicercus*), the flycatcher-warblers *Abroscopus*, the kinglets *Regulus* and the tit-warblers *Leptopoecile*, all represented in India. The large and difficult genus *Phylloscopus* occurs from Eurasia east to New Guinea and the Solomon Islands; Ali and Ripley list twenty-five species from the Indian subregion (including five of '*Seicercus*'). Although most are typical leaf-warblers in feeding habits, three rather dull species (*P. griseolus*, *fuligiventer* and *fuscatus*) are said to forage on and near the ground. In particular, *P. griseolus* is said to clamber over rocks, to ascend tree-trunks like *Certhia* and to move round and along horizontal branches like *Sitta*—most unusually for a leaf-warbler.

By the arrangement outlined above, Australia has about twelve species of true warblers (Sylviidae) compared with India's ninety. Of the other Australian species that have sometimes been placed with the warblers, the chats (*Ephthianura* and *Ashbyia*, five species) are possibly honeyeaters, whereas *Malurus*, *Stipiturus* and the *Sericornis-Acanthiza* assemblage are of uncertain relationships (Sibley 1970 Bull. Peabody Mus. nat. Hist. 32; Parker 1973, Emu 73: 19-20).

Volume 8 finishes with seven genera of thrushes (Turdidae), none of which occurs in Australia. The authors list the Rufous Chat as *Erythropygia galactotes*; other workers place the nine species of *Erythropygia* in *Cercotrichas*. Hall and Moreau (op. cit.: 115) note that although the behaviour of *Cercotrichas* is thrush-like, its young are unspotted like those of the warblers. According to Ali and Ripley, the young of *C. galactotes* resemble the adults but have broad pale edges to the tertials and wing-coverts and very thin brownish edges to the breast-feathers.

S.A.P.

The Natural History of New Zealand edited by G. R. Williams, 1973. Wellington: A. H. & A. W. Reed. Pp 434, b. & w. photographs 49, tables 20, many figs. 248 × 190 mm. $A16.95, $NZ15.50.

This book gives a background of basic science to the natural history of New Zealand, with emphasis on ecology. It contains sixteen chapters by eighteen contributors. Eleven chapters discuss the New Zealand environment including such general subjects as climate, the surrounding oceans, vegetation and islands, interspersed with accounts of insects, fish including fisheries, reptiles, birds and mammals. This arrangement looks unsystematic but it is informative. The preface explains that it was adopted because no authorities could be found to discuss major habitats such as Antarctic Beech *Nothofagus* forest or tussock grasslands. There is a useful index of subjects and authors.

However, two aspects provoke comment. First, the occurrence of land-bridges is mostly favoured instead of continental drift to explain dispersal of ancient forms. Secondly, one early chapter in the book would have New Zealand defined as a separate biogeographical area, a modern version of a once-popular concept originated by the English ornithologist, Professor Newton. Other accounts discuss in detail the biological affinities with Australia and elsewhere, but do not produce any evidence to justify exclusion of New Zealand from the Australasian zoogeographical region. These different interpretations could confuse an unwary reader.

The chapter on birds by G. R. Williams describes in ecological terms the origins and contemporary status of birds in New Zealand with comment on Australian or other affinities and a history of bird-study in New Zealand. Other contributions useful to ornithologists are those on the oceanic environment (J. W. Brodie), on islands (I. A. E. Atkinson and B. D. Bell) and on conservation (J. T. Salmon).

In the context of this book, bird-study relates principally to ecology and its history as given should not be read as a general history of ornithology in New Zealand. The account defines correctly four periods of inquiry: a century starting from Cook's first voyage of discovery; the period controlled by the New Zealand Institute (1868–1900); the decades to 1950; and the next twenty years. The Australian influence during 1900–1940 is mentioned briefly, but with reference to taxonomy only. Although studies on bird ecology have been often derivative and hindered by difficulties peculiar to New Zealand, they have advanced in technical competence and in the range of topics studied, particularly since 1950.

Several fields of inquiry are detailed where progress significant for ecologists could still occur. This assessment is welcome in view not only of likely new extinctions, including the Kakapo *Strigops habroptilus* and the Orange-wattled Crow *Callaeas cinerea*, but also of current plans to use much of a major ecosystem of *Nothofagus* forest on the West Coast and in Southland of the South Island for commercial purposes.

H.L.S.

Avian Anatomy—Integument Parts I & II by Alfred M. Lucas and Peter R. Stettenheim, 1972. Agriculture Handbook 362. Washington: US Dept of Agriculture and Michigan State University. Pp: Pt I xii + 340, Pt II x + 410; figs 422. 304 × 238 mm. $US13.00 per two-part set. (Available from the Superintendent of Documents, US Govt Printing Office, Washington, DC 20402.)

The two volumes of this publication are part of a series, produced by the US Department of Agriculture's Avian Anatomy Project, on the detailed study of the gross and microscopic anatomy of birds. The study will describe each system of the body in turn; these two volumes are concerned with the integumentary system.

This work comprehensively describes the avian integument marco- and microscopically. No ultrastructural descriptions have been included. Though the authors have drawn widely on available literature, the text is predominantly the result of their own careful and detailed investigations. Throughout, the authors have tried to establish an accurate anatomical vocabulary for birds.

International acceptance of such a vocabulary would avoid the present confusion and inaccuracy.

The authors have used the domestic chicken as their model. For each aspect, a detailed description for the domestic fowl is given, and then compared with data for the turkey, white Pekin duck, common *Coturnix* (quail) and domestic pigeon. By frequent reference to non-domestic birds the authors expand and amplify their descriptions and illustrate points of comparative anatomy. Altogether reference is made to over 300 species, listed at the end in systematic order. Comparative anatomical features are emphasized throughout and though description of the domestic species is a major end, it is also presented as a firm basis for comparison with other species. The text is amply illustrated with excellent drawings, photographs and figures.

Chapter 1 deals with basic anatomical terminology and avian topographical anatomy, so that areas of skin may be related and named accurately in accordance with the muscular, skeletal or other parts of the body with which they are associated. Chapter 2 discusses the principles of pterylosis, the separation and designation of feather-tracts, and apteria in relation to underlying anatomical features. Chapter 3 is concerned with details of pterylosis and ptilosis (the plumage as a whole). By first developing and expanding the concepts of anatomically defined feather-tracts in accordance with Chapters 1 and 2 and then adding different types of feather to these tracts, a detailed picture of the complete plumage is built up.

Chapter 4 discusses the sequential development of feathers and plumages. Excellent multicoloured figures and diagrams illustrate the sequence of development and moult as it applies to various feather-tracts. In Chapter 5 the structures of various types of feathers are discussed. Part I concludes with Chapter 6 in which the occurrence of different types of feathers within the various feather-tracts is examined.

Chapter 7 is concerned with the development and formation of feathers and with the colour of skin and feathers. In Chapter 8 the authors present detailed descriptions of feather and apterial muscles including their blood supply, innervation and physiology. This chapter is particularly well illustrated and a tribute to the technical skill and effort of the authors and their assistants. Chapter 9 describes the histology of various areas of the skin, its adnexia and derivatives other than feathers. In Chapter 10 the authors detail the techniques they have found useful in the preparation, examination and illustration of their specimens.

A full and complete bibliography follows Chapter 10. A useful list of anatomical terms with Latin-English equivalents is given, ranging from general names of parts and areas of the body to detailed terminology of specific components of the avian integument. A comprehensive index, including not only anatomical subject matter but also species and authors cited throughout the text, concludes Part II.

This is an outstanding publication, the more notable in that it is just one of a series. Further volumes will be anxiously awaited. The scope of the investigation and the detail applied to each facet of the study are remarkable, as are the lucid description, the excellent illustrations and the sequential logic of the whole presentation.

Though based on domestic avian species, this work will find much wider acclaim than that of veterinarians and poultry scientists. It not only describes the integument of the domestic species but, perhaps more importantly, also establishes a sound basis for accurate comparative anatomical description. This, together with an internationally accepted anatomical nomenclature, will enable all interested in birds to communicate with one another exactly.

These volumes are an extremely worthwhile acquisition for biologist, ornithologist, veterinarian and poultry scientist. Couple the quality of their contents with the remarkably low price and you have a bargain.

K.E.H.

The Fiat Book of Common Birds in New Zealand, Vol. 2. Mountain, Bush and Shore Birds by Janet Marshall, F. C. Kinsky and C. J. R. Robertson, 1973. Wellington and Tokyo: A. H. & A. W. Reed, Pp. 96, pll 41, ring-bound with embossed polythene dust-jacket. 120 x 185 mm. $NZ1.95.

This small book is the second in a series intended as aids to identification of common New Zealand birds in selected habitats. It is in the same style as an earlier volume (Town, Pasture and Freshwater Birds), reviewed in these columns (73:200), except that its index makes needless reference to the species featured in the earlier work. It details in taxonomic sequence forty-nine species (paintings again by Marshall), characteristic this time of unmodified habitats. Of these, twenty-three can be found in Australia or its dependencies and the rest in New Zealand only.

Although the Blue Duck *Hymenolaimus malacorhynchos* is presented as a bird of the forest and mountains, it haunts freshwater streams and so belongs more properly to the section on waterfowl in the earlier volume. The introduction explains that some common birds are wary and seldom seen in the bush. However, some of the species dealt with, including the Kaka *Nestor meridionalis* and Red-fronted Parrot (known as Red-crowned Parakeet in New Zealand) *Cyanoramphus novaezelandiae,* are conspicuous, but are not common in the sense of having ordinary or prevalent status.

H.L.S.

Birds of Victoria: Dry Country by A. J. Reid, N. J. Shaw and W. R. Wheeler, 1973. Melbourne: Gould League of Victoria. Pp 91, col. pll 41, figs 29, b. & w. pll 8, maps 5. 170 x 115 mm. $A1.50.

In producing their fifth field guide to the birds of different regions of Victoria, the authors have retained the enthusiasm and the imagination displayed in the earlier volumes, already reviewed (70:39, 71:185, 72:190–191 and 73:200). The region covered is the mallee country of north-western Victoria and introductory articles deal with topics as diverse as its geological and anthropological history, past and present land-use, adaptation and speciation in dry country and animals' tracks. Even without the bird illustrations and descriptions, which constitute the bulk of the book, this is a valuable introduction to the country it describes.

The illustrations by Susan McInnes are even more effective and better reproduced than in earlier volumes, and as before, the habitat is sketched in: these birds are living in their own country, not in a museum.

Other publishers will admire the achievement of the Gould League in keeping to a price of $A1.50 per volume of similar size over four years while maintaining a high standard of form and content. The continued demand for all volumes, as demonstrated by their availability over these years, has no doubt contributed to this achievement. It is clear that, as the public becomes even more conscious of the natural world, and as more people travel and wish to know more about what they see, these inexpensive specialized field guides are receiving a wide and well-deserved welcome.

R.A.B.

PAPERS

Monographie der Gattung *Erythrura* Swainson 1837 (Aves, Passeres, Estrildidae) by V. Ziswiler, H. Guttinger and H. Bregulla. Bonn. zool. Monogrn (2), 1972. Pp 158, col. ills 2, b. & w. pll 34, figs 22. 240 × 165 mm. In German. DM35 (obtainable from Zoologisches Forschunginstitut, Adenauerallee 150–164, 53 Bonn 1, Germany).

Unlike other estrildids, the waxbills and mannikins of the savannas and grassy plains of Africa and Australia, the genus *Erythrura* comprises species found mostly in forests in south-eastern Asia, Indonesia, the Philippines, New Guinea, the eastern side of Cape York Peninsula, parts of Micronesia, Melanesia and Polynesia east to Fiji and Samoa. This monograph is based on extensive field studies of these birds by two of the authors, on detailed behavioural observations of captive birds (five species of *Erythrura* have been bred by the authors and at least eighty-five young have been obtained) and on morphological and histological investigations of the digestive system. It is divided into three.

Part I (by Ziswiler and Bregulla) gives a brief characterization of all species and subspecies of *Erythrura*, including details of plumage, geographical distribution, habitat, voice, reproduction, food and feeding behaviour.

Part II (by Ziswiler) contains an analysis of the nutritive system and describes the correlations between food, feeding behaviour (including seed-opening mechanisms) and related morphological characters such as the shape and structure of the bill and of the horny palate and the structure of several parts of the alimentary tract including salivary, oesophageal and stomach glands. Because the food is extremely varied (probably more so than in any other genus of estrildid), and because several species are highly specialized fruit-eaters, though others tend to be omnivorous, this analysis is of general interest and points to the occurrence of several marked parallel adaptations. The selection pressures that have led to the adaptive radiation of the genus are discussed in detail. Interspecific competition and the colonization of islands, the vegetation of which differs from that of the area of origin, seem to be the main factors.

Part III (by Guttinger) is devoted to behaviour. It contains detailed descriptions of courtship, nest-building, incubation, care of the young and ontogenetic development of behaviour, as well as an analysis of the calls and songs by means of sound spectrography. The courtship behaviour of the three species *E. hyperythra*, *prasina* and *viridifacies* resembles the general pattern of courtship of many African and Australian species of estrildid, whereas the remaining species of *Erythrura* have entirely different, highly ritualized displays. Within these two groups, behaviour is very similar. Obviously, therefore, the genus *Erythrura* consists of two rather distinct groups, of three and seven species respectively. The final discussion deals with the possible relationships of *Erythrura* with other genera of the Estrildidae, especially with *Chloebia* (Gouldian Finch *C. gouldiae*) and several species of the genus *Lonchura*. There is increasing evidence that all three genera have evolved from a common stock.

Altogether, this is a very thorough study of a highly interesting avian genus. Because of the different approaches used and the diversity of characters that have been studied, it provides conclusions of rather general interest. It will certainly exert a stimulating effect on many fields of research.

K.I.

Bird strikes to United Kingdom civil aircraft 1966–1971. Airworthiness Technical Note (106). May 1973. London: Civil Aviation Authority. (Obtainable free of charge from the Publications Officer, Civil Aviation Authority, Airworthiness Division, Brabazon House, Redhill, Surrey RH1 1SQ, England.)

This report analyses bird strikes, reported world-wide by UK operators, to aircraft of over 5,700-kg maximum weight, during the six years 1966–1971. It presents a good summary of the problem. Bird strikes are rather rare, less than four per 10,000 movements, and only about 6 per cent of these cause significant damage to the aircraft. Damage may be slight or cause total loss of aircraft. Loss of human life is extremely rare.

Remedial actions include strengthening the design of new aircraft, reducing the numbers of birds near airfields and reducing the speed of low-flying aircraft. Damage by birds is proportional to the cube of the speed of the aircraft. Radar is being used in North America and Europe to monitor the movements of migrating birds, with special attention to the large swans and cranes. Details of distribution and altitudes of migrating birds are supplied to pilots just as is information on the weather.

G.F.v.T.

AUSTRALASIAN ORNITHOLOGY

A continuing and selected catalogue of papers compiled by A. R. McEvey

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