Reviews

Albinism and melanism in birds.—Under this title Bryan L. Sage (*Brit. Birds*, 55, No. 6, June 1962, pp. 201-225. Fig.; 8 plates) gives a modern summary of the somewhat neglected subject of heterochrosis or colour variations in plumage, with particular reference to the causes and effects of normal and abnormal melanin formation (melanogenesis); hereditary, and, we think, less-important non-hereditary aspects are given equal consideration. Among the latter are changes due to diet, senility, shock, disease and injury, and even temporary living conditions, such as insufficient exercise.

In the paper under review the terms "albino" and "albinism" are used in a wide sense to refer to any individuals that are completely or partly white, regardless of other considerations, such as whether the condition is genetically based and irrespective of the colour of the soft parts.

Strictly defined, albinism is an hereditary condition, generally recessive, in which the development of the *melanin* pigments is totally suppressed in all parts of the body from birth; the eye colour is always pink. In our opinion, the term "albino" should be restricted to these pink-eyed individuals even when they retain the carotenoid pigments, which are responsible for the reds and yellows often occurring in special areas of the body plumage and the legs, feet and bill.

In some animals, albinism "masks" other hereditary colour changes, but in birds it would appear to behave as a simple Mendelian recessive without any complications. Albinism has been induced, by in-breeding, in the Mallard, Collared Dove and Java Sparrow.

There is no proven instance, and it seems unlikely that a true albino will revert to normality. Also, it is not possible for a true albino to develop from a state of normality.

Albinism is a widespread phenomenon in the living world; it is of great interest to geneticists and evolutionary theorists; and it would be safe to say that, among birds, as in other members of the animal kingdom, it occurs regularly in the wild in every known order and family in every part of the globe. Sage (p. 223) provides a list of species in which albinism has been recorded in the British Isles (Appendix A).

The formation of melanin in birds is caused by an enzyme, tyrosinase, which is produced in the body tissues by the genes responsible for normal colour; this enzyme acts as an organic catalyst in the oxidization process of amino-acids in the body cells. Hormones and vitamins can influence melanogenesis. A deficiency of Vitamin D in domestic poultry results in abnormal deposition of excessive quantities of black pigmentation in feathers.

Melanism, the excessive deposition of melanin pigments, is the exact opposite of albinism; abnormal individuals are generally blackish or dark brown in colour. It is probably much less common than albinism, although it can easily be overlooked in dark-coloured species and, unlike albinism, it is generally a Mendelian dominant.

The dominant nature of melanism often results in populations where the melanistic phase is very numerous, a situation which Sage (p. 215) classes as "normal", e.g. in the Snipe, *Gallinago gallinago*, certain birds of prey, and the Little Egret, *Egretta garzetta* subsp.

Under certain ecological conditions natural selection appears to favour a melanistic type, e.g. the Desert Lark, *Ammomanes deserti*, of Transjordan, and the Partridge, *Perdix perdix sphagnatorum*, which lives on black, peaty soils in north-west Germany. Possible "industrial melanism" in the House Sparrow, *Passer domesticus*, at Liverpool, England, was first suggested in the year 1937, but the present situation in the same area is unknown.

Melanism can be induced by selective feeding. Although most albinos are, physiologically speaking, pathological to a greater or lesser degree, and have a poor expectation of life, the same has not been observed in melanistic

mutants. Temporary melanism is known and, as with albinism, the hereditary variety is known from most groups and families, even when white is the normal "colour".—H.T.C.

Birds of the World, by Oliver L. Austin, Jr., and ill. by Arthur Singer, 1961, pp. 1-316, Golden Press, New York. Price $14.95.

Dr. Austin's *Birds of the World* is surely among the most magnificently presented books on birds available to the lay ornithologist. His text, crammed with information, is written in a popular and interesting style and occasionally enlivened by his wide experiences with birds around the world; the illustrations, all in colour, are superbly designed to catch the eye of anyone with a love of birds.

The introduction covers the characteristics of birds, their evolution and distribution, and the preservation of our earth's birdlife; then follows the major section—a detailed enumeration of avian orders and families, arranged in general after the system of Wetmore; and finally there is a wide yet comprehensive bibliography.

But the aim of Austin's herculean task has been to portray, in the light of current knowledge, the characteristics and relationships of the world's orders and families of birds; how well has this been done? First, there is a noticeable unevenness in the content of the text. Compare the disproportionate space allotted to the Common and Arctic Terns with the three half-pages devoted to the Meliphagidae, which so dominate the Australian and Papuan avifauna; in the Psittacidae, the reference to the Australo-Malaysian parrots, the most diverse in the family, is almost negligible; the Kookaburra dominates the discussion of the Daceloninae, while the queer and ornithologically more interesting Shovel-billed Kingfisher, *Clytoceyx rex*, of the hill rain forests of New Guinea is omitted; the prominent Australian sylviid groups, *Acanthiza*, *Sericornis*, and *Gerygone*, are not even mentioned. The relatively detailed treatment of the habits and ecology of European or American groups, such as the Tyrant Flycatchers, is often in striking contrast to that given some Australian groups, which is often either rather vague or emphasizes minor aspects. For example, two Australian members of *Petroica* are said to be roadside and dooryard species. Assuming Austin drew his information generally from the Australian literature, this is understandable and simply emphasizes the need for sound study of the habits and ecology of our birds, having as it does a fundamental bearing on measures for their conservation. Yet despite these criticisms, the overall treatment is both broad and reasonably balanced.

The information used in the text, as judged by what appears under predominantly Australian groups, is not always accurate; we are told that the genus *Ailuroedus* (cat-birds) comprises only two species, and the sexes of all species of old-world orioles are said to differ in colour. Moreover, while the taxonomy of some groups is very modern, for example the herons (after Bock), Austin has missed other revisions now generally accepted, among them being Mayr's transference of the peculiar *Cnemophilus* from the Bower-birds to the Birds-of-Paradise. Even so, the treatment of each family, though general, is fairly proportioned and factual.

Other rather serious shortcomings in the text are the number of typographic or spelling errors, notably in illustration captions, and the non-use of scientific names, which are an international standard of reference, and, for example, would have helped in sorting out the chapter on the Cracticidae.

A major feature of the book are Arthur Singer's illustrations. These are generally excellent as regards colour, life-likeness, and design; colour reproduction is first rate. Australians will doubtless find the large size of the illustrations particularly impressive. There are a number of minor errors in colour, particularly (and understandably) in soft parts: thus the legs of the adult male *Paradisaea apoda raggiana* are here blue instead of brown-fawn,

the iris of the Australian Chough has been coloured rather dull brown, and the cere of the Cape Barren Goose is much greener in life. Perhaps the most unfortunate error is the figuring of the Budgerigar in blue instead of grass-green. But, overall, the illustrations serve their purpose admirably.

Those interested in bird protection will also find a good deal of value in the book where, among other things, a succinct account is given of the extinction of the New Zealand Huia.

In summary, here is a fine modern survey of the earth's birdlife that is written for the lay bird-man. Even though professional ornithologists and advanced amateurs will find too many flaws for comfort—to them it will be a work that did not quite come off—the layman will overlook them as he discovers the wealth of information so ably told within the covers of this book.—R.S.

Birds of Western Australia, by D. L. Serventy and H. M. Whittell, 3rd edition, 1962. Paterson Brokensha Pty. Ltd., Perth, W.A. Price 50/-.

The first edition of this important and informative guide to the birds of Western Australia appeared in 1948 (reviewed, *Emu*, Vol. 48, p. 245). Its appeal was such that a second edition was issued in 1951 (reviewed, *Emu*, Vol. 52, p. 69). A third edition, revised to include the latest available information, and slightly re-arranged, has now appeared (issued April 1962). Additional colour-plates and text figures add to the usefulness of the book as a field guide, not only to those interested in the avifauna of the area treated—that portion of Western Australia south of the Kimberley border—but to ornithologists in other parts of Australia.

In all, some 369 birds are discussed, 13 more than in the previous edition. The three main sections of the book, apart from the introductory matter, deal with the history of Western Australian ornithology (commencing in 1618), bird geography, and the birds. Interesting and, in many cases, original observations accompany most of the species described. The recent rediscovery of the Noisy (Western) Scrub-bird at Two People Bay, near Albany, is noted and detailed field notes are given on that species which, like its eastern relative, is an accomplished mimic.

It is heartening to learn that the Western Whipbird and the Bristle-bird (the western form—*longirostris*—of the Eastern Bristle-bird) still occur in restricted areas and it is hoped that these somewhat specialized "relict" species will survive possible extinction, as they will, providing there is little or no interference with their haunts; the key to the matter being, of course, habitat preservation.

The *Birds of Western Australia*, then, is a handbook of wide scope and a very useful work both to Australian and overseas ornithologists.—K.A.H.

Biology of the Giant Petrel.—An important study of a sub-antarctic seabird, which was carried out by John Warham on Macquarie Island, is described in his paper: "The Biology of the Giant Petrel *Macronectes giganteus*", in *The Auk*, 79: 139-160, April 1962. Warham considers the breeding population to be about 10,000 birds, and the total population, allowing for all classes of non-breeders, as certainly much greater than that.

The main body of breeding birds nests in 70 colonies, and the birds remain faithful to their own colony. About 8 per cent of the birds are of the white phase. The incubation period is 58-61 days. Chicks are fed largely on seabirds, and the young fly at 102-117 days.

The paper contains much information about displays, and on oil-spitting by the chicks.—E.F.B.