

occurrence with interesting bits of life history gleaned from other publications or from the author's personal experiences, forming a very readable and instructive account which cannot but prove of value to visitors to what we trust may soon become another of our National Parks. The Baileys have prepared similar admirable guide books or reports on the natural history of parks that have been already established and the present publication should emphasize the importance of saving this region for the tourist and naturalist.—W. S.

Lowe on the Primitive Character of the Penguins.—In this important and interesting paper¹ Dr. Lowe presents the results of his studies of the pterylosis of the Penguins; of the character of their tarso-metatarsus; of the fore limb—both recent and fossil; together with embryological and myological data.

His conclusions with regard to the ancestry of these peculiar birds are that they are not degenerate flying birds but have sprung independently from a common generalized ancestor, probably some bipedal dinosaur, and from the very beginning have been specialized for an aquatic life. He would therefore divide recent birds into three subclasses "(1) a true aquatic [group], represented solely by the Penguin; (2) a cursorial [group], represented by such forms as the 'Ostriches'; (3) a flying [group], represented by the carinate division of birds."

He further points out that other swimming and diving birds, such as Auks, Grebes, Loons, etc., are merely flying birds, usually still able to fly, which have adapted themselves to an aquatic life. Their pterylosis is the same as in other carinate birds and their osteology even in the most modified forms is that of the true flying carinate type. "They swim and dive in spite of being flying birds." The Penguin on the other hand is the only true aquatic type having specialized directly from a primitive non-flying ancestor.

"The purely aquatic character of the Penguin" he writes, "has not, as far as I can gather, been noticed before. It seems to be one of those things which once said seems obvious enough; but it wanted saying." As Dr. Lowe points out it is hardly conceivable that the tremendous differences between the Penguins and carinate birds could have been brought about by adaptation of the latter to a purely aquatic life when we know from fossil evidence that such birds as the Loons have been swimming and diving since Eocene times with no striking modifications from the feathers or skeletal characters of the flying birds.

The detailed results of Dr. Lowe's studies form most interesting reading for anyone concerned with the phylogeny of birds.—W. S.

Ball's 'Jungle Fowls from Pacific Islands.'—This paper² of Dr.

¹ On the Primitive Characters of the Penguins, and their Bearing on the Phylogeny of Birds. By Percy Poycroft Lowe. Proc. Zool. Soc. London, 1933. Pp. 483-588, pl. I-VI., June 30, 1933.

² Jungle Fowls from the Pacific Islands. By Stanley C. Ball. Bernice P. Bishop Museum Bulletin 108. Pp. 1-121, pl. I-VII. Honolulu, Hawaii, 1933.

Ball's is based primarily upon the collection of ninety-two Jungle Fowl obtained by the Whitney South Sea Expedition in the Society Islands and the Marquesas and is chiefly concerned with the origin and relationship of the representatives of the genus *Gallus* on the islands of the South Pacific.

He has made extensive researches in the literature of the subject and quotes many pertinent remarks from the journals of the early explorers, as well as presenting in great detail descriptions of the several specimens and the results of pigmental studies of the feathers.

Prior to about 1840 it would seem that the fowls existing on these islands were the direct descendants of wild or partly domesticated birds brought by early Polynesians from the Malaysian region and were nearly typical *Gallus gallus* Linnaeus. Subsequent to this date, however, an increasing number of visitations from European vessels brought various strains of domestic fowls far removed in characters from the original Malay bird, from which all were of course descended, and this is responsible for the heterogeneity presented by the present island birds.

Dr. Ball finds no trace of the other wild Jungle Fowls of Ceylon, Java and India in the South Pacific birds and it would seem that only the Malay species was originally introduced. There is considerable variation in size among the birds studied and very great difference in color; some closely approach the coloration of the wild type, but the majority tend to melanism, to albinism, or to an increase in the distribution and intensity of the yellow pigment. All of the various color tints, however, are produced by two melanins and a yellow lipochrome.

Dr. Ball has presented a paper of importance and interest from at least three points of view: the historic, the geographic and the genetic. It will also answer many questions constantly being asked regarding the origin of domestic poultry.

Seven excellent color plates illustrate several types of plumage and the microscopic study of the feathers.—W. S.

Littlejohns' 'The Magic Voice.'—Those who were fortunate enough to attend the Salem Meeting of the A. O. U. will remember Mr. Cope's account of the Lyre Bird and the motion pictures which he brought home with him from Australia, illustrating the success of the photographers of the Antipodes in making possible a knowledge of this remarkable bird to those unable to visit its haunts.

Mr. Littlejohns' attractive little book now presents his excellent photographs of the bird in the performance of its "dance" as well as views of its haunts while the author writes of his experiences in studying it.

The phonograph record which he has made of the song of the Lyre Bird is familiar to many and he has added a detailed timed description of this

¹ *The Magic Voice. A Story of the Australian Lyre-Bird.* By R. T. Littlejohns co-author of "Birds of our Bush" etc. Melbourne, Ramsay Publishing Pty. Ltd. 197-207 King Street. Pp. 1-40. 1933. Price 5 shillings, Robertson & Mullens Ltd. 107-113, Elizabeth St., Melbourne, Australia.