

examples from the structure of various parts of the bird in every discussion of adaptation and development and these chapters impress us as the strongest. His treatment of geographic distribution is hardly up to date but it is difficult to treat this matter adequately in the short space allotted to it, and the same may be said of the chapter devoted to migration. All in all however, there is little to which exception can be taken in the plan and execution of the 'History of Birds.' It should be in every library and it cannot fail to broaden the views of the younger ornithologists and lead them into lines of research which will yield valuable results in the near future.—W. S.

**Headley's 'The Flight of Birds.'**<sup>1</sup>—The serious study of bird flight brings ornithology into the domain of physics and mathematics and since the average ornithologist does not care to go very far into this field of research a book like the present will find a very general welcome, attempting as it does to explain the subject with as few technicalities as possible. Mr. Headley considers flight under several heads: Gliding, Stability, Motive Power, Starting, Steering, Stopping, The Machinery of Flight, Varieties of Wing and of Flight, Pace, Wind and Flight, Some Accessories. Numerous excellent illustrations are taken from photographs of flying birds in various positions and under varied conditions.

In considering the sailing of Gulls against the wind, so often observed from a steamer's deck, Mr. Headley states definitely that the birds are poised on a steady upcurrent of air over the stern of the vessel, caused by the wind striking the sides of the vessel at an acute angle. Mr. William Brewster after careful consideration of this theory dismissed it absolutely after finding that the Gulls sailed equally well, in advance of the vessel, a hundred yards behind, or fifty yards to windward (cf. 'The Auk,' 1912, p. 90). Therefore it would seem that the last word on this problem is yet to be said and it might be profitable as has been suggested to compare the Gulls to the sailing of an ice yacht which, paradoxical as it may appear, goes faster the nearer it is brought into the 'teeth of the wind.'

Mr. Headley's book is a welcome contribution to an interesting subject, the more so since with the aid of gliders and aeroplanes man is beginning to face the same problems which the bird has solved so successfully.—W. S.

**Howard's British Warblers. Part VI.**<sup>2</sup>—The latest installment of this beautiful work consists of colored plates of the Willow, Savi's, Rufous and Icterine Warblers with text relating to all but the last, while four photo-

<sup>1</sup> The | Flight of Birds | By F. W. Headley, M. B. O. U. | Author of "The Structure and Life of Birds" | "Life and Evolution" &c | With Sixteen Plates | and Many Text Figures | Witherby & Co. | 326 High Holborn | London | 1912.—Crown 8vo., pp. i-x + 1-163, with 16 plates and 27 text figures. Price 5s. net.

<sup>2</sup> The | British Warblers | A History with Problems | of | their Lives | by H. Eliot Howard, F. Z. S., M. B. O. U. | Illustrated by Henrik Grönvold | London R. H. Porter | 7, Princes Street, Cavendish Square, W. | Price 21s. net.—Part 6. December, 1911.



gravure plates illustrate attitudes of the first two species during the period of courtship. In addition to the detailed life histories, considerable space is devoted in the Willow Warbler biography to a discussion of the probable cause of the early migration of certain species of warblers and also of the probability of the same pair of migrant birds mating in successive years. The author considers the latter highly improbable in species where the males precede the females in migration. The possibility of one or other perishing during the migrations is very great and if the male bird waited for the arrival of his last year's mate, many a male would remain unmated. The evidence seems to point to his mating with the first female to arrive in his neighborhood and this would seem most advantageous to the perpetuation of the species. There is also much of interest in the account of sexual excitement and display on the part of the male birds in the species treated. Both plates and text are fully up to the high standard set by the previous parts.—W. S.

**Hartert's Vögel der paläarktischen Fauna.**—The seventh part<sup>1</sup> of this notable work on the palæarctic Avifauna comprises the Swifts, Goatsuckers, Bee-eaters, Hoopoes, Rollers, Kingfishers, Woodpeckers, Cuckoos and part of the Owls. Owing to the strict adherence to the International Code the nomenclature takes on some changes and accords with the A. O. U. Check-List in genera which are found also in the Neartic region. *Dryobates* long used in America is adopted for the small black and white woodpeckers and the efforts of our ornithologists in splitting up the North American forms of this genus are far excelled, no less than sixty species and subspecies being listed. *D. major* has sixteen races, and *D. minor* thirteen. *Picus* takes the place of *Gecin*us.

The following new forms appear in the main text or in annotations: *Caprimulgus europaeus sarudnyi*, W. Turkestan; *Dryobates minor buturlini*, Italy; *D. hyperythrus marshalli*, N. W. Himalayas; *Picumnus innominatus malayorum*, Borneo; *P. i. avunculorum*, Nilgiri Hills; *Cuculus canorus bakeri*, Shellong, Khasia Mts.; *C. intermedius insulindae*, Kina Balu, Borneo.

All who have occasion to deal with palæarctic birds will congratulate Dr. Hartert upon the progress of his work.—W. S.

**'A Hand-List of British Birds.'**<sup>2</sup>—A little more than a quarter-century ago the American Ornithologists' Union, in an effort to establish uniformity

<sup>1</sup> Die Vögel der paläarktischen Fauna. Systematische Übersicht der in Europa, Nord-Asian und der Mittelmeerregion vorkommenden Vögel. Von Dr. Ernst Hartert. Heft VII (Bd. II, 1). Seite 833-960. Mit 30 Abbildungen. Berlin, 1912.

<sup>2</sup> A Hand-list of | British Birds | with an Account of the Distribution of each Species in the British Isles and Abroad. | By | Ernst Hartert | F. C. R. Jourdain | N. F. Ticehurst | and | H. F. Witherby. | Witherby & Co., 326 High Holborn, London, W. C. | 1912.—Svo., pp. i-xii + 1-237. Price 7s 6d. net.



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