

to the utmost, and the resultant report discloses the domestic life of the king of birds to its uttermost details. The nest under observation was built on a cliff in a deer forest in Scotland, and a blind was constructed near by, affording concealment to observer and camera, where many long hours must have been spent in watching the daily progress of the young bird. The account is written in most simple and convincing style, with none of the imaginative flights that so often mar such observations, and is a substantial and valuable addition to our knowledge of the life history of a most interesting bird.

The accompanying photographs are beautiful and interesting, almost telling the story by themselves. Considering the large amount of dark, rainy weather encountered during the period of observation, the photographic results seem really remarkable.—H. S. S.

ANNOTATED LIST OF THE WATER BIRDS OF WELD, MORGAN AND ADAMS COUNTIES, COLORADO, SOUTH TO THE FIRST SECTIONAL LINE BELOW THE FORTIETH PARALLEL. BY A. H. FELGER. With three maps. (From *The Auk* XVI, no. 3, July, 1909, pp. 272-291).

The list is a long one, especially so for a section of the country that we are not accustomed to think of as being particularly well situated for the abundant occurrence of water fowl. The recent abundance of these birds is attributed largely to the settlement and farming of the country, with the attendant construction of reservoirs and irrigating systems. Besides the author's personal observations on the birds of the region during eleven years—1898 to 1909—he has drawn upon all the published sources of information available, making the list authoritative and apparently quite complete.

Many species of waders known to breed only in the far north were observed in varying numbers thru the summer, giving rise to the suspicion that they might be found nesting in the region. While this may prove to be true in some instances we believe it to be unsafe to assume as much from the mere occurrence of the birds during the summer months. Individuals of even such northern species as the Western Sandpiper and the Northern Phalarope are known to spend the summer as far south as southern California, and such of these as have been collected have always proved to be non-breeding birds.—H. S. S.

ECOLOGY OF THE HOATZIN. BY C. WILLIAM BEEBE [=Zoologica, vol. 1, no. 2, Dec., 1909, pp. 45-66, Figs. 7-19]. This contribution to the life history of an exceedingly curious and little known bird contains much of great interest. A bird with its crop replaced by a "gizzard," that uses its wings as hands and has

claws on its "fingers," that has the large, heavy feet of a ground dweller and still lives in the tree tops, but can swim and dive if need be, is enough of an anomaly to somewhat prepare us for the author's conclusion, startling as it appears, that the Hoatzin is very imperfectly adapted to its surroundings. This appears to be true to such a degree that it is only the total absence of active enemies that enables the bird to survive.

The numerous excellent photographs add greatly to the interest of the paper. Some of these depict the Hoatzin in life. Others from prepared specimens, show peculiarities of structure, such as the curiously modified sternum, clearly illustrating the feeble flying powers of the bird, and the claw-armed wings of the immature bird, used in clambering thru the branches.

A map illustrates the distribution of the species as known at present, and a bibliography of pertinent literature is appended to the paper.—H. S. S.

RACKET FORMATION IN TAIL-FEATHERS OF MOTMOTS. BY C. WILLIAM BEEBE [=Zoologica, vol. I, no. 5, January, 1910, pp. 141-149, figs. 43-47]. The strange habit of voluntarily mutilating their tail feathers, peculiar to the Motmots, has long been a subject of interest to ornithologists, the mathematical regularity with which the trimming is done, and the object of the peculiar ornamentation, being alike food for speculation. In the present paper Mr. Beebe tells of certain experiments carried out on a living bird, which seem to cast much light on some phases of the question. As remarked by the author, the fact that before the denudation the feathers at the point of trimming are narrower than elsewhere, has been cited as a possible example of the inheritance of acquired characters, the theory being that generations of trimming have produced narrower feathers, which would, presumably, in further generations, be gradually replaced by others entirely bare at that point. On the face of it this theory appears to explain the existing conditions very plausibly, but Mr. Beebe's experiments seem to show that the acceptance of such a belief is but placing the cart before the horse—a complete reversal of cause and effect.

Lack of space forbids our giving an outline of the experiments carried out, but the conclusions reached are briefly as follows: that a certain portion of the central rectrices shows a congenital degeneration of barbs and barbules; that these barbs are strong enough to adhere to the shaft during the growth of the feather, but too weak to survive the manipulation received during preening. Hence that the regularity with which the trimming is done is entirely involuntary on the part of the bird, and not at