

these sets of bird cards which the National Association of Audubon Societies¹ has placed within the reach of all.—W. S.

Abel Chapman's 'Retrospect.'—The veteran hunter-naturalist, Mr. Abel Chapman, has recently published his tenth volume² dealing with his hunting experiences in various parts of the world, embracing, he tells us, no less than sixty overseas expeditions. And since he mentions shooting his first Sanderling in 1868 it is not difficult to estimate the long period that these experiences have covered.

The present book is a miscellaneous collection of essays dealing with a variety of subjects, birds, fish, big game, etc, and through them all the author indulges in discussion of various problems which have interested him during his long and active life.

He still maintains that the Godwit and the Gulls require from three to four years to acquire fully adult plumage and that the color of a feather may change without molt, even if the microscopists have shown that the ducts through which the coloring matter reaches the outer webs of the feather cease to function as soon as the feather is full grown. His contention is if the ducts do cease to function then the color must be transmitted by "some other method as yet unknown." That such changes do occur he says is self evident. This argument is, however, far from convincing.

With regard to protective coloration we are in entire accord with Mr. Chapman's contention that in the vast majority of cases, if not all, it is not proven. The mere conformity of the coloration of an animal to that of its environment does not prove that it is for purposes of protection and as he shows many desert animals supposed to be protectively colored are nocturnal and live in burrows during the day.

We are also in accord with much that he says about the uselessness of too exacting game laws and his contention that sanctuaries are more effective in saving wild life than legislation. The artificial propagation of game necessarily requires the extermination of all species detrimental to game and this as well as (in his estimation) the development of "grouse disease" is the price we pay for "maintaining a stock of game at a higher level than Nature designed." Here comes up the old contention of "To whom does our wild life belong?"

Mr. Chapman's bird chapters are: The Moors in Winter; Sixty Years Wildfowling Afloat; Flight; Flamingoes; and Spanish Memories, though bird matter is scattered through the other chapters as well.

¹ Audubon Bird Cards. Set No. 2. 50 Spring Birds of Eastern North America. From Color Drawings by Allan Brooks. Published by the National Association of Audubon Societies, 1974 Broadway, New York City. Sold in Sets. Price \$1.00.

² Retrospect. Reminiscences and Impressions of a Hunter-Naturalist in three Continents. 1851-1928. By Abel Chapman. Gurney and Jackson, London: Paternoster Row. Edinburgh: Tweeddale Court. 1928, pp. i-xix + 1-353. Price 25 shillings net.

The book is profusely illustrated with drawings by W. H. Riddell, Joseph Crawhall and the author. Twenty of Mr. Riddell's plates are in color and are beautifully and delicately drawn representing a nesting colony of Flamingoes, Grebes, Vultures and various groups of African game animals. Equally noteworthy are Mr. Chapman's sketches of various birds on the wing, notably Vultures and Ducks.

The volume is a worthy successor of the author's other works and will furnish most interesting reading both to the naturalist and the sportsman, very few of whom have had such a wide and varied experience.—W. S.

Gross on the Heath Hen.—Dr. A. O. Gross who has for some years past been carrying on investigations on the status of the Heath Hen under the fund established to prevent its extermination, has now prepared what we fear, in the light of the latest information, may prove to be the obituary notice of the bird.

The paper is published by the Boston Society of Natural History with the aid of the William Brewster Fund and has as a frontispiece a beautiful plate in colors from a painting of the Heath Hen by the late Louis Agassiz Fuertes.

Dr. Gross presents first an historical resume of the species, giving its early history, and an outline of its decrease and increase, and the efforts that have been made to preserve it. In 1890 it numbered less than 200 individuals on the island of Martha's Vineyard, having long since disappeared from the Pocono Mountains in Pennsylvania, the Pine Barrens of New Jersey and Long Island, which had been its last strongholds elsewhere. By 1907 there were estimated to be less than 50 and then every effort was made to increase the number with the result that by April, 1916, they were estimated at 2000 individuals. The next month fire swept over their range on the island and they were nearly wiped out but by 1920 had increased again to over 500, since which time the decrease has been steady.

The various possible causes of decrease are then discussed by Dr. Gross—disease, parasites, cats, hawks, fire, sterility, etc, and his detailed study of the birds from the fire tower on the island is presented.

The food of the bird is considered in detail; there is a list of specimens preserved in museums—208 in all; full descriptions of the various plumages and of the anatomy of the bird and a bibliography. Various illustrations from photographs show the bird's habitat, and old and young in different poses, as well as anatomical preparations. Dr. Gross has prepared an admirable monograph for which all ornithologists are indebted.

In discussing the nomenclature of the bird he concludes, we think rightly, that the Heath Hen and the Prairie Chicken are merely subspecies and that the former should bear the name *Tympanuchus cupido*

¹ The Heath Hen. By Alfred O. Gross, Ph.D. (Bowdoin College, Brunswick, Maine). With twelve plates. Memoirs of the Boston Society of Natural History, Vol. 6, No. 4. Boston May, 1928, pp. 491-588.