

the page, each being about three by four inches. This publication will prove of much use to teachers and children who desire colored pictures in connection with their studies. On the back of each picture is a short text describing the habits, etc. of the bird or mammal, by Carra E. Horsfall. The pictures may thus be cut apart without losing the descriptive matter.—W. S.

Dayton's 'Bird Rhymes.'—This little book¹ deals with the songs and habits of our familiar birds and the aim of the writer is to give a personality to the birds that will make more people interested in them and add a few more to the host of bird protectors.

In his rhymes he shows an intimate knowledge of his feathered friends and their habits, and his pages will doubtless interest the boys and girls to whom he especially appeals. While his writings are, as a rule, rhymes, they are hardly verse, and the author takes many liberties with his meters so that it is not always easy to make them come out right.—W. S.

Chapman on the Nesting Habits of Oropendola.—Dr. F. M. Chapman has spent several months for the past three winters at Barro Colorado Island in the Canal Zone where he has built himself a sort of house in the tree tops, near the laboratory and spends his time in an intimate study of tropical wild life. Leaving the more strenuous investigation of the Andean avifauna which occupied many previous years he has concentrated his attention at Barro Colorado, on an intensive study of the nesting habits of that interesting Icterine bird *Zarhynchus wagleri*, or Oropendola, several colonies of which occupy large trees on the island. The tree in which the colony described in his paper² was located stood close to the laboratory and seated in a camp chair, under his house, with a twenty-four power binocular mounted on a tripod, Dr. Chapman was able to study the birds at about 80 feet distant as they went about their business of life totally undisturbed by his presence.

Few tropical birds have been intensively studied as ornithologists have hitherto been too busy collecting specimens, and consequently Dr. Chapman with an almost untouched field before him has made a contribution of especial value to ornithological literature, in the paper which he has just published and in which the results of his studies are set forth.

He finds that the Oropendola although a permanent resident in the tropics is non-resident and migratory in the immediate vicinity of Barro Colorado, departing after the nesting season is over, returning with remarkable regularity and beginning to nest about January 8. The females in each colony outnumber the males about three to one and the species is

¹ Bird Rhymes and Field Songs. By Bert Dayton. The Palisade Press, 125 Church Street, New York City. pp. 1-47. Price 35 cents.

² The Nesting Habits of Wagler's Oropendola (*Zarhynchus wagleri*) on Barro Colorado Island. By Frank M. Chapman. Bull. Amer. Mus. Nat. Hist. Vol. LVIII, Art. III, pp. 123-166. December 31, 1928.

evidently not monogamous. A male seems to mate with several females but with only one at a time, the association covering only the period of fertilization of the eggs, and he takes no part in selecting the nest site, constructing the nest, incubation or care of the young. The males in each colony however are important as watchmen, warning the females of the approach of danger.

The method of constructing the long bag-like nests which hang conspicuously from the terminal twigs of the branches is described in detail as well as the habits of the birds during this period.

The Oropendolas were found to be parasitized by two other birds, the Cowbird-like *Cassidix* which lays its eggs in the Oropendolas' nests and a Tyrant Flycatcher *Legatus* which harries them until it gains possession of a nest for its own use.

Enemies of the birds were found to be a Hawk and an Owl (*Pulsatrix*), the latter making holes in the bottom of the nest through which the eggs or young are evidently reached. This fact seems to argue against the theory that nests as conspicuous as these are really safe from enemies by virtue of being suspended from the tips of slender branches.

Dr. Chapman's paper is full of interest and is a good illustration of what may be accomplished at a tropical biological station such as Barro Colorado. We trust that he will extend his studies to other species of the jungle.—W. S.

Van Tyne on the Habits of the Toucan.—Another recent paper based on Barro Colorado is Dr. Josselyn Van Tyne's 'Life History of the Toucan *Ramphastos brevicarinatus*.'¹ He selected a later period than Dr. Chapman for his visits to the Isthmus remaining one year to May and twice to August which enabled him to carry his studies through the breeding season.

He finds that this bird has only one molt per year, its flight is simple and direct but very weak, its call is a frog-like croak, and it roosts in hollow trees, folding the tail up against the back. Its food is mainly fruit and the nest cavity is often floored with ejected fruit pits as large as marbles. Like Oropendola it nests in the dry season, but unlike it both birds of a pair share the duties of incubation and the care of the young. The young are naked at hatching and very helpless while the eyes do not open for three weeks. They have the remarkably well developed heel pad which has been described, though rather poorly, by previous authors, and which serves to help support the young bird on the nest floor during its nest-life.

Dr. Van Tyne discusses at length the possible use of the remarkable Toucan bill and the many guesses that have been advanced to explain it. He concludes from careful observations that the bill is not a special cor-

¹ The Life History of the Toucan, *Ramphastos brevicarinatus*. By Josselyn Van Tyne. Univ. of Michigan. Mus. of Zool., Misc. Publ. No. 19, pp. 1-43. January 17, 1929.