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.

relation of structure to function, but is rather the result of an orthogenic evolution leading toward increased size of bill.

This paper, like Dr. Chapman's is of unusual interest and value.—W. S.

Swarth on a New Bird Family for the Galapagos Islands.[1]—Anyone at all familiar with the land birds of the Galapagos Islands would probably be able to forecast Mr. Swarth's conclusions as soon as he read the title of his paper and we confess that we did so when we saw the program of the recent A. O. U. meeting of which it formed a part.

Robert Ridgway and others have shown the necessity, if we should follow a strictly logical procedure, of linking up all of the several dozen so called "finches" which inhabit this group of islands under one generic and probably one specific name, so completely do their characters overlap. Mr. Swarth has gone a step further and has linked up the so called "Galapagos creepers" in the same series, making an almost unbroken line from birds with the great Grosbeak-like bills to those with the slender beaks of Warblers. The various forms showing but little variation in plumage.

None of the authors however have felt that they can carry their reduction of genera and species to such an extreme, as nomenclature would then fail to function and we should have to invent some other sort of terms to indicate which group of these perplexing birds we were talking about. Mr. Swarth, therefore, for convenience recognizes four genera, *Geospiza, Cactospiza, Camarhynchus* and *Certhidea* and if these are proven to represent a continuous series then it is obviously ridiculous to refer the first three to the Fringillidae and the last to the Coerebidae or Mniotiltidae as has usually been done. Indeed Mr. Swarth sees no obvious evidence that the series as a whole can be definitely derived from any of the families mentioned and proposes to let them stand as a distinct family Geospizidae, quoting the case of the Drepanididae of the Hawaiian Islands as a parallel case, some of the heavy-billed forms of this group having also been referred to the Fringillidae.

The interrelations of the Galapagos birds are, however, more complex than those of the Hawaiian species since they have not become so completely differentiated, doubtless due to a shorter period of isolation.

While we agree with most of Mr. Swarth's conclusions we cannot find any very distinctive characters upon which to base a separate family in the diagnosis which he presents but it must be admitted that several of the generally recognized Passerine families are not much better characterized.

Three new forms are described in Mr. Swarth's paper which serve to emphasize his conclusions as to the relation of *Certhidea* to the other genera. *Cactospiza giffordi* (p. 32) from Indefatigable Island proves intermediate between *Cactospiza* and *Certhidea; Camarhynchus conjunctus* (p.

[1] A New Bird Family (Geospizidae) from the Galapagos Islands. By Harry S. Swarth. Proc. Calif. Acad. Sciences. Fourth Series, Vol. XVIII, No. 2, pp. 29–43. January 29, 1919.