

these two forms, as well as of some bones of *Ardea candidissima*. The paper concludes with a 'Synoptical and Comparative Review of the chief Osteological Characters of certain species of North American Ardeinæ.—J. A. A.

**Shufeldt on the Relationships of the Genus *Chamæa*.** \*—Upon a careful comparison of the structure, external and internal, of *Chamæa* with a variety of more or less closely allied forms, Dr. Shufeldt finds its closest agreement to be with the genus *Psaltriparus*, and that it thus has distinctly Parine rather than Troglodytine affinities. The principal forms with which comparisons were made are, among Wrens, the genera *Thryothorus*, *Salpinctes*, *Campylorhynchus*, and *Cinnicerthia*; among Tits, the genera *Parus*, *Lophophanes*, *Psaltriparus*, *Ægithaliscus*, and *Auriparus*; among other birds, the genera *Certhia*, *Regulus*, *Polioptila*, *Accentor*, etc. He first compares in detail their pterylography and topographical anatomy, and then their osteology and more or less their viseral anatomy. Figures of the skulls are given of eight species, including of course *Chamæa*. In the totality of its characters *Chamæa* is found to be much more closely related to the Bush-Tits than to any of the Wrens, unless it be the South American genus *Cinnicerthia*, which, however, is known to Dr. Shufeldt only from an examination of skins and plates representing its external characters. The last-named genus he conjectures, we fear without just grounds, may have, like *Chamæa*, Parine affinities. His passing remarks on *Perisoreus* are of interest, as showing that while in its external characters it so strongly recalls the Tits, it is essentially a Garruline bird, a comparison of the skeleton of *Perisoreus* with that of *Parus* at once dispelling the resemblance suggested by the external characters.—J. A. A.

**Shufeldt's 'Studies of the Macrochires'.**—Under this title † the author treats at some length several forms not belonging to the group of Macrochires, as *Ampelis cedrorum* (pp. 306-318), *Trogon mexicanus* and *T. puella* (pp. 318-338), and the North American Hirundinidæ (pp. 352-355) the latter with special reference to their relationship to the Swifts. *Ampelis*, as shown by Garrod, may be regarded as "an average Oscinine bird," with, says Dr. Shufeldt, "here and there in its economy traces of a Clamatorial type, such as is shown by its free lachrymal bone and a few other minor points." It apparently has no close morphological relationship with the Hirundinidæ. In the present memoir it was chosen on account of its average Passerine character for comparison with the other forms treated.

\* On the position of *Chamæa* in the System. By R. W. Shufeldt. Journ. of Morph., Vol. III, No. 3, pp. 475-502.

† Studies of the Macrochires, Morphological and otherwise, with the view of indicating their Relationships and defining their several Positions in the System. By R. W. Shufeldt, M. D., C. M. Z. S., Captain, Medical Corps, U. S. Army (communicated by W. K. Parker, F. R. S., F. L. S.). Journ. Linn. Soc., Zoölogy, Vol. XX, pp. 299-394 pll. xvii-xxiv. (Published Oct., 1889.)

The Trogons are found, as would be expected, to be widely separated from the Caprimulgin forms and the Hummingbirds, and to have no very close relationship with either the Cuckoos or the Kingfishers.

The Swallows are considered as a specialized group of Passeres, considerably modified through "physiological adaptations of structure."

As regards the general conclusions reached respecting the Macrochires, Dr. Shufeldt contends that the Caprimulgin birds are so far removed in structure from all other birds that they should rank as a separate order, the Caprimulgi, with the Owls as their nearest kin, and as having "no special affinity with the Cypseli, much less with the Trochili." He proposes also to give the Swifts the rank of an order, Cypseli. "This order, were it represented by a circle, would be found just outside the enormous Passerine circle, but tangent to a point in its periphery opposite the Swallows." He still contends strongly for the ordinal rank of the Trochili. In comparing the two groups, Swifts and Hummingbirds, he claims that they "have been associated together upon an entirely false system of classification, which assumed first, that they are alike in their wing-structure—a resemblance which I have shown to be purely *superficial*; secondly, that they both have an unnotched sternum, although physiological law demands it, and when associated with an entire organization that widely differs from that of another form which may happen to possess an unnotched sternum, it means nothing so far as affinity is concerned. This becomes the more evident when the sterna themselves are fashioned upon essentially different plans, as is the case in the Cypseli and Trochili."

The seven lithographic plates illustrating the present memoir give the pterylosis, skull, and other parts of the anatomy of *Ampelis cedrorum*, *Antrostomus vociferus*, and *Trochilus calliope*, and the skull and skeleton of *Trogon mexicanus*, the skulls of *Phalacroptilus nuttalli*, *Micropus melanoleucus*, several species of *Trochilus*, *Progne subis*, *Chelidon erythrogaster*, *Tachycineta thalassina*, *Tyrannus verticalis*, etc., and side views of the plucked bodies of *Micropus melanoleucus*, *Chaturap pelagica*, and *Trochilus platycercus*.—J. A. A.

**Shufeldt on the Osteology of the North American Passeres.\***—In this paper the osteology of the leading types of the North American Passeres is reviewed, followed by a re-arrangement of the families in accordance with the author's conclusions. The skeletal characters of *Myadestes* prove to be eminently Turdine. Good cranial characters are found for the constitution of *Lophophanes* as a full genus. The families recognized are the same as those of the A. O. U. Check-List, with their limits the same, but the order of succession is radically changed, without, we fear, in some instances at least, very obvious improvement, even granting that

\* Contributions to the Comparative Osteology of Families of the North American Passeres. By R. W. Shufeldt, M. D., C. M. Z. S. Journ. of Morph., Vol. III, No. 1, June, 1889, pp. 81-112, pl. v, vi.