

A SPECIMEN OF *TYTO (HELIODILUS) SOUMAGNII*.

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THE MUSEUM of Comparative Zoölogy has recently acquired a specimen of *Tyto soumagnii* (Grandidier). This rare and interesting bird was taken in the neighborhood of Pito, forest of Sianaka, Madagascar, on February 15, 1934. As far as we can ascertain this is the only specimen in this country except for a skin in the Rothschild collection now in the American Museum of Natural History, New York.

At first glance it is placed as a small Barn Owl and closer inspection reveals no character that warrants its retention as a monotypic genus. Milne-Edwards and Grandidier in their great work 'Histoire de Madagascar' observe as follows: "the periphthalmic discs are smaller than those of true *Strix* (= *Tyto*), and, instead of being in the shape of a heart, they are rounded, leaving the forehead more uncovered; their nasal feathers are relatively shorter. The wings do not extend beyond the tail; the third and fourth remiges are subequal and much longer than the first and fifth. In *Strix*, the second and third remiges are subequal and only very little longer than the first, the fourth is much shorter. The tarsi are proportionately a little shorter than those of the barn owl and the toes are stronger."

It is also to be observed that the breast and back in this species are concolor and there is no tinge of gray on the back as there is in the majority of species in the genus *Tyto*.

In this specimen the ruff on the upper breast, which is a continuation of the facial disc, is extended upward to the base of the lower mandible instead of forming a continuous band across the upper breast. This character is not stable among individuals of the same species in the genus. It is possible that this is an age character.

*Notes on the skeleton.*—The vertebrae and trunk skeleton, together with the humeri and femora accompany the specimen and afford the basis for a few notes additional to those of Milne-Edwards and Grandidier. In the preliminary note by the former (C. R. Acad. Sci. Paris, 85: p. 1282, 1877), it is shown that the skeleton agrees with that of the typical Barn Owls except in its relative proportions, while in the second and final account by Milne-Edwards and Grandidier (Hist. Phys., Nat. et Pol. de Madagascar, Vol. XII: pp. 112–118, pl. 36A–36C, 1879) additional particulars are given and the skeleton as well as the external aspect of the bird is figured. The wings are so reduced that they are shorter than the tail when folded, and proportionately broad, and this diminution is accompanied by a decrease in size of the sternum, while the feet are quite as large as in the Barn Owl of Europe, and the neck vertebrae equally long.

The *vertebrae* comprise thirteen cervicals and six thoracics. In the former, numbers 2, 3, 4, and 5 have short, bluntly pointed neural spines which are much lower and barely evident on the five following, but become again longer on the three terminal ones, increasing in size progressively to become on the succeeding rib-bearing vertebrae, broad in lateral view with their summits extended forward and back in the median line. There is a short ventral keel about two-thirds as high as the neural spine, on the body of the third thoracic. All the thoracic vertebrae are free as they are in *Tyto*. As in Milne-Edwards's specimen, the first two ribs are floating, free distally, the first much shorter than the second. The four succeeding ribs unite by their own sternal ribs, with the sternum, but the next one, number seven, instead of being similarly attached as it is in the European and American Barn Owls, is inserted upon the base of the sternal rib in front, number 6. This difference was pointed out by Milne-Edwards in his specimen, and is no doubt, merely the result of disharmonic shortening of the sternum, forcing the distal attachment of this rib upon the one in advance of it.

The *sternum*, compared with that of the European and American birds, differs in its much reduced size and consequent changes in proportion. Thus the length of its keeled part is about one-third less than in the latter. The triangular antero-external process of the sternum, to which four of the thoracic ribs attach, is equal to that of the European and American Barn Owls in its vertical height as measured from its tip to the coracoid groove, but this dimension in the Madagascan bird is contained but twice in the length of the keel instead of thrice as in the other two skeletons examined representing a European and an American bird; while the rib-bearing portion measures but 10 against 14 mm. in the same birds. The sternum in the Strigidae has its posterior edge distinctly four-notched, with a relatively long postero-lateral process separated by a deep emargination from a shorter process, which again is marked off by a shallower notch between it and the median line. In the Tytonidae, however, the postero-lateral process is shorter, and set off by a relatively shallow indentation, between which and the median line, instead of a distinct process, is a low, rounded convexity, which may be the analogue of the inner of the two processes in the Strigidae. In a European specimen this shorter more median process is practically absent, and in an American example is barely indicated by a slight convexity on either side of the keel posteriorly. The Madagascan sternum is quite like that of *Tyto* in this arrangement, except that the two low convexities are even less noticeable. In side view the keel of the sternum is more undercut than in the northern birds.

The *coracoid* in both is identical in form and structure, except that the external wing-like portion at the base is much narrower, with its outer

corner an obtuse angle instead of nearly a right angle as in the other species. There is in both a minute coracoid perforation on the anterior face of the bone at about two-thirds the distance from base to summit, at the entrance of the wide valley on the inner dorsal third of the bone. Greatest length of coracoid, externally, 32.3, about a millimeter less than in the European bird. The scapula except for its smaller size, 37 against 41.5 mm. in an American skeleton, is the same in both.

The *furculum* is complete and bony in the Tytonidae, in contrast to the condition in the Strigidae in which the distal part becomes cartilaginous. That of the Madagascan bird is quite like that of the European and American *Tyto* in the shape and general conformation of this bone, which is firmly in contact distally with the tip of the keel of the sternum. The proximal ends of the bone are widest and become thin at the articulation with the shoulder.

The *uncinate processes* are long and slender, that on the third thoracic measuring 15 mm. in length. Their sutures along the line of attachment to their respective ribs are still evident in the specimen.

The *synsacrum* in ventral aspect has four cross-struts of bone anterior to the acetabulum, and six posterior to it. The ilia meet the wide crests of the first three neural spines and fuse with them, thus roofing over a canal on either side of the midline. Seen in dorsal aspect, smaller lacunae mark the spaces between the posterior vertebral elements of the synsacrum—in the specimen, six on the right and five on the left side, the anterior ones<sup>re</sup> very minute.

In the Madagascan bird, the distance across the angles at the front of the pelvis is slightly greater than in the European bird examined, but less than in an American skeleton by about 3.5 mm. Possibly the matter of sex accounts for some of the difference. In other respects the pelvic girdle is essentially like that of other related forms of *Tyto*.

Of the limb bones, only the humeri and femora are available, but these agree in the minute details with the same bones of European and American Barn Owls, except for slightly smaller size. Their comparative over-all lengths are:—

	Madagascar	Europe	N. America
Humerus, greatest length,	75 mm.	84	100
Femur, greatest length,	51	53	61

From these comparisons it is clear that *Heliodylus* is nothing more than a dwarf Barn Owl, in which the shortened wings, correlated doubtless with the circumscribed habitat, have required less muscular equipment so that the breast muscles are reduced in size, and the sternum insofar as the portion giving attachment to these muscles is concerned, has become correspondingly

reduced bringing about certain changes in the proportionate development of its parts, and the shifting of the distal attachment of the seventh rib to the sternal rib of the one in front. In a wide view, it is obvious that *Heliophilus* may be regarded as a synonym of *Tyto*, but may be retained by those who place importance on relative lengths of wings and tail, which after all are of quantitative rather than qualitative value.

It would be interesting in this connection to make comparison with the little Barn Owl of Grenada, West Indies, which is a small form.

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