

THE PTERYLOSES OF SOME AUSTRALIAN BIRDS

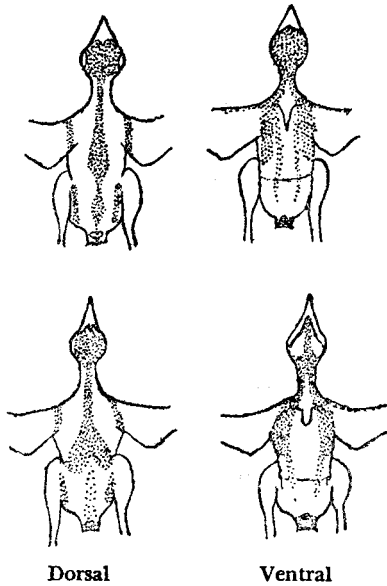
BY HUBERT LYMAN CLARK

WHEN I was last in Australia, a few birds "in the flesh" came into my hands and these I brought back to Cambridge in alcohol with the idea of examining their pteryloses. Pressure of other work has hitherto prevented my giving any attention to this material but at last it has been examined. Mr. James L. Peters has very kindly identified the birds, and I am glad to express here my thanks for this very necessary assistance.

There are single specimens of each of six species and three specimens of another, but one of the seven is the well-nigh cosmopolitan plover, *Pluvialis dominica*, of which the subspecies *fulva* is a winter visitor in Australia. As its pterylosis was described and well-figured by Nitzsch over a hundred years ago, there is no need of further reference to it here. The remaining six species represent six characteristic Australian genera, of which three are relatively large (or at least, not small) black and white birds and three are very small, strikingly colored or variegated forms. Of one of the black and white species, the pterylosis has been described and figured, but the other five genera have not hitherto been studied in this particular.

In the 'Emu' for July, 1914, Dr. J. A. Leach published a very detailed account of the myology of the Bell Magpie, *Strepera graculina*, a black and white bird some 18 inches long. He adds some notes on certain points in the anatomy and gives a good though brief description and three figures of the pterylosis. The specimen at hand leads me to be critical of those figures. The dorsal pterylosis of *Strepera* is very similar to that of the Lyre Bird (*Menura*) but expands and ends just above the big oil-gland. The femoral tracts are very large, about 35 mm. long and 10 mm. wide at each end; near the middle the width is increased to 15 mm. as the feathers extend over onto the back of the tibia. Connection with the end of the dorsal tract is very incomplete; only a few scattered contour feathers occur there. The humeral tracts, as Leach shows, are notably long, narrow, and well-defined. The sternal and ventral tracts do not appear to be as figured by Leach but are strikingly like Nitzsch's figure of those in the Greater Bird-of-Paradise (*Paradisaea apoda*). The increased density of the outer side of each sternal tract is notable. Aftershafts on the contour feathers are wanting and down feathers and filoplumes are inconspicuous. The oil-gland is nude. There are twelve rectrices with ten upper coverts; the under tail-coverts are numerous, forming a wide V-shaped patch with a conspicuous apterium right behind the anus. The wings are

each series are rather widely spaced. At the base of the culmen is a notable triangular apterium. The cephalic end of the neck is thickly feathered, but basally there are large apteria on each side and also on the throat. The dorsal tract is thickly feathered and conspicuous. In form it is intermediate between *Motacilla* and *Hirundo* as figured by Nitzsch; that is, the outer angles of the anterior half of the tract are thickly feathered while the posterior half is abruptly narrow and the feathers are more widely spaced; indeed, there are but few



TEXT-FIGURE 2. — Pterylography of *Taeniopygia castanotis* (upper fig.) and *Dicaeum hirundinaceum* (lower fig.).

feathers at the center of the area where widest. Removal of eight to ten feathers there would give a bilobed tract like that in *Hirundo*. These imperfect lobes are densely feathered but not sharply defined. The posterior dorsal tract increases in width over the sacrum and then narrows abruptly to end at the base of the oil-gland. At the anterior end of the sacrum it is about 6 mm. wide, but at the posterior end it is nearly eighteen. Its outer angles do not, however, reach the posterior ends of the well-marked, somewhat trigular femorals. The humerals are narrow but conspicuous, though distally they taper off markedly. The sternal tracts are thickly feathered and extend backward and outward to a point about 15 mm. in front of the femur.

On the outer side distally a few scattered contour feathers connect the tract with the lower surface of the humerus, but the three specimens at hand (two males and a female) show considerable diversity in this detail—a diversity not associated with sex. On the breast, the ventral tracts merge with the sternals anteriorly, but the portion where they are distinctly separated is about as extensive as the united portion. On the belly, posterior to the sternum, the ventral tracts decrease steadily in width, and only a single line of feathers reaches the anus. The upper surface of the wing between shoulder and wrist is well covered with about twenty short parallel rows of contour

feathers. Aftershafts are present on the contour feathers and there is considerable down on the apteria and many filoplumes on the tracts. The oil-gland is nude. There are twelve rectrices, with only ten upper coverts. The wings are quincubital with ten primaries and nine secondaries.

While this pterylosis is reasonably distinctive, it cannot be affirmed that it throws much light on the affinities of *Grallina*. The well-developed aftershaft and presence of down feathers on apteria may properly be considered as primitive features. The general pterylosis is suggestive of two quite different groups of Passeres—the swallows and the tyrant flycatchers. The suggestion of a bilobed dorsal tract like that of the swallows has already been mentioned, and the triangular apterium at the base of the culmen on the front of the forehead is also a feature of some swallows (*Stelgidopteryx*). On the other hand, the sternal-ventral tracts and the large femorals are suggestive of some tyrant flycatchers such as *Sayornis*. It may be mentioned further that Nitzsch's figure of the pterylosis of *Bucco armillaris* is very suggestive, for if the tracts of that bird were considerably more fully feathered, the resemblance to *Grallina* would be striking. No Australian bird, whose pterylosis is known, shows any close resemblance in this respect to the Magpie-Lark.

The three small birds were all caged birds at Broome but were reported to be from the Northern Territory. They represent three characteristic Australian genera, two of the family Ploceidae and one of the family Dicaeidae. The last is the Mistletoe-bird (*Dicaeum hirundinaceum*) which ranges from India to southern Australia. It is reputed to be "fairly common" but "rarely seen" in Australia. The pterylosis, as shown by the specimen at hand, is interesting and distinctive. The feathers on the back of the head are widely spaced but those on the forehead form a rather dense patch extending to the bill but with a small though definite apterium at the base of the culmen. The upper cervical tract is very narrow and passes into the dorsal tract, which is bilobed as in the swallows (See Nitzsch, pl. 3, fig. 14). The posterior dorsal tract is very weak and ill-defined; it hardly reaches either the main dorsal tract or the oil-gland. The humerals are narrow and well-marked but do not extend downward towards the elbow. The lower cervical tract is narrow but extends to the gonys with apteria on both sides; it is deeply forked and the branches pass directly into the well-marked sternals, which extend nearly to the knee. There is hardly so much as a notch where the ventrals and sternals unite and the ventrals are weak and do not

reach nearly to the anus. The under coverts form a very conspicuous V-shaped patch behind the anus, enclosing a triangular apterium. The femorals are short and small but well-marked. There are nine primaries but only eight secondaries in the quincubital wing. There are twelve rectrices but eleven upper coverts; probably ten is the normal number, but in this individual there is a definite covert over the first rectrix of the left-hand side. Aftershafts are wanting, and the oil-gland is nude. Down feathers are few, and filoplumes, though not abundant, are very slender and dark-colored. The resemblance to swallows in the bilobed dorsal tract and the small triangular apterium at the base of the bill is notable, although Leach says *Dicaeum* "is not related to the swallows" even though the specific name is *hirundinaceum*!

The two remaining birds are little weaver-finches, representing two related genera, both of which are popular as cage-birds because of their pretty plumage and sprightly habits. The species at hand are *Taeniopygia castanotis* and *Poephila gouldiae*, strikingly different in coloration but surprisingly similar in pterylosis. None of Nitzsch's figures represent it very exactly but those of *Oriolus galbula* (pl. 3, figs. 7 and 8) will serve as a basis for comparison. Dorsally the cervical, humeral, and femoral patches of Nitzsch's figure do very well, but the dorsal tract in the Australian finches is interestingly different. The elliptical tract is more anterior than in *Oriolus* and is much shorter, while the posterior portion of the tract is much longer; it is narrow at first but widens into a small secondary ellipse and narrows again to barely reach the oil-gland; indeed it completely runs out. Ventrally, Nitzsch's figure 7 answers very well, save for the fact that the tracts in the Australian finches are narrow and are much more sparsely feathered. The under tail-coverts form a conspicuous V-shaped patch much as in *Dicaeum*. There are twelve rectrices but only ten upper coverts. There are nine primaries and nine secondaries. Aftershafts, if present, are weak and down is scanty. Filoplumes are also few, delicate, and light-colored. The oil-gland is nude.

The above notes are offered in the hope that their publication will help stimulate further study in this interesting side line. Birds which were not examined by Nitzsch deserve particular attention and the Australian avifauna is a very inviting field.

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