

ON THE DOWN-PLUMAGE AND MOUTH-COLORATION OF SOME NESTLING BIRDS.

BY

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OF all the books which have been written on British birds not one, as yet, has dealt satisfactorily with the question of the sequence of plumages and, so far as I know, none give even the barest description of the down or natal plumage of even our commonest birds.

Mr. Pycraft deplored this fact, and in the course of two excellent articles (*vide antea*, Vol. 1, pp. 102 and 162) gave a brief outline of the different kinds of down-plumage recognisable, and made some remarks upon their significance, at the same time suggesting that further investigation into the matter would be valuable.

The sequence of plumages is a study which has long interested me; and I am certain that the collection of a large amount of material in reference to this subject, as well as on the coloration of the mouths of nestlings, as suggested by Mr. Pycraft (*cf.* Vol. I., p. 129) would, when worked out on comparative lines, yield some important results relating to the question of morphological ornithology.

As Mr. Pycraft has already explained (*cf.* Vol. I., p. 162) the different types of down, I shall here only state that in all the Passerine birds which I have examined, the type of down present is that of the pre-penna, and belongs to the mesoptyle generation. These pre-pennæ, I need hardly remark, are not distributed all over the body, but are arranged in definite tracts. Further, the development of the pre-pennæ in these tracts varies considerably in different genera, and even in the different species of the same genus.

The *inner supra-orbital tracts* consist of few pre-pennæ which are situated above the eye on each side, and from thence

pass backwards, each tract forming, in most species, a line or crescent of down. It will be noticed that the inner supra-orbital tracts are present in every species which I have examined which has down at all.

The *outer supra-orbital tracts* consist of two or three small, short pre-pennæ on each side, situated between the edge of the upper eyelid and the inner supra-orbital tract. They are present in the Mistle-Thrush, Meadow and Red-throated Pipits, Chaffinch, and Brambling.

The *occipital* tracts consist of two or three fairly large, well-developed, pre-pennæ situated on each side of the occiput.

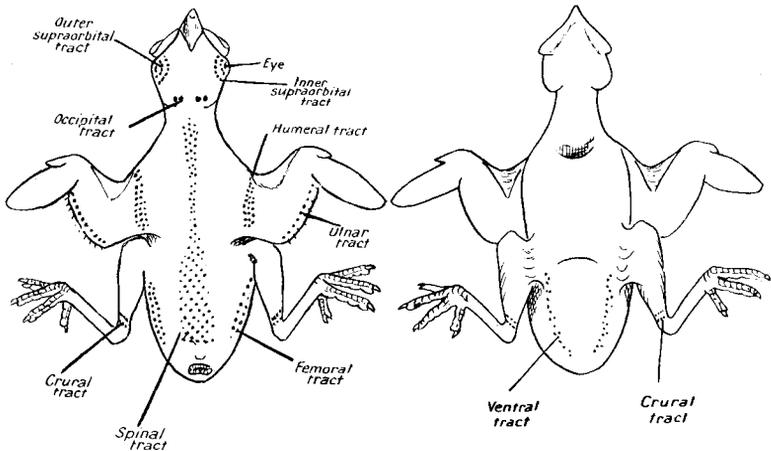


Diagram showing the Down-tracts of Nestling Birds.

The two tracts usually form a line, or crescent, of down when well developed. They are present in every species examined which has any down.

The *humeral tracts* are usually well developed, and run obliquely downwards and outwards from the base of the neck across each humerus just in front of the shoulder joint. They are replaced by the "scapular" feathers of the juvenile plumage. They are present in all the birds that I have examined which have down, except the Wren (see note under this species).

The *spinal tract* runs down the centre of the dorsum from about the level of the shoulder joint to the end of the sacrum in those species in which it is well developed. The length

varies in different species, in some the anterior part being slightly developed or absent, in others the posterior part. The breadth is greatest in the lumbar region. This tract is present in all species examined except the Blue Tit (see note under this species).

The *ulnar tracts* consist of small pre-pennæ on the ulnar margin of each wing. Each pre-penna is replaced later by the secondaries, and in some cases by the secondary coverts. These tracts are absent in the Wheatear, Robin, all four Tits, and Wren.

The *femoral tracts* are situated laterally on each side just beneath the femur. The pre-pennæ never seem to be long, and are more closely approximated to each other than in some of the other tracts. This tract is absent in the Thrushes and Robin, the Tits, Swallow, and Sand-Martin.

The *ventral tract* is situated laterally on each side of the abdomen, and runs obliquely from the middle line towards the upper end of the femoral tract. In character it resembles the femoral tract, and is widest posteriorly. This tract is present in the Meadow-Pipit, Starling, and in all the *Fringillinae* examined which have down.

The *crural tract* consists of a few small inconspicuous pre-pennæ forming a circle round the lower end of the crus, just above the ankle joint. It was noted in the Red-throated Pipit, all the *Fringillinae* examined which have down, and in the Snow-Bunting.

I am indebted to my friend, Mr. J. L. Bonhote, for notes or specimens of the Bearded Tit, Red-throated Pipit, Tree-Sparrow, Brambling, Lesser Redpoll, Snow-Bunting, and Kingfisher.

MISTLE-THRUSH *Turdus viscivorus* L.

DOWN. *Colour*.—Greyish white, some pre-pennæ having buffish white tips.

Distribution.—Inner and outer supra-orbital, occipital, humeral, spinal and ulnar. In some there is a pre-penna on the bastard wing. The outer supra-orbital tract is not found in the Blackbird or Song-Thrush.

COLORATION OF MOUTH. Inside, orange; no spots; externally, flanges lemon-yellow.

SONG-THRUSH *Turdus musicus* L.

DOWN. *Colour*.—Buffish white.

Distribution.—Inner supra-orbital, occipital, humeral, spinal and ulnar.

COLORATION OF MOUTH. Inside, orange; no spots; flanges lemon-yellow.

BLACKBIRD *Turdus merula* L.

DOWN. *Colour*.—Greyish white.

Distribution.—Inner supra-orbital, occipital, humeral, spinal and ulnar.

COLORATION OF MOUTH. Inside, orange ; no spots.

WHEATEAR *Saxicola œnanthe* (L.).

DOWN. *Colour*.—Dark grey.

Character.—Moderate length.

Distribution.—Inner supra-orbital, occipital, humeral, spinal and femoral. It will be noted that there is no ulnar tract, and the spinal tract is a very short one, confined to the middle of the dorsum.

COLORATION OF MOUTH. Inside, orange ; no spots.

REDBREAST *Erithacus rubecula* (L.).

DOWN. *Colour*.—Dull jet-black.

Distribution.—Inner supra-orbital, occipital, humeral, and spinal. Here also there is no ulnar tract, and the short spinal tract does not reach the sacrum.

COLORATION OF MOUTH. Inside, orange ; no spots.

WHITETHROAT *Sylvia cinerea* Bechst.

DOWN. Absent.

COLORATION OF MOUTH. Inside, yellowish orange ; one brownish black spot at the base of the tongue on each side.

LESSER WHITETHROAT *Sylvia curruca* (L.).

DOWN. Absent.

COLORATION OF MOUTH. Inside, orange. Tongue spots as in *S. cinerea*.

GARDEN-WARBLER *Sylvia hortensis* (Bechst.).

DOWN. Absent.

COLORATION OF MOUTH. Inside, deep pink with a violet tinge ; one brownish oval spot on each side of the base of the tongue.

N.B.—The absence of down in these three species of the genus *Sylvia* is noteworthy.

HEDGE-SPARROW *Accentor modularis* (L.).

DOWN. *Colour*.—Greyish black.

Character.—Fairly long, and well developed.

Distribution.—Inner supra-orbital, occipital, humeral, spinal, ulnar and femoral.

COLORATION OF MOUTH. Inside, orange. A black spot on each spur of the base of the tongue, and another, brown and more diffuse, situated subterminally. The latter disappears completely 4-5 days after the chick is hatched, which accounts for the fact that it was not noted by Mr. Pycraft (*cf. antea*, Vol. I., p. 130).

BEARDED TITMOUSE *Panurus biarmicus* (L.).

DOWN. Absent. (N.B.—Spirit specimen.)

GREAT TITMOUSE *Parus major* L.

DOWN. *Colour*.—Whitish grey.

Character.—Moderate in length but scanty, a few pre-pennæ only in each tract.

Distribution.—Inner supra-orbital, occipital, humeral and spinal.

COLORATION OF MOUTH. Inside, lemon-yellow; no tongue spots.

COAL-TITMOUSE *Parus ater* L.

DOWN. *Colour*.—Greyish.

Character.—Moderate in length but very scanty, consisting of a few pre-pennæ only in each tract.

Distribution.—Inner supra-orbital, occipital, humeral, and spinal.

COLORATION OF MOUTH.—Inside, orange; no tongue spots; externally, flanges lemon-yellow.

MARSH-TITMOUSE *Parus palustris* L.

DOWN. *Colour*.—Grey.

Character.—Rather short in length, and very scanty, consisting of a few pre-pennæ only in each tract.

Distribution.—Inner supra-orbital, occipital, humeral, and spinal.

COLORATION OF MOUTH. Inside, orange; no tongue spots.

BLUE TITMOUSE *Parus cæruleus* L.

DOWN. *Colour*.—White.

Character.—Moderate in length but very scanty, consisting of a few pre-pennæ only in each tract.

Distribution.—Inner supra-orbital, occipital, and humeral.

COLORATION OF MOUTH. Inside, lemon-yellow; no tongue spots; externally, flanges lighter yellow.

N.B.—It is possible that the scanty pre-pennæ which form the spinal tract may have been rubbed off in those individuals which I examined; if not, the absence of that tract in this species is worthy of note.

WREN *Troglodytes parvulus* K. L. Koch.

DOWN. *Colour*.—Greyish black.

Character.—Scanty.

Distribution.—Inner supra-orbital, occipital and spinal.

COLORATION OF MOUTH. Inside, yellow; no tongue spots; externally, flanges lemon-yellow.

N.B.—Since this is the only species in which I have noted the absence of the humeral tract, it is possible that it is slightly developed but had become rubbed off in the nest.

PIED WAGTAIL *Motacilla lugubris* Temm.

DOWN. *Colour*.—Grey.

Character.—Moderate in length.

Distribution.—Inner supra-orbital, occipital, humeral, spinal, ulnar and femoral.

COLORATION OF MOUTH. Inside, yellow; no tongue spots; externally, flanges very pale yellow.

MEADOW-PIPIT *Anthus pratensis* (L.).

DOWN. *Colour*.—Whitish grey.

Character.—Moderate in length.

Distribution.—Inner and outer supra-orbital, occipital, humeral, spinal, ulnar, femoral and ventral, the last being very scanty.

COLORATION OF MOUTH. Inside, deep pink; no tongue spots; externally, flanges orange.

RED-THROATED PIPIT *Anthus cervinus* (Pall.).

DOWN. *Colour*.—Greyish black.

Character.—Long; femoral and crural tracts scanty.

Distribution.—Inner and outer supra-orbital, occipital, humeral, spinal, ulnar, femoral and crural.

N.B.—As I only had a spirit specimen to examine it is possible that the ventral tract, which in the Meadow-Pipit is only slightly developed, may have been overlooked.

SWALLOW *Hirundo rustica* L.

DOWN. *Colour*.—Grey.

Character.—Fairly long. Tracts scanty.

Distribution.—Inner supra-orbital, occipital, humeral and spinal.

COLORATION OF MOUTH. Inside, lemon-yellow; no tongue spots; externally, flanges whitish.

SAND-MARTIN *Cotile riparia* (L.).

DOWN. *Colour*.—Gray, rather darker on the humeral tract.

Character.—Rather short, scanty.

Distribution.—Inner supra-orbital, occipital, humeral, spinal and ulnar. On the last two very scanty. Prepenne of ulnar tract present on the secondary coverts.

COLORATION OF MOUTH. Inside, lemon-yellow; no tongue spots; externally, flanges lemon-yellow.

GREENFINCH *Ligurinus chloris* (L.).

DOWN. *Colour*.—Greyish white.

Character.—Medium length, sparse on the crural and ventral tracts.

Distribution.—Inner supra-orbital, occipital, humeral, spinal, ulnar, femoral, ventral and crural.

COLORATION OF MOUTH. Inside, deep crimson, no tongue spots; externally, gape white, beak horn colour with a yellowish tint.

HAWFINCH *Coccothraustes vulgaris* Pall.

DOWN. *Colour*.—Snow-white.

Character.—Long and plentiful.

Distribution.—Inner supra-orbital, occipital, humeral, spinal, ulnar, femoral, ventral and crural.

COLORATION OF MOUTH. Inside, violet pink; no tongue spots; externally, flanges yellowish orange and whitish at the angles. The bill during the first two days is not markedly large, but it rapidly grows in size.

HOUSE-SPARROW *Passer domesticus* (L.).

DOWN. Absent.

COLORATION OF MOUTH. Inside, yellow; no tongue spots; externally, flanges lighter yellow.

TREE-SPARROW *Passer montanus* (L.).

DOWN. Absent.

N.B.—Taking into consideration the development of the down in the other *Fringillinae* the absence of it in the genus *Passer* is a most remarkable fact.

CHAFFINCH *Fringilla cœlebs* L.

DOWN. *Colour*.—Greyish.

Character.—Moderate in length and quantity.

Distribution.—Inner and outer supra-orbital, occipital, humeral, spinal, ulnar, femoral, ventral and crural.

COLORATION OF MOUTH. Inside, violet red, but the hard palate is orange; no tongue spots; externally flanges white.

BRAMBLING *Fringilla montifringilla* L.

DOWN. *Colour*.—White.

Character.—Length moderate, well developed, except on the crural tract.

Distribution.—Inner and outer supra-orbital, occipital, humeral, spinal, ulnar, ventral, femoral and crural. Pre-pennæ of the ulnar tract are attached to the secondaries only. Ventral tract well marked at the posterior end.

(N.B.—From spirit specimen.)

LESSER REDPOLL *Linota rufescens* (Vieill.).

DOWN. *Colour*.—Greyish.

Character.—Long; ventral and crural tracts scanty, pre-pennæ on the secondaries only make up the ulnar tract.

Distribution.—Inner supra-orbital, occipital, humeral, spinal, ulnar, femoral, ventral and crural.

COLORATION OF MOUTH. Inside, carmine; no tongue spots; externally, gape white, a carmine spot at angle of gape due to colour of inside showing through.

BULLFINCH *Pyrrhula europæa* Vieill.

DOWN. *Colour*.—Blackish grey.

Character.—Abundant and long.

Distribution.—Inner supra-orbital, occipital, humeral, spinal, ulnar, femoral, ventral and crural. Pre-pennæ of the ulnar tract are present on the secondaries and their coverts.

COLORATION OF MOUTH. Inside, violet red, no tongue spots; externally, flanges whitish.

SNOW-BUNTING *Plectrophenax nivalis* (L.).

DOWN. *Colour*.—Dark grey.

Character.—Fairly long, spinal tract thicker anteriorly than posteriorly, crural very scanty and minute, the other tracts well marked.

Distribution.—Inner supra-orbital, occipital, humeral, spinal, ulnar, femoral and crural.

COLORATION OF MOUTH. Inside, not noted; externally, gape yellow; beak yellow.

STARLING *Sturnus vulgaris* L.

DOWN. *Colour*.—Greyish white, a shade darker on the head,

Character.—Fairly long and plentiful.

Distribution. — Inner supra-orbital, occipital, humeral, spinal, ulnar, femoral, and ventral. Spinal tract long and well marked. Ventral tract scanty and not well marked.

COLORATION OF MOUTH. Inside, orange; flanges very broad and lemon-yellow in colour; no tongue spots; gape huge; externally, flanges lemon-yellow.

SKYLARK *Alauda arvensis* L.

DOWN. *Colour.*—Light sandy, dark at the base of the pre-pennæ giving the whole a peculiar "leveret" appearance.

Character.—Fairly long and abundant.

Distribution. — Inner supra-orbital, occipital, humeral, spinal, ulnar, and femoral; spinal tract confined to small area over and just above sacrum.

COLORATION OF MOUTH. Inside, orange-yellow; two oval black spots at base of tongue situated bilaterally, another triangular spot forms the tip of the tongue; externally, flanges whitish.

KINGFISHER *Alcedo ispida* L.

DOWN. Absent. (N.B.—Spirit specimen.)

