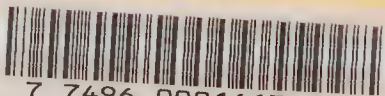




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NATIONAAL NATUURHISTORISCH MUSEUM Postbus 9517 2300 RA Leiden Nederland



Nidification.—The breeding-season on the western side of the island is during the first three or four months of the year. It lays usually two eggs on the bare ground, often without any depression or nest-formation; but the shelter of a bush or stump is generally chosen. The eggs are ovals in shape and smooth in texture, of a light salmon or reddish-grey ground-colour, marbled slightly and blotched openly throughout the surface with sienna-red over faint clouds of bluish grey. An egg obtained in the cinnamon-gardens measured 1.12 by 0.73 inch; but in 'Nests and Eggs' the average is given at 1.04 by 0.77 inch. The eggs are much more salmon-coloured than those of the last species and smaller. In India this species breeds chiefly in April and May, but its eggs have been taken in July; and Captain Butler is of opinion that it lays twice in the year, he having shot a hen bird, in company with a young one just fledged, on the 20th of July, and found, on dissecting her, that she was about to lay again. It is said not to be so particular in choosing its situation as other Nightjars. Mr. R. Thompson, as quoted by Mr. Hume, says that he has found the eggs "in a quite unsheltered spot in the middle of a dry pebbly *nullah*."

Order P A S S E R E S.

Primaries usually 10, in one section only 9; greater coverts arranged in a single row, not reaching beyond the middle of the secondaries; rectrices usually 12, rarely 10. Hallux stout, furnished with a larger claw than the other toes.

Sternum with a single notch at each side of the posterior margin.

Sect. A. TURDOID or THRUSH-LIKE PASSERES*. *Wing with 10 primaries, the 1st reduced in size.*

Fam. CORVIDÆ.

Bill without a distinct notch in the tip of the upper mandible; stout and straight in most genera, curved in some. Wings variable. Legs and feet stout, the tarsus strongly scutate. Hind toe very strong, claws well curved.

Sternum broad, the keel rather high, the posterior edge with a wide deep notch in each half near the side.

Subfam. CORVINÆ.

Bill more or less long and straight, stout, and the culmen high and much curved, an obsolete notch near the tip of the upper mandible. Nostrils placed in a deep depression, and protected by an impending tuft of bristles.

* The system of classification of the great Order Passeres which I shall follow in this work will be that of Mr. Wallace, as drawn up in 'The Ibis' for 1874, with such modifications adopted by Mr. Sharpe in the 'Catalogue of Birds' as seem to me justified by my own personal experience.

Genus CORONE.

Bill very stout, straight, the culmen very high, and curved from the base, the ridge keeled. Nostrils round, concealed by overlying bristly plumes. Wings long and pointed, the 3rd and 4th quills much exceeding the 2nd and 5th; the 1st about half the length of the 3rd, and longer than the outer secondaries, but shorter than the innermost. Tail moderate and rounded. Legs and feet stout; the tarsus longer than the middle toe and claw, and protected by strong transverse scutæ. Toes strongly shielded, lateral ones nearly equal.

CORONE MACRORHYNCHA.

(THE BLACK CROW.)

Corvus macrorhynchus, Wagler, Syst. Av. *Corvus*, sp. 3 (1827); Hume, Stray Feath. 1877, p. 461; id. ibid. (B. of Tenasserim) 1878, p. 660.

Corvus levaillanti, Less. Traité, p. 328 (1831); Holdsw. P. Z. S. 1872, p. 460; Hume, Nests and Eggs, ii. p. 411; id. Str. Feath. 1874, p. 243; Ball, ibid. p. 418; Hume, ibid. 1875, p. 143.

Corvus culminatus, Gray, Cat. Mamm. &c. Nepal Coll. Hodgs. p. 102 (*nec* Sykes) (1844); Blyth, Cat. B. Mus. A. S. B. p. 89 (1849); Kelaart, Prodromus, Cat. p. 124 (1852); Layard, Ann. & Mag. Nat. Hist. xiii. p. 213 (1854); Horsf. & Moore, Cat. B. Mus. E. I. Co. ii. p. 553, in pt. (1856); Jerdon, B. of Ind. ii. p. 295 (1863); Legge, Ibis, 1874, p. 23, et 1875, p. 398.

Corvus sinensis, Moore, Cat. B. Mus. E. I. Co. ii. p. 556 (1856).

Corone levaillanti (in pt.), Sharpe, Cat. Birds, iii. p. 39 (1877).

The Indian Corby, The Bow-billed Corby, The Indian Raven (of some) in India.

The Carrion- or Jungle-Crow in Ceylon.

Dhar, Hind. in the north; *Dheri-kowa*, Hind. in the south; *Dad-kag*, Beng.; *Kaki*, Telugu; *Ulaṅk*, Bhotias.

Kaka or *Goyegamma kaka*, lit. "High-caste Crow," Sinhalese; *Kaka*, Ceylonese Tamils.

Adult male. Length 17·0 to 19·5 inches; wing 11·5 to 12·3; tail 6·75; tarsus 2·1 to 2·2; mid toe 1·3 to 1·35, its claw (straight) 0·6; bill to gape 2·0 to 2·2; culmen 1·9 to 2·1. In this species the culmen is much arched.

Female. Length 16·5 to 18·0 inches; wing 10·75 to 11·5.

The smallest birds are from the south of the island.

Iris hazel-brown; bill, legs, and feet black.

Entire plumage black, highly glossed on the scapulars, wing-coverts, and rump with purple; outer webs of the tail-feathers glossed in a less degree with the same; feathers of the throat and breast more or less illumined with steel-blue reflections.

The throat-feathers are stiff and furcate at the tips.

Obs. The Ceylon Crow is the *smallest* race of the species, upon which Wagler bestowed his title of *macrorhyncha* (cf. Sharpe, Cat. B. iii. p. 38), and which is spread over a great part of Asia and its archipelago, culminating in the very large form inhabiting Japan, which is named *japonensis* by Bonaparte. In Malacca and the Malayan archi-

pelago it is of medium size, and exhibits the peculiar character of white bases to the feathers of the body; passing round into India it gradually decreases in size southwards towards Ceylon, the white bases becoming scarcer until, in the latter locality (as far as I can judge from a small series), they disappear altogether; while stretching northwards through China and Eastern Siberia to Japan, it increases in bulk and also again loses the white-based feathers. Our bird has usually been styled *C. levaillanti*, in common with that from South India; but in accordance with the results arrived at by Mr. Hume on an examination of an immense series of examples from India, Burmah, and Malacca, as well as by myself from an inspection of a number of specimens from a still wider range, in the British Museum, I do not see the propriety of separating it from the Malaccan species. Mr. Hume, in his exhaustive notice of this bird in 'Stray Feathers,' 1877, p. 461, shows that the characteristic of the white bases to the body-feathers is not of much value, as it is found in Indian examples and is absent in some from Malacca. He, moreover, remarks that this character is not constant in the same bird, as in some specimens the bases of the mantle-feathers were of one colour and those of the rump or the breast of another. I would surmise, in passing, that these were not fully adult birds, which would eventually have acquired the white bases throughout. As regards size, Mr. Hume's tabulation of seventy specimens shows that the wing in males from Malacca, Pegu, and the Andamans varies from 11.7 to 13.5, and in the Indian race as far south as Ootacamund from 11.5 to 14.0 (the latter dimension being, however, very exceptional, and that of an example from Cashmere). In Ceylon, as will be seen above, it diminishes still further. The Andaman birds are characterized by their length of bill; the culmen of one measured by Mr. Hume was 2.85 inches, and the length of another, from gape to tip, examined by myself, 2.5; the latter had the wing 13.3 inches, and the bases of the body-feathers white; the smallest bill in the series in question was 2.15 along the culmen. One example from Fokien, in the British Museum, has the wing 13.8, and the bases of the feathers the same as in Ceylon specimens; the wing-coverts and secondaries have the same amount of purple reflection: one from Sumatra, wing 12.75, bill to gape 2.3, white bases to body-feathers; another from N. India, wing 14.0, bill 2.3, feathers whitish at the base; one from Timor and another from India are greyish white at the base of the body-feathers, but the first-named has the bill very long, 2.6 to gape. Two from Japan have wings 14.16 and 15.0, bills 2.75 and 2.85 to gape; the wing-coverts in these are a richer purple than in any others. The tint of the hind neck varies: in some it has a greyish-green hue; but this is not constant in any locality, and a specimen from Nynee Tal is identical with one from Ceylon in this respect.

Concerning the coloration of the bases of the clothing-feathers in our birds, I am unable positively to say whether it is ever found to be white, as I did not procure a sufficient series to form an opinion; in one example some of the feathers have a tendency to a light greyish hue about the base, the others being pale brownish. I commend this subject to future workers in Ceylon ornithology. The tendency with Malayan birds to exhibit white bases to the feathers may be analogous to the grey plumage in the Hooded Crow of Europe (*C. cornix*), which freely interbreeds with the black form, and is, according to the opinion of many writers, a mere variety of the latter.

Distribution.—The Black Crow is very abundant in Ceylon, being found throughout the whole island, but chiefly in the interior, with the exception of the coast between Kalatura and Hambantota, along which it replaces the next species as "a citizen" of the towns and villages there. At Colombo it is common in the cinnamon-gardens, but does not come into the bazaars and streets of the town. Some miles to the south of that place it commences gradually to inhabit the cocoanut-lined coast, until it becomes common along the above-mentioned strip. It is very numerous throughout the whole interior, being found in the forest as well as in the open regions, in which latter it locates itself principally near native villages. In the Central Province it is common up to 2000 feet, frequenting the towns of Kandy, Gampola, Matale, &c.; above this altitude its numbers materially decrease, and it seldom ranges above 4000 feet. It has, however, been reported of late years several times to have visited Nuwara Eliya for a few days, departing as suddenly as it came.

Jerdon writes as follows concerning this bird's distribution:—"The Common Carrion-Crow of India is found throughout the whole country, from the extreme south to the Himalayas, as far west as Cashmere, and eastwards it occurs in Assam, Burmah, and the Malayan peninsula. . . . In the south of India, as at Madras, the Nilghiris, and elsewhere, it is almost as familiar and as impudent as the Common Crow, but towards the north it is perhaps less seen about towns and villages." Mr. Ball remarks that in Chota Nagpur its distribution is somewhat capricious, and its presence or absence in particular tracts it is not always easy to account for. It occurs as high up in the Himalayas as Mussoorie throughout the year; and Mr. Hume records it from Simla. In Pegu it is common away from large towns (*Oates*), and southward of this it extends through the peninsula to Malaya, where it has been found in Java, Sumatra, Borneo, Flores, Timor, and Bali (*Sharpe*, Cat. Birds). It occurs, according to Mr. Davison, all over the Andamans, including the uninhabited islands;

but in the Nicobars it is only found in Camorta and Trinkut, having been introduced into the former place from Port Blair.

From Burmah its range extends as far east as China and Eastern Siberia. Swinhoe notes it as being found throughout the former, including Formosa and Hainan; and, in its large form of *C. japonensis*, it inhabits North China and Japan. The smaller Raven, designated *Corvus culminatus* by Sykes, and kept distinct by Mr. Sharpe, has been found at Yarkand.

Habits.—This bold bird frequents native villages, some of the towns in Ceylon, pasture-lands, and other situations in open country, as well as the wildest forest and jungle of the low country. It is usually found in pairs, except when collected to feed on carrion, when large flocks come together. They are constantly in attendance on cattle and buffaloes, perching on their backs and feeding on the ticks which infest these animals. In the interior it is very destructive to poultry and young chickens and is particularly partial to eggs. Several pairs always take up their quarters during the breeding-season in the swamps and tanks where Herons and Egrets breed, and rob the nests right and left while the owners are absent. I have seen one drop into the nest of a Purple Heron, turn over the eggs, and selecting one, adroitly carry it off in his bill, in less time than it takes to write this. On two occasions I have known them to kill squirrels (*Sciurus penicillatus*), in one of which the marauder seized the animal by the tail and dashed it against the limb of a tree until it was killed; in the other, which I witnessed myself, my attention was attracted by the creature's cries, when I observed it to be doubled up, in its agony, round the bird's bill, which had transfixed its stomach, the Crow holding it firmly, without any apparent exertion. It is a bird of powerful flight, traversing wide tracts of country high in the air, and frequently mounting to considerable altitudes in its pursuit of Hawks and Eagles. In its own turn it is subject to the feeble but troublesome attacks of the "King-Crow" (*Buchanga leucopygialis*). The "caw" of this Crow is louder than that of *C. splendens*, but it has the power of modulating it and altering the tone to an extraordinary extent.

Jerdon speaks of it in India as eminently a carrion-crow, and often the first to discover a dead animal; while Mr. Ball writes of it as being a most useful guide to the sportsman as to the whereabouts of both dead and living game, for, he says, "A tiger or a bear cannot walk about in the daylight without being made the subject of some loudly-expressed remarks on the part of the Crows of the neighbourhood."

I have myself observed this inquisitive tendency in the Corby in Ceylon; and Layard remarks that though a wounded deer may retire to the most tangled brake to die, its covert is invariably revealed to the hunter by the Crows, who, congregating in small parties on the surrounding trees, patiently wait till life is extinct to begin their repast with the jackals and wild hogs.

Nidification.—The principal months for breeding are May, June, and July, most nests being built during May. The nest is placed in the fork of a top bough, often so slender that it will not admit of the eggs being safely reached; or it may rest at the bases of cocoanut-fronds, entirely concealed from sight below. It is a large structure of sticks and twigs, lined with fine roots, hair, wool, &c. The exterior is often very straggling; but the nest is very little larger on the whole than that of *C. splendens*. As remarked in a former article, it is the favourite receptacle for the eggs of the Koel, containing sometimes as many as three or four of them. The eggs are usually four in number, and much resemble those of *C. splendens*. They are long ovals, and in many cases somewhat pyriform, of a pale sea-green or light bluish-green ground, some being thickly spotted with small specks of pale brown or umber-brown over the whole surface, mingled with linear spots of the same; others have the markings much darker, larger, and more openly distributed. They vary, in general, from 1.7 to 1.58 inch in length by 1.2 to 1.7 in breadth; but Mr. Hume records one specimen as 1.95 in length, and says that in India they vary *inter se* surprisingly in size, in tone of colour, and in character of marking, and that the birds of the plains lay slightly larger eggs than those of the Himalayas or Nilghiris, the average of twenty of the former being 1.74 inch by 1.2 against 1.73 by 1.18 and 1.7 by 1.18 respectively.

CORONE SPLENDENS.

(THE COMMON GREY CROW.)

Corvus splendens, Vieill. N. Dict. d'Hist. Nat. viii. p. 44 (1816); Blyth, Cat. B. Mus. A. S. B. p. 90 (1849); Kelaart, Prodromus, Cat. p. 124 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 214; Horsf. & Moore, Cat. B. Mus. E. I. Co. ii. p. 559 (1856); Jerdon, B. of Ind. ii. p. 298 (1863); Nevill, J. A. S. (Ceylon Br.) p. 33 (1870-71); Legge, ibid. p. 52; Holdsworth, P. Z. S. 1872, p. 460; Legge, Ibis, 1874, p. 23; Butler, Str. Feath. 1875, p. 493; Hume, ibid. 1876, p. 463.

Corvus impudicus, Gray, Hand-l. B. ii. p. 14 (1870); Hume, Nests and Eggs, p. 413 (1873); id. Str. Feath. 1873, p. 206; Adam, ibid. p. 386; Ball, ibid. 1874, p. 418.

Corone splendens, Sharpe, Cat. B. iii. p. 33 (1877).

The Indian Hooded Crow, Kelaart; *The Common Indian Crow*, Jerdon.

Kowa, *Patti-kowa*, *Desi-kowa*, Hind., in various districts; *Kag* or *Kak*, Beng.; *Manchi-kaki*, Telugu; *Nalla-kaka*, Tam. (Jerdon).

Karavi-kaka, lit. "Low-caste Crow," Sinhalese; *Kakum*, Ceylonese Tamils; *Gráya*, Portuguese in Ceylon.

Adult male and female. Length 15·75 to 17·0 inches; wing 10·0 to 11·0; tail 6·0 to 6·5; tarsus 1·9 to 2·0; mid toe 1·4 to 1·5, claw (straight) 0·5; bill to gape 1·9 to 2·0. This species is as variable as the last in size, but females average smaller than males.

Iris dark brown; bill, legs, and feet black.

Forehead, crown, chin, cheeks and throat, back, wings, and tail black; the back, wing-coverts, and outer webs of secondaries with purple, and the throat, primaries, and tail with green reflections; nape, ear-coverts, sides and back of neck cinereous grey, blending into the black of the surrounding parts, and passing on the chest into a slightly dusker hue than that of the hind neck; breast and lower parts greyish black, glossed slightly with greenish and blending into the hue of the chest; under surface of primaries, particularly near the base, pervaded with greyish.

Young. Birds of the year have the wing varying from 9·0 to 10·0 inches.

In the nest-plumage the hind neck is dull grey and the crown is pervaded with the same; the chest and under surface are of an earthy brown, and at the age of three or four months the greenish-black feathers appear on the breast.

Obs. The plumage of this Crow is subject to variation dependent on age and freshness of the feathers; in abraded plumage the hind neck becomes quite fulvous, losing the grey tint of the newly acquired feather. This character is not the result of age in the individual: birds that are in moult may be seen with grey feathers intermingled with old fulvous-coloured ones. The amount of metallic reflections present on the upper-surface plumage increases somewhat as the bird grows to maturity.

Ceylonese specimens have been said to be blacker than Indian; but I do not know whether this alleged character would invariably hold good as regards the upper surface, were an equally large series of adult examples from the two localities compared; certainly continental birds are paler on the chest, and the grey tint descends lower down than in those from Ceylon, but some examples from India will coincide as regards the hind neck with insular ones. Birds which I have examined from Nepal and Darjiling are very pale on the hood and chest. The wings of eight specimens measure respectively 11·2, 11·0, 11·4, 10·8, 10·0, 11·9, 11·0, 10·8 inches; the largest are from Nepal. Ceylonese examples compared, therefore, with the above series will be seen to be smaller than their Indian fellows; but in regard to size insular birds vary very much; one has only to look at a number of adults as they hop about in the streets to notice at once the variation in size which exists among them. Mr. Hume writes that specimens shot in the Laccadives were very dark, recalling *C. insolens*.

In Burmah is a nearly allied race or subspecies of the present, tho *Corvus insolens* of Hume. It differs from the Indian bird in being blacker with a somewhat dull appearance about those parts which in the Indian Crow are

of a pale brownish grey or pale greyish white, and it has moreover, says Mr. Hume, a somewhat longer, slenderer, and more compressed bill. Examples in the British Museum resemble *C. splendens* in the back, wings, and tail, but have the hind neck, its sides, and the chest blackish grey, faintly suffused with greenish, and the upper part of the breast concolorous with the rest of the under surface, which is greenish black suffused with grey. The wings of six examples measure respectively 10·4, 9·5, 10·6, 10·2, 9·5, 10·55 inches.

Distribution.—This Crow, which is very abundant in Ceylon within its limits, is localized in a curious manner round the coast. It is found on both sides of the north of the island, following the west coast down to about Kalatura, and the east to somewhere in the neighbourhood of Arookgam Bay; beyond this, towards Hambantota, it may occur as a straggler, but certainly not in any numbers. Its cessation on the west coast under similar conditions of climate and food to those at Colombo, where it is so abundant, is most singular. The fact was first noticed by Mr. Nevill, C.C.S., in the J. A. S., C. B., 1870-71, and was at that time received by many with some little reserve. For my part, however, I very soon verified his statement on going to Galle, at which place, as likewise round the whole southern sea-board, I found it entirely absent. It is chiefly confined to towns and their immediate environs, being found in the interior only as a straggler, and even then is not met with many miles from the coast. Even at small villages on the sea, between many of its favourite resorts, it is almost replaced by its inland relative, thus appearing to congregate almost entirely where large native populations afford it an abundance of food.

Mr. Nevill, in his above-mentioned notice of this Crow, remarks that there "is no doubt that it is not indigenous to the south of the island, having been introduced by the Dutch at their various stations as a propagator of cinnamon, the seeds of which it rejects uninjured." I do not know whether there is, in the records of the former rulers of Ceylon, any thing to support this statement; but I am inclined to think, with Mr. Holdsworth, that it is the habits and inclinations of the species which prevent it from spreading into the south; being a bird of powerful flight it has been long enough in the island to diffuse itself over the whole surface of the low country, no matter in what manner it was first introduced; and the fact that it is still remarkably local goes to prove that it confines itself to districts which suit its disposition, and that probably it avoids the south-west corner of the island owing to the humidity of the climate, a cause which alone localizes so many Ceylonese species.

This well-known bird inhabits the whole of India from the south to the Himalayas; it is found in Nepal, but does not extend as far into the range as the interior of Sikhim; it is obtained at Darjiling, however, whence there are specimens in the national collection. To the eastward of the Bay of Bengal the dark race, *Corvus insolens* of Hume, replaces it, but it reappears, whether as a migrant or resident is still uncertain, in Malacca. The specimen in the British Museum from this region was purchased from Mr. Boucard, who got it from a collector who shot it himself. I do not observe any other instance of its capture in Malacca, and some further light upon its presumed existence in that country is much to be desired.

As regards the peninsula of India it extends as far to the north-west as Sindh, where it is plentiful. In Chota Nagpur Mr. Ball remarks that it is more plentiful than the preceding species, and that it usually inhabits a distinct tract of country from that bird, although sometimes found with it about towns and villages. In the south it does not ascend the hills as it does in the Himalayas; Mr. Fairbank only found it at the base of the Palanis, and it is not recorded from the Travancore ranges at all. It extends across to the Laccadive Islands, in which group Mr. Hume found it at Amini, and heard of it at one or two of the islands nearest Cannanore.

Habits.—The space allotted to me in such a work as the present is far from sufficient to describe the habits of this bold "citizen" of Eastern towns. He is gifted with as much as, if not more intelligence than any member of his sagacious family; and annoying as he is, on account of his large share of brains, he is nevertheless a most useful adjunct to the sanitary regulations of Indian towns. He thrives to a marvellous degree in all these, his prosperous condition depending mainly on his utter audacity, his entire disregard of man, his thieving propensities, and his accurate powers of observation. He devotes himself to the timely occupation of the back yard, the bungalow verandah, the barrack-square, the abattoir, and the commissariat meat-

store; or he resorts to the scene of the fisherman's occupations on the sea-beach, or the door of the native cottage at the morning hour of cooking, in all cases exactly at the opportune moment, and he is sure not to come away without his wants being satisfied. While living at Trincomalee I always found him winging his way at early morn, while it was yet dusk, in long lines to the sea-beach and to the troops' meat-store, to be in time for the dragging of the sein-net or the cutting up of the oxen; and gathering on the sands in noisy knots, or lining the branches in "cawing" rows, these skilful robbers would never miss a chance of snatching up an unguarded morsel. But it was at meal-time in the barraek-squares of Colombo that he was more particularly in his element; crowding in scores round the verandahs at the bugle-call of "dinners up," the audacious thieves waited until the tables were spread and eagerly watched for the opportunity of acquiring a midday repast. Luckless was the soldier who turned his back for an instant! From the adjacent branches to the table and back was the work of a second, and in this space of time the savoury meat had disappeared from the gunner's plate and was being discussed by half a dozen sable beaks. In the bungalow verandah the Crow proves himself a terrible nuisance; seated on the tops of the green "tats," or slyly perched on the window-sill with his head awry, he does not scruple to pounce down, and in the momentary absence of the Ayah snatch the bread from the children's hands, or dart into the nursery and upset the milk-jug on the table; or he will glide noiselessly through the breakfast-room window and in an instant pounce upon the sideboard or table, and having from afar selected the most tempting-looking entree or the best viand is off again before the Appu, who is laying "master's" breakfast, can, with a well-aimed blow, effectually stop the thief. The only satisfaction that "master" gets is the Appu's tale, "Sar! I go to kitchen for a minute, and that Crow take away master's breakfast." I have witnessed one of these birds come into the mess-room at Colombo, pull off the napkin that had been placed over a cold joint on the sideboard, and begin pecking away most vigorously at the meat.

Concerning the Crow's exploits in Ceylon, Layard writes as follows:—"He levies contributions on all alike: leave but your breakfast-table for a moment, and as you return the rustling of hurrying wings, the marks of many feet on the white table-cloth, the gashes in the pat of butter, and the disappearance of plantains and small viands, proclaim who have been the robbers. The old 'hopper woman' sits frying her cakes under the lonely 'pandal' of her eadjan hut, and over her, with head inclined, taking a bird's-eye view of her cookery, sits the 'eaea;' and now the 'appah' (anglice 'hopper') is done, lifted from the pan, and laid on the little circular basket ready for a customer. With a grunt of satisfaction the aged crouc surveys her handiwork, and drops her spoon to feel for her beloved betel-ponch: a tiresome little bit of areca-nut has got into a corner, and the old dame bends over it, unmindful of her charge; a dark figure drops from the roof, and though she is instantly on the alert and aims an ineffectual blow at the thief, the nice white 'appah' is borne off. Sometimes, however, the robber has but a poor hold on it and drops it on the red eabook road; down pounce a host of Crows that have been looking on from many a tree, and a scuffle ensues: but anxious at least to cheat them of their booty, if not to retain the damaged article for her own eating, the old woman hurries to the rescue; but this makes matters worse, the castle is defenceless, and unseen foes drop down from beam and rafter or fly in through open doors. The rice-basket is invaded, the ehilli-box overturned, the dried fish stolen, and lucky is the dame if the crash of most of her little store of crockery and glass, swept to the ground and scattered in shining fragments, does not hastily recall her to her hut."

This account is by no means overdrawn, for to the natives of the bazaars the Crow is an utter pest. I question, however, whether his absence from the towns would not in the end lead to much harm, for he is a most useful scavenger, and clears the streets and back premises of every thing thrown out from the houses, which would otherwise speedily decompose in the rays of the tropical sun. Notwithstanding its utter disregard for the native (which is so great that I have seen one pounce on to a basket carried on a boy's head and seize from it a cake or a fruit), it entertains a marked respect for the white man, and stands in wholesome dread of the gun, flying off the moment a stick even is pointed at it; and so quick-sighted is it that it espies any one trying to stalk it and decamps at once, though it has not seen the gun in the enemy's hand!

At certain hours in the day these Crows assemble in large flocks and hold a noisy parlance which lasts for some time. At Colombo it was usually on the beach at the "Galle Buck," over an evening meal

on sandflies, which they are very fond of, or engaged in pranks with the hermit-crabs, that the affairs of the day seemed to be discussed. Often at midday a noisy meeting would take place on the banks of the lake, and while several dozen birds held an angry debate on some fellow Crow who was posted in the middle of the circle, others would bathe up to the thighs in the water, ducking themselves and splashing in all directions. A striking instance of the Crow's love of mischief and his innate impudence was exemplified at Colombo in his habit of annoying the unoffending little Grebes which frequented the lake; apparently for the sake of seeing them disappear under the water, he would dart down on them over and over again.

In the towns the Grey Crow invariably roosts on the fronds of cocoanut-trees, sitting close together in rows, but not settling down for the night until a considerable time has been spent in noisy discussion. It appears to feel the tropical heat at midday, taking shelter under the shadiest branches, and often panting with its bill wide open.

Nidification.—The breeding-season on both west and east coasts lasts from May until July. The nests are built in trees near human habitations, generally at a considerable height from the ground. Scarcely ever more than two are found in the same tree, and it is usual to find but one. They are placed in the fork of a tree and made of sticks lined with coir-fibre, small roots, wool, hair, or any substance which will suit the purpose; the interior is very shallow in some and moderately deep in others, and usually measures about 6 inches across. The eggs are from three to four in number and vary much in shape, although typically they are slightly pointed ovals. The ground-colour is also somewhat varied, being in some of an olivaceous bluish green, and in others of a light blue-green. Normally they are rather closely freckled and spotted with brownish grey and light brown all over, but chiefly at the large end, where there are, in some instances, a few darker brown streaks. They vary considerably in length, but not in general bulk, averaging about 1.4 by 1.06 inch, the largest that I have measured not exceeding 1.6 by 1.08 inch.

It breeds in the Himalayas up to 4000 feet; the season, *par excellence*, says Mr. Hume, "is June and July; but occasionally nests will be found earlier even in Upper India, and in Southern and Eastern India a great number lay in May." Miscellaneous material is used for the construction of the nests, particularly in the matter of lining; and Blyth speaks of some nests being exclusively composed of wires taken from soda-water bottles, which had been purloined from heaps set aside by native servants for sale.

The same variety of form and marking of the eggs is observable in Indian specimens, and the average of a large number "is 1.44 by 1.06 inch."

Genus CISSA.

Bill moderately short, stout, wide at the base; culmen well curved, the tip with a plainly indicated notch; nasal bristles short; gape furnished with short rictal bristles. Eye surrounded by a prominent naked wattle. Wings short, rounded, the 6th quill longest. Tail long and graduated. Legs and feet stout. Tarsus equal to the middle toe with its claw; lateral toes subequal.



$\frac{2}{3}$

CISSA ORNATA.

CISSA ORNATA.

(THE CEYLONESE JAY.)

(Peculiar to Ceylon.)

Pica ornata, Wagler, Isis, 1829, p. 749.

Cissa puella, Blyth, J. A. S. 1849, xviii. p. 810; id. Cat. B. Mus. A. S. B. p. 93 (ex Layard, MS.); Kelaart, Prodromus, Cat. p. 124 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 213.

Cissa pyrrhocyanæa, Gould, B. of Asia, pt. i. pl. 13 (1850, ex Licht. MS.).

Kitta ornata, Bp. Consp. i. p. 166 (1850).

Citta ornata, Licht. Nomencl. Av. p. 9.

Cissa ornata, Blyth, Ibis, 1867, p. 298; Schlegel, *Coraces*, p. 69; Gray, Hand-l. B. ii. p. 7 (1869); Holdsworth, P. Z. S. 1872, p. 461; Legge, Ibis, 1874, p. 23; Holdsworth, *ibid.* p. 124; Sharpe, Cat. B. iii. p. 87 (1877).

The Mountain-Jay, Europeans in Ceylon; also *Blue Jay*.

Kahibella, Sinhalese.

Ad. capite et oculo undique castaneis: dorso latè ultramarino, uropygio eum dorso postico et supracaudalibus magis cyanescentibus: tectricibus alarum omnibus ultramarinis: primario primo nigro: remigibus reliquis extùs castaneis, intùs nigris: caudâ cyaneâ, rectricibus latè albo terminatis, fasciâ subterminali nigrâ transversim notatis: subalaribus ultramarinis, interioribus cineraceis: remigibus infrâ nigris, extùs castaneis, intùs versus basin rufescentibus: palpebrâ et iride sanguineis: rostro rubro: pedibus corallinis.

Adult male and female. Length 18·0 to 18·5 inches; wing 6·5 to 6·7; tail 10·25 to 10·7, outer feathers 6·5 shorter than central; tarsus 1·6 to 1·8; mid toe and claw 1·5; bill to gape 1·5 to 1·6. Expanse 20·5.

Iris light brown; eyelid deep red, orbital skin somewhat paler; bill, legs, and feet coral-red; claws reddish yellow at base, dusky at tip.

Whole head, neck, and chest deep shining chestnut; interscapular region, lesser wing-coverts, and beneath the hue of the chest cobalt-blue, paling into light ærulean blue on the lower back, rump, and underparts; greater wing-coverts duller blue than the lesser; quills light chestnut on their outer webs, and dull black on the inner, those of the tertials overcast with blue, basal inner edges of quills rufescent grey; tail greenish blue, the edges brightest and the terminal inch white with a dividing black band chiefly developed on the inner web, the four lateral pairs of feathers with the white running up the outer edge; thighs dusky cobalt-blue.

Young. Tail in nestling plumage about 6 inches in length; feathers pointed. Iris brown, with the outer edge pale, orbital skin brown; bill dusky orange with a pale tip; legs and feet dusky red.

Head, hind neck, throat, and chest pale chestnut; back and upper breast bluish green, becoming dusky on the lower breast, with the belly albescent; lesser wing-coverts as the back; the greater coverts and quills as in the adult. At a further stage the chestnut of the head and throat becomes darker, and the back and breast more blue, but not nearly so pure as in the second year or fully adult dress.

Distribution.—The Ceylon Jay inhabits the mountains of the Central Province, including the detached Muneragala range beyond the south-eastern slopes of Madulsima, and all the peak forests which descend into the Western Province and form the northern slopes of Saffragam. Beyond this district, to the south and west respectively, it is found in the jungles of the Rakwana district, the Morowak and Kukkul Korales, and the immense forests covering the low ranges between the Singha-Rajah jungle and the Kaluganga. This latter district comprises the lower part of the Kukkul Korale and the Pasdun Korale, and the highest parts do not exceed 1700 feet. I found it in the valleys of this wild and little-known region during the rainy month of August, at an elevation considerably under 1000 feet, which leaves no doubt that it is a resident there.

Since the jungle in the Central Province has been felled to such an enormous extent for coffee-planting, the Jay has decreased very much in numbers below 4000 feet. Its chief home now is in the forests of the main range, the Nuwara-Elliya plateau, the Peak wilderness, the upper part of Haputale, and the summits of the Knuckles. In patna-jungles, however, it is always liable to be found, particularly during the boisterous weather of the S.W. monsoon, when it is driven down from the mountains above.

The Jay was first made known by Wagler, who described it in the 'Isis' for 1829, from a specimen in the Berlin Museum, to which the East Indies was assigned as the habitat.

It seems to have escaped the notice of subsequent ornithologists until Layard's time; while collecting in Ceylon he met with it, and, being under the impression that it was new to science, he gave it its appropriate synonym, *C. puella*, and transmitted his specimens to Blyth, who established the name. Layard writes of it, "This, the most lovely of all our Ceylon birds, was discovered by me along the course of a mountain stream in the jungle near Ambegamoa."

I am glad to hear that many gentlemen in the planting districts are endeavouring to preserve this handsome species, and thus prevent the disappearance of such a pleasing ornament to the woods in the vicinity of their estates. These efforts, I understand, are chiefly being made in the Dimbulla and Lindula districts.

Habits.—This beautiful bird is of a shy disposition; it associates generally in parties of about half a dozen, and passes most of its time in the branches of tall trees, searching for lizards and large beetles, and partaking of fruit of many kinds. It is, however, often met with in low underwood; and I have several times flushed it from the ground, when it flies on to low branches and speedily makes its way off. It is fond of the green lizard (*Calotes*), which I have on several occasions found in its stomach in large fragments. At early morning they roam about the forest, keeping to the tops of the trees, and following each other with a loud clanking cry, until suitable trees to feed in have been found, in which they settle down, uttering a harsh croaking note as they move from branch to branch. When feeding in underwood or on the ground I have noticed that they are usually silent and very watchful, which they have need to be, for their beautiful blue plumage quickly attracts the attention of the sportsman. It has, notwithstanding its wary habits, a considerable amount of inquisitiveness in its disposition. Layard writes thus of it:—"The last I procured fell a victim to that curiosity so characteristic of the Jays. I was creeping through some thick jungle to get a shot at a large Wood-Pigeon, when a *Cissa* flew down from some lofty trees, and, coming close to me, peered into my face. I waited until the bird had leisurely surveyed me and flown to a little distance, still watching my movements. This enabled me to shoot it." Mr. Holdsworth remarks, "They are very noisy, continually uttering a Jay-like scream, both when perched and flying. There is consequently little difficulty in finding them out when they are in the neighbourhood; but from their keeping so much to the dense jungle, I have on several occasions worked my way quietly through the bushes to within a few yards of the birds without being able to get sight of them."

The beauty of the Jay's plumage has caused it to be recklessly shot for the sake of its feathers; but in this matter people in Ceylon are no more to blame than those in Norway, South America, and Australia, who have so ruthlessly slaughtered Kingfishers, Humming-birds, and Parrakeets to satisfy a culpable taste on the part of the fair sex for the ornamentation of their hats with the feathers of many of the most lovely members of the bird creation!

Nidification.—This bird breeds during the cool season. I found its nest in the Kandapolla jungles in January; it was situated in a fork of the top branch of a tall sapling, about 45 feet in height, and was a tolerably bulky structure, externally made of small sticks, in the centre of which was a deep cup, 5 inches in diameter by $2\frac{1}{2}$ in depth, made entirely of fine roots; there was but one egg in the nest, which unfortunately got broken in being lowered to the ground. It was ovate and slightly pyriform, of a faded bluish-green ground, thickly spotted all over with very light umber-brown over larger spots of bluish grey. It measured 0.98 inch in diameter by about 1.3 in length.

The front figure in the Plate accompanying this article is that of a fine female example shot in the forest surrounding the Horton Plains, and the one in the background that of a young bird.

PASSERES.

Fam. ORIOLIDÆ.

Bill rather long, wide at the base; culmen curved towards the tip, which is distinctly notched. Nostrils exposed, linear in form, placed in front of the base of the bill and near the margin of the mandible. Tarsus considerably longer than the middle toe. Feet small.

Sternum narrow in front; widening posteriorly, with a deep pointed notch in each half of the posterior edge; the posterior part of the opening almost united.

Genus ORIOLUS.

Bill with the characters of the family. Wings rather long, the 4th quill the longest; the difference between the secondaries and primaries less than half the length of the tail. Tarsus stout, covered in front with broad transverse scales. Feet rather small; the lateral toes unequal, the outer one joined at the base to the inner.

ORIOLUS DIFFUSUS.

(THE BLACK-NAPED INDIAN ORIOLE.)

Oriolus sinensis, Swains. An. in Menag. p. 342 (sub *O. coronatus*).

Oriolus chinensis (nec Linn.), Jerd. Cat. B. S. India, Madr. Journ. 1859, x. p. 262; Swinhoe, P. Z. S. 1871, p. 374; Hume, Str. Feath. 1874, p. 477.

Oriolus indicus, Jerd. Ill. Ind. Orn. pl. 15 (1847); Blyth, Cat. B. Mus. A. S. B. p. 216 (1849); Layard et Kelaart, Prodromus, Cat. Birds Ceylon, App. p. 58 (1853); Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 270 (1854); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 124; Holdsw. P. Z. S. 1872, p. 452; Blyth & Walden, B. Burm. p. 139 (1875).

Oriolus diffusus, Sharpe, Cat. Birds, iii. p. 197 (1877).

Adult male and female. Length 9.5 to 10.0 inches; wing 5.8 to 6.3; tail 4.0 to 4.1; tarsus 0.9; mid toe 0.8, claw (straight) 0.3; bill to gape 1.4, width at nostrils 0.45.

These measurements are taken from a series of examples in the British Museum; the wings of the two examples procured by Layard in Ceylon measure 6.1 and 6.5 respectively; these are now in the Poole collection.

"Iris rich blood-red; bill pinky red; legs and feet plumbeous" (*Jerdon*).

Male. Forehead, as far back as the centre of the crown, throat, entire neck, upper and under surface of body, including the upper and under tail-coverts and the underwing bright yellow, as also the lesser wing-coverts, the outer webs of the greater coverts, and the terminal portion of all but the central tail-feathers; tips of the primary-coverts and edge of wing paler yellow than the aforesaid parts, and the outer webs of the secondaries marked with the same as follows—the entire web of the innermost and those of the remaining feathers decreasing gradually to an edging on the outermost; primaries marked with a still narrower margin; lores, a space above and behind the eye, posterior part of crown, occiput, and nape, as also the wings and tail, with the exception of the parts above named, jet-black.

Female. Back and scapulars slightly tinged with olivaceous.

Young. Bill dusky or dingy pinkish.

Upper surface with the scapulars and those parts of the wing which are bright yellow in the adult dusky greenish

yellow, brightest on the upper tail-coverts; in front of the eye a small black spot; outer webs of greater coverts clear yellow, the parts of the wing which are black in the adult dark brown; sides of neck yellower than the back part; throat, chest, and breast whitish, tinged strongly with yellow on the sides of the breast, flanks, and under tail-coverts, and streaked on the fore neck and under surface of body with blackish lines, finest on the fore neck, and boldest on the breast and flanks.

Obs. Mr. Sharpe has given this species the above title, although it has generally been known by that of *indicus*, as it appears that the name given by Brisson is not admissible, inasmuch as it related to a bird which had blue in its plumage, a character not to be found in any Oriole. As it is found in China it is more widely diffused than any other Black-naped Oriole, and hence Mr. Sharpe's name for it. Linnaeus's name *chinensis* is said to be referable to the Philippine bird. Examples from China differ somewhat from Indian ones in having a "slightly larger bill, a somewhat larger wing-spot, and decidedly more yellow on the tertiaries" than the latter; but Mr. Hume, whose remarks I quote, finds Tenasserim specimens to match both Chinese and Southern-Indian, thus establishing an unbroken chain.

The Black-naped Orioles form a closely allied and very interesting group. *O. tenuirostris* from Burmah, as its name implies, has a slenderer bill and has more yellow on the primary-coverts and tail than *O. diffusus*. *O. andamanensis* from the Andamans and *O. frontalis* (a splendid species) from the Sula Islands are chiefly distinguished by their black, almost unmarked wings; and the latter has the head nearly all black, with only a narrow frontal band of yellow.

O. macrurus, Blyth, from the Nicobars is another black-winged species of Black-naped Oriole with a broader occipital band than *O. andamanensis*.

Distribution.—The present species has proved to be only a straggler to the island of Ceylon, but two specimens of it having been procured as yet. Layard, who introduced this Oriole into our lists, writes of it (*l. c.*):—"A single pair of these birds fell under my notice; they were shot by a native at the back of the Bishop's residence near Colombo." It enjoys a wide range, and no doubt is much in the habit of moving from place to place, so that it may occur again at some future period within our limits.

Jerdon remarks that it is spread more or less throughout India, but is rare everywhere; he procured it in the Malabar jungles. Mr. Elliott found it at Dharwar, and it occurs near Calcutta; it is, however, as Jerdon says, much more common in the countries to the east of the Bay of Bengal, extending southwards into the peninsula of Malacca as low down as Pinang. Mr. Hume records it from Tenasserim, in which province Mr. Davison procured it south of Moulmein. It is spread eastward from Burmah as far as China, where Swinhoe remarks of it as follows:—"Throughout China, and Formosa in summer. Resorts in winter to Cochin-China, Tenasserim, and India." It would appear from this that it is merely a visitant to India, a fact which would well explain its being a casual straggler to the shores of Ceylon. As it is a summer inhabitant of China, it probably breeds there, and that country may be considered to be its proper headquarters.

Habits.—But little is recorded concerning the habits of this Oriole. It appears in India to frequent forest-districts, and to keep more to jungle than most other species of its family. It is evidently a bold bird, and well able to hold its own in the forests. Mr. Swinhoe, in writing on the ornithology of Formosa in 1865, gives the following account of its prowess:—"Walking along the avenue this morning, my attention was attracted by a Halcyon's scream, and two birds, one chasing the other, dashed through the thicket. The first bird I was not quick enough to catch sight of. The pursuing bird was an Oriole (*Oriolus chinensis*). The Oriole discontinued the chase, and, perching on a tree not far from me, began to whistle its absurd attempt at a song, as if glorying in the defeat of its enemy. It was a mature bird, and looked very showy in the sunlight." The diet of this species is probably of a mixed nature, as is the case with many of its congeners, who are both insectivorous and frugivorous.

I know nothing of its nidification.

ORIOLOUS MELANOCEPHALUS.

(THE BLACK-HEADED ORIOLE.)

Oriolus melanocephalus, Linn. Syst. Nat. i. p. 160 (1766); Blyth, Cat. B. Mus. A. S. B. p. 215 (1849); Kelaart, Prodrum, Cat. p. 122 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 123; Horsf. & Moore (in pt.), Cat. B. Mus. E. I. Co. i. p. 269 (1854); Jerdon (in pt.), B. of Ind. ii. p. 110 (1863); Hume, Nests and Eggs, ii. p. 301 (1874); id. Str. Feath. 1874, p. 230; id. *t. c.* (1878) (B. of Tenass.), p. 330.

Oriolus ceylonensis, Bonap. Consp. Av. i. p. 347 (1850); Jerdon (in pt.), B. of Ind. ii. p. 111 (1863); Holdsw. P. Z. S. 1872, p. 453; Hume, Str. Feath. 1873, p. 439; Fairbank, *ibid.* 1877, p. 406; Sharpe, Cat. Birds, iii. p. 216 (1877).

The Black-headed Indian Icterus, Edwards, Birds, p. 77, pl. 77; *Le Loriot de Bengale*, Brisson; *The Southern Black-headed Oriole*, Jerdon, B. of Ind.; *Mango-bird*, Europeans in Ceylon. *Pilak*, *Zardak*, Hind.; *Konda-ranga pandu*, Telugu.

Ka-kurulla, lit. "Yellow-bird," Sinhalese; *Mamkoel*, *Mambala kuruvi*, Tamils in Ceylon.

Adult male. Length 9.5 to 10.0 inches; wing 5.0 to 5.2; tail 3.2; tarsus 0.9 to 1.05; middle toe and claw 0.95 to 1.0; bill to gape 1.25, width at nostrils 0.37.

Iris bright ruby-red; bill faded lake-red, paler about the base beneath; legs and feet dusky bluish, claws dusky.

Entire head, hind neck, throat, and fore neck down to the centre of the chest shining jet-black; wings and a patch on the centre of the four middle tail-feathers black, less lustrous than the head; rest of upper and under surface, wing-coverts, upper and under tail-coverts, tail and under wing rich yellow, with a *slight* greenish tinge on the back and rump; tips of the primary-coverts, varying from 0.3 to 0.5 inch in depth, tips of the secondaries, varying on the outer webs of the innermost feathers from 0.3 to 0.6 inch in depth, bright yellow; primaries more finely tipped with pale yellow; in most specimens, except those which are evidently very old, the yellow of the central rectrices next the black is sullied with greenish; the black band varies from $\frac{3}{4}$ to 1 inch in width on these feathers. In some examples the outer web of the *shortest* secondary feather, which is almost concealed by the scapulars, is entirely yellow.

Adult female. Length 9.5 inches; wing 4.8 to 5.0. The yellow of the back and breast is less vivid than in the male. Examples not fully adult of both sexes have the back strongly tinged with greenish.

Young. The bird of the year measures 8.7 to 9.1 inches, and has a wing of 4.7 to 4.8. Iris brown; bill black or blackish brown, with the edge of the base of lower mandible light; legs and feet slightly dusky than in the adult; a yellowish stripe runs from the nostril over the eye; orbital fringe yellowish; throat white, with black mesial stripes; the wing-coverts, which are yellow in the adult, have blackish centres; tips of secondaries less conspicuous; margins of primaries whitish at the centre; tail-band brownish, very broad, and extending across all the feathers, but limited to the outer web on the two laterals; the breast striated with black, and apparently more so in males than in females; back washed with brownish. In the nestling just plumaged the head has the feathers edged greenish.

Obs. The Oriole inhabiting Southern India and Ceylon has been usually styled *O. ceylonensis*, a name given by Bonaparte to a bird with less yellow on the wing than he supposed the species described by Linnaeus, under the name of *O. melanocephalus*, exhibited. Linnaeus, however, founded his species on Edwards's plate of the Black-headed Indian Icterus, which is no other than a representation of the Ceylonese and Peninsular-Indian Oriole with the tertials tipped only with yellow; the spot formed by the yellow tips of the primary-coverts is, it is true, very large, and answers well to that which exists in the Himalayan bird usually styled *O. melanocephalus*. This is, however, a mistake of the artist, as is manifest by the letterpress, which runs as follows:—"The remainder of the quills next the body are tipped with yellow, which colour extends a little way along their outer webs; the tips of the covert-feathers where they fall on the greater quills are yellow, which form a distinct spot of yellow a little above the middle of

the wing." Now the alleged differences between Linnæus's and Bonaparte's species lie in the smallness of the wing-bar and the scanty amount of yellow on the tertials of the latter, characters which in reality, by virtue of Edwards's plate, apply to the former (*O. melanocephalus*). If, therefore, there be two races of this Oriole which deserve subspecific rank, it is the northern bird, which must be separated from the southern and receive a name, which I would propose as *O. himalayanus**, because the birds from that region principally, as I shall presently show, exhibit the characteristic on which they could alone be specifically separated.

As much has been written for and against the characters which have been held to separate the northern and southern races of this Oriole, I have carefully examined the whole series in the British Museum, and give here a Table of the results of my examination. The specific names are those used on the labels of the specimens from the localities named.

		Wing. in.	Bill to gape. in.	Wing-spot (broad). in.	Coloration of outer web of innermost exposed secondary.
a.	<i>Oriolus melanocephalus</i> . N.W. Himalayas.....	5.6	1.32	0.7	Entirely yellow.
b.	" " Nepal	5.45	1.35	0.65	" "
c.	" " N.W. Himalayas.....	5.4	1.45	0.45	" "
d.	" " Nepal	5.65	1.3	0.7	" "
e.	" " Nepal	5.7	1.3	0.62	" "
f.	" " Pegu.....	5.4	broken	0.7	" "
g.	" " Kamptee	5.12	1.35	0.4	Large spot at tip.
h.	" " Madras	5.1	1.3	0.55	" "
i.	" " Madras	5.2	1.25	0.45	" "
k.	" " Madras	5.4	1.3	0.5	" "
l.	" " Travancore	5.61	1.35	0.75	" "
m.	" " Tenasserim	5.2	1.28	0.4	" "
n.	" " Behar	5.4	1.3	0.4	" "
o.	" " Behar	5.5	1.3	0.6	" "
p.	<i>Oriolus ceylonensis</i> . Nuwara Elliya.....	5.1	1.32	0.3	" "
q.	" " Nuwara Elliya.....	4.8	1.2	0.3	" "
r.	" " Galle	5.2	1.25	0.5	" "
s.	" " Nuwara Elliya.....	5.0	1.25	0.5	" "

Examples *g* to *o* are not to be separated from the four last Ceylonese specimens; the size of the spot at the tip of the outer web of the innermost secondary, as well as the extent of yellow at the termination of the adjacent feathers, varies in each, but it is no larger in the South-Indian than in the Ceylonese series; it will also be seen that no dependence can be placed on the width of the wing-spot formed by the yellow tips of the primary-coverts, the Travancore specimen having it as wide as any Himalayan, although it must be acknowledged that it is larger as a rule in the northern form than in the southern. There is, however, a constant difference in the coloration of the long, exposed inner secondary of the Himalayan bird, which is very remarkable when seen in a series laid side by side with another from the various localities indicated in the above table; so that in the birds from the region above mentioned, in addition to the secondaries having more yellow at the tips than others, there is the fact that the feather in question has always (as far as I can judge from the series examined) the entire web yellow, while others (the true *O. melanocephalus*) have merely a large spot at the tip of the outer web. In most families of birds it would amount to an absurdity to base a separation of two species on the coloration of a single feather; but in the Orioles, which depend so much on the distribution of the yellow for their specific rank, it may not seem an unnatural point to lay stress upon. As long as the distinction which I have pointed out is found to hold good, I see no reason why the Himalayan and Pegu form should not stand as a subspecies or local race of the Indian.

Distribution.—This Oriole is a very common bird in Ceylon, being found throughout the entire low country and the hills, ranging up to an altitude not unfrequently of 6000 feet. It has, indeed, on several occasions been found at Nuwara Elliya; and in Uva, where it is very common, it often occurs at 5000 feet. In the north it is numerous, inhabiting the island of Manaar and those adjacent to Jaffna, as well as the extreme north of the mainland; and in the dry forests of the north-central district, in the Seven Korales, and interior of the Eastern Province it is likewise common. In the west and south it is chiefly found in

* *Oriolus melanocephalus*, Sharpe, Cat. B. iii. p. 215 (*nec* Linn.).

the cultivated portions of the interior and on the sea-board, and in the Galle district retires inland during the rains of the south-west monsoon. In the arid country between Haputale and the sea it is mostly confined to the forest on the rivers. On the Kandy side it is noticeable chiefly in Dumbara and the open valleys through which flow the numerous affluents of the Mahawelliganga.

In India this species is found throughout the greater part of the peninsula from Bengal southwards. Jerdon writes of the race which he styles *O. ceylonensis*, that it is found in Southern India, being common on the Malabar coast, comparatively rare in the Carnatic, and almost unknown in the bare Deccan. On the western confines of this district, however, it has been found by Mr. Fairbank, who records it from "Konkan and the western declivities of the Sahyadris, from Khandola to Goa." There are specimens in the British Museum from Madras, where it is said to be common. As the examples above cited from Behar belong to this species it may be presumed that the Oriole which Mr. Ball says is common in Chota Nagpur belongs to the scantily marked form and not to that which inhabits the sub-Himalayan region. Passing over Pegu, in going eastward of Bengal, we find it again in Tenasserim, whence comes one of the specimens enumerated in the above table. Mr. Hume says that it "extends through the Province as far south as Mergui, but is rare south of Tavoy." I conclude the birds spoken of are the same as the example cited. In the Andamans Mr. Davison says it is a seasonal visitant, leaving them in October and returning in March.

Habits.—This showy bird, which is one of the ornaments of Ceylonese cultivated nature, frequents open paddy-lands studded with woods, detached groves, wooded compounds, the interior of forests in the dry parts of the island, and the borders of rivers and large tanks. Being a tame species, it dwells much in the proximity of houses, and remains perched sometimes on the top of a prominent tree, repeating its well-known note, *ko-ko-wak*, which it also utters on the wing. It has considerable powers of flight, progressing with alternate beating and closing of the wings. Its food consists chiefly of fruits and seeds of jungle-trees, and it consumes largely the berries of the Lantana. The Oriole is almost universally styled the "Mango-bird" by Europeans on account of its yellow plumage; but I imagine the name was imported from India in the first instance. It is a well-known species in the western parts of the island to sportsmen, and often pays with its life the penalty usually imposed upon the unfortunate members of the feathered creation who, unhappily for themselves, are arrayed in more gorgeous dress than their fellows. The first shot fired in the dawn at the much sought after "Kaswatua"* usually arouses the Oriole, and cuts short the morning preening of his yellow dress, frightening him across the misty paddy-field, out of which the Snipe are getting up before the sportsman's gun. When thus frightened it does not fly far, but quickly settles in some thickly foliated tree and gives out its not unmelodious whistle. It is not a sociable bird, although two or more are often seen not far from each other, and occasionally I have aroused a pair from the same tree.

Concerning its habits in India Jerdon writes:—"It frequents both forests, gardens, and groves. It is a lively and noisy bird, constantly flying from tree to tree, and uttering its loud mellow whistle, which Sundevall has put into musical form. It feeds chiefly on fruit, especially on the figs of the Bauman, Peepal, and other *Fici*, and it is said also to eat blossoms and buds."

Nidification.—The "Mango-bird" breeds, on the western side of the island, during the first six months of the year, the favourite time being March and April. In the north-east I have found its nest in December. It builds at the fork of a horizontal branch some distance out and high above the ground, suspending its nest by twining the material of the top round the branches. The nest is variable in construction, but is generally large and loose, composed of grass, bark, and small twigs, ornamented with lichens and bleached leaves. The eggs are usually three in number, pointed ovals in shape, and some so much so that they might be called pyriform; the texture is smooth and the ground-colour pinkish white, sparsely spotted and blotched with openly distributed smooth-edged markings of reddish brown, umber, and purplish black. In some eggs the markings are more confined to the large end than in others, and in one or two I have seen sundry hieroglyphic-like spots. Mr. Hume remarks, in 'Nests and Eggs,' that "the dark spots are not unfrequently more or less enveloped in a reddish-pink nimbus." The average dimensions are 1.2 by 0.82 inch.

* Native name for Snipe.

PASSERES.

Fam. CAMPOPHAGIDÆ.

Bill generally stout, moderately hooked and moderately notched; generally thick at the base, rather widened; the nostrils hidden. Wings in most species lengthened, never short.

Shrike-like birds of soft plumage; the feathers of the lower back and rump with stiffened shafts. (*Sharpe*, Cat. Birds, iv. p. 7.)

Genus GRAUCALUS.

Bill stout, massive, wide at base; culmen keeled and much decurved, with the tip notched distinctly. Nostrils covered with setaceous feathers; rictal bristles moderate; the lores bristly. Head massive. Wings long; the 4th quill the longest, and the 1st less than half the length of the 4th. Tail tolerably long, and slightly graduated at the exterior. Tarsus longer than the middle toe. Feet strong, claws curved and strong.

GRAUCALUS MACII.

(THE LARGE INDIAN CUCKOO-SHRIKE.)

Graucalus macii, Lesson, Traité, p. 349 (1831); Blyth, Cat. B. Mus. A. S. B. p. 190 (1849); Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 173; Jerdon, B. of Ind. i. p. 417 (1862); Blyth, Ibis, 1866, p. 368; Hume, Nests and Eggs, i. p. 181 (1873); Walden, Ibis, 1873, p. 310; Hume, Str. Feath. 1874, p. 204; Adam, *t. c.* p. 400; Hume, Str. Feath. 1875, p. 94; Butler, *t. c.* p. 464; Blyth & Walden, B. Burm. p. 123 (1875); Armstrong, Str. Feath. 1876, p. 316; Hume, *ibid.* 1877, p. 29; Fairbank, *t. c.* p. 400; Hume & Davison, *ibid.* 1878, p. 210; Sharpe, Cat. Birds, iv. p. 34 (1879).

Graucalus nipalensis, Hodgs. Ind. Rev. i. p. 327.

Campephaga macei (Less.), Gray, Gen. B. i. p. 283 (1845); Kelaart, Prodromus, Cat. p. 123 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 128.

Graucalus layardi, Blyth, Ibis, 1866, p. 368; Jerdon, Ibis, 1872, p. 117; Holdsw. P. Z. S. 1872, p. 437; Wald. Ibis, 1873, p. 311; Hume, Stray Feath. 1873, p. 435; Legge, Ibis, 1875, p. 287.

Mace's Caterpillar-catcher, Kelaart; *The Large Caterpillar-catcher*. *Kasya*, Hind.; *Kabasi*, Beng.; *Pedda akurai*, Tel., lit. "Large File-bird."

Adult male and female. Length 10.1 to 10.4 inches; wing 5.8 to 6.05; tail 4.3; tarsus 1.0 to 1.1; mid toe 0.85, claw (straight) 0.39; hind toe 0.5, claw (straight) 0.35; bill to gape 1.3 to 1.4. These measurements are from a good series of Ceylonese examples, in which the females average the larger of the sexes.

Iris reddish brown, variable in intensity of colour; bill black; legs and feet black, edges of tarsal scales whitish.

Male. Above the nostril, lores, round the eye, and the gape and point of chin jet-black, passing into blackish on the ear-coverts. The feathers of the lores are bristly. Above slate-grey (individuals varying in depth of colour), paler on the forehead and rump, which latter part is indistinctly barred with white; head and back in some examples with dark shafts; wing-coverts duskiest than the back and with dark shafts; wings and tail black, the former

with the quills edged white, and the outer webs of the tertials and secondaries paling into grey towards the edge; central rectrices dark grey, and the whole tipped white, the two external pairs mostly so, and the white extremity passing up into the grey.

Throat, sides of neck, chest, and upper breast slate-grey, lighter than the upper surface, and paling on the breast gradually into the white of the lower parts, leaving a few *very faint* traces of barring on the sides of the breast; under tail- and under wing-coverts white, the edge of the wing with a few light bars of bluish grey; thighs slate-grey, the edges of the feathers more or less edged with white. The generality of adult examples have a not inconsiderable amount of light barring on the lower breast.

Adult female. In this sex the lores are less black than in the male, as also the space beneath the eye and the ear-coverts, and the upper surface is not so blue; the very old bird has the under surface as in the male.

Young. The nestling, as described by Mr. Hume from the Andamans, has the lores, cheeks, and ear-coverts pale grey, each feather tipped with fulvous; the head and hind neck greyish white, tipped and margined with pale fulvous; back and scapulars French grey, tipped fulvous, and with a subterminal dusky spot on the feathers; the secondaries, tertaries, and greater and median wing-coverts greyish brown, very broadly margined on the outer webs with creamy white; the primaries margined and tipped with fulvous; chin, throat, and breast greyish white, the feathers tipped and margined with pale, slightly fulvous white; the lower parts pure white and unbarred.

The immature male has the chest and centre of the breast barred on a bluish-grey ground with dark slate-grey bars, which extend to the lower flanks and borders of the abdomen; the throat and fore neck are uniform grey, as in the adult; lores black.

The female has the throat whitish, the ground-colour being pervaded with grey, which changes into white on the chest, and the whole under surface, from the chin to the lower breast and flanks, barred with dark grey: with age the throat and fore neck gradually assume a uniform appearance as the light interspaces darken; in an example before me in this stage the barring is just perceptible on the throat, and the breast is white crossed with dark grey bars.

Obs. The Ceylonese and South-Indian race was separated by Blyth (*loc. cit.*) as *G. layardi*, without further diagnosis or description than that it was of the same small size as *G. javanensis*, and had the anterior surface of the wing underneath strongly barred, and the outer tail-feathers very slightly white-tipped. The first-named feature in the plumage refers to an immature bird, and the latter is a variable character. Ceylon birds certainly, as a rule, are smaller than those from the Andamans, Burmah, North-east India, and many parts of the Peninsula, but in the south of the empire they vary in size. One example from Coorg, tabulated by Lord Tweeddale ('Ibis,' 1873), has the wing 6.0 inches, while another in my own collection from the island of Ramisserum measures 6.5 inches. Mr. Sharpe, moreover, finds that North-west Indian specimens are intermediate in size between Himalayan and Ceylonese; in fact there is one in the British Museum from Kattiawar measuring only 6.0 inches, another from Kamptee 6.4, and a third from Mahabaleshwar 6.3; while a specimen from Mysore is again as large as a North-Indian one—wing 7.1, bill to gape 1.35. Three Mannbhoom specimens, recorded by Lord Tweeddale, measured 6.37, 6.6, and 6.3 in the wing. An Audaman female in my own collection has a length of 6.9; and one from Dehra Doou is noted at 7.37. These data show, therefore, that there is great variation in size in this species, and that while the largest birds come from the sub-Himalayan districts and the Andamans, those from N.W. India and Ceylon (widely separated regions) are nearly alike in dimensions; and these latter are, as regards plumage, when compared with the larger examples of the same age, identical with them.

Distribution.—This fine bird is generally distributed throughout the northern forest-tract from the country lying to the north-east of Trincomalie to the limit of the dry district a little south of Chilaw, likewise throughout the eastern portion of the island (where it is more particularly found about the dead trees in the newly-restored tanks) and the arid jungles between Haputale and the south-east coast. In the Kandyan Province it inhabits Uva pretty generally and the district round Kandy, including the Knuckles and the valleys of the southern affluents of the Mahawelliganga flowing through Hewahette and Maturata. Mr. Bligh has procured it also in Kotmalie, which is on the other side of the Pusselawa range. Among the above-mentioned districts it is especially numerous in the Wellaway Korale and the wild jungles lying between Anaradjapura and Chilaw.

Concerning its general distribution in India, Jerdon writes that it is found over the whole country, from the Himalayas to the extreme south, wherever there is a sufficiency of wood. Its location in the north-west is

somewhat peculiar, for Captain Lloyd says it is common in Kattiawar. Captain Butler observes that it is the reverse in the Guzerat district, for he only saw it near Deesa and in one or two other parts of the plains; while Mr. Hume writes that it has not been recorded from Siudh, Cutch, Jodhpore, or Sambhur. In Chota Nagpur it is, says Mr. Ball, pretty generally distributed; in the Khandala district it is found everywhere, but is nowhere abundant. Mr. Fairbank records one specimen as seen in the Palani hills; and Mr. Hume has received it from Anjango, and myself from Ramissernm Island. Turning towards the north-east we have it not uncommon along the bases of the Himalayas, and procured at such places as Dehra, Kumaon, Gurwhal, and Darjiling; further east still, Mr. Inglis says that it is very common in Cachar during the cold season, being met with there in flocks, but that it is only occasionally seen during the rains. In the Irrawaddy delta Mr. Armstrong met with it in abundance; and Mr. Oates writes that it is common within the limits of Upper Pegu and also in the Arracan hills. In the northern portion of the province of Tenasserim it is also not uncommon, extending thence across the bay to the islands, where it inhabits those of the Andaman group and is a permanent resident in them.

Habits.—The large Cuckoo-Shrike is decidedly a shy species. In the immature stage chiefly it associates in small flocks or troops, which keep in scattered company among tall trees near forest-lined rivers or surrounding the wild tanks of the Northern Province. Single birds are often met with flying high in the air and uttering their shrill call, *kur-ēech*, sometimes suddenly darting down in their course and alighting on the top of a lofty tree, on which they will continue this harsh and far-sounding note. When in small troops, if disturbed, one bird will leave the tree and is then followed by its mates one after the other, who pursue their companions to a new perch and again settle down in company with them. It is consequently difficult to approach within shot, and is usually only procured when it happens to alight by accident in a tree near the position of the sportsman or collector. Though not loud its note is very harsh and peculiarly far-reaching; it is in the evenings that it is peculiarly fond of uttering its dis-syllabic cry, and it will remain for some time perched in the same spot, now and then, in the breeding-season, giving out a low chirping song. Its food consists of caterpillars, grasshoppers, and various kinds of coleopterous insects. Hodgson states its food to be "*Mantides*, *Scarabæi*, berries, vetches, and seeds." I have no record, in my field-notes, of having found the diet of any example of so mixed a nature as this; but, doubtless, the food of this species is as varied as that of many Passerine birds.

Nidification.—Mr. Parker, of the Ceylon Public Works Department, who has had much opportunity of observing these birds in the N.E. and N.W. Provinces, says that they breed in June in the forests of that part, but he did not succeed in procuring their eggs.

Mr. Blewitt, as quoted by Mr. Hume in his 'Nests and Eggs,' says "that the nest is built in the most lofty branch of a tree, near the fork of two outlying twigs; it is circular in form, and the body is thickly made of thin twigs and grass-roots, while the outer part of the nest is covered with what appears to be spiders' webs; the interior is moderately cup-shaped. The breeding-time is in May and June." Jerdon found the nest in a lofty *Casuarina*-tree, and it was composed of small twigs and roots. The eggs are three in number and are rather elongated ovals, a good deal pointed towards one end; the ground-colour is greenish stone-colour, with, as Mr. Hume remarks, a creamy tinge in some. "The markings are very Shrike-like, and consist of brown blotches, streaks, and spots, with numerous clouds and blotches of pale inky purple, which appear to underlie the brown markings." Average dimensions of eight eggs 1.22 by 0.9 inch.

Genus PERICROCOTUS.

Bill not so massive as in *Graucalus*; culmen straighter and more suddenly bent down at the tip, which is plainly notched. Nostrils oval, placed in a depression concealed by the plumes; rictal bristles feeble. Wings pointed; the 4th and 5th quills subequal and longest; the 1st and 2nd in the same proportion as in the last genus. Tail long, much graduated. Legs and feet small.

Of brilliant plumage; sexes differing in coloration.

PERICROCOTUS FLAMMEUS.

(THE ORANGE MINIVET.)

Muscicapa flammea, Forster, Indische Zoologie, p. 25, pl. 15 (1781).

Phœnicornis flammeus, Swainson, Zool. Ill. 2nd ser. pl. 52 (1831); Jerdon, Cat. B. S. India, Madr. Journ. 1839, x. p. 244; id. Ill. Ind. Orn. pl. 11 (1847).

Pericrocotus flammeus, Gray, Gen. Birds, i. p. 282 (1845); Blyth, Cat. B. M. A. S. B. p. 192 (1849); Kelaart, Prodromus, Cat. p. 123 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 127; Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 142 (1854); Gould, B. of Asia, pt. ix. (1857); Jerdon, B. of Ind. i. p. 420; Holdsw. P. Z. S. 1872, p. 438; Hume, Nests and Eggs, p. 182 (1873); Legge, Ibis, 1875, p. 288; Sharpe, Str. Feath. 1876, p. 208; Hume, ibid. p. 394, et 1877, p. 197; Sharpe, Cat. Birds, iv. p. 75 (1879).

Flammeous Flycatcher, Lath. Gen. Hist.; *The Elegant Red Flycatcher*, Kelaart; *Sultan-bird*, Europeans in Ceylon; *Orange red Bird*, Swainson.

Phari-Balal-chasm, Hind., Jerdon.

Gene-kurula, Sinhalese.

Adult male. Length 7·7 to 7·85 inches; wing 3·5 to 3·6; tail 3·5 to 3·6; tarsus 0·65; mid toe and claw 0·65 to 0·7; bill to gape 0·9.

Iris reddish brown; bill, legs, and feet black.

Entire head, throat, hind neck, upper part of back, wings, central rectrices, nearly the whole of the adjacent pair, and the basal half of the others black, highly glossed on the head, throat, and back; under surface from the throat downwards, under tail-coverts, the tip and terminal half of the outer web of the above-mentioned central tail-feathers, the terminal half of the rest, a band across the wing, commencing on the outer web of the 5th primary, the tips of the greater secondary wing-coverts, and an external spot near the tips of the inner secondaries fiery orange-red, most intense on the chest, tail-feathers, and upper tail-coverts; under wing-coverts and under surface of the scarlet wing-band, as also an inner marginal spot on the 3rd and 4th primaries, pale yellowish red; thighs dusky black.

Female. Smaller than the male; wing 3·4 to 3·5 inches.

Iris brown; head, back of neck, scapulars, and lesser wing-coverts dark bluish ashy; the forehead and that portion of the wings and tail which is red in the male, together with the entire under surface, primrose-yellow; the wing-spot commences on the 5th primary; lores dark grey; the yellow of the forehead produced above the eye; quills and tail dusky blackish; rump and upper tail-coverts greenish yellow, blending into the hue of the back.

Young. Iris brown.

Immature males are clothed in the garb of the female. A specimen in my collection assuming the adult plumage has the head, hind neck, back, and wing-coverts bluish grey, intermingled with black feathers; throat yellow, mixed

with black; under surface bright yellow, with orange feathers appearing on the chest; rump greenish yellow, with the upper tail-coverts orange-red; part of the wing-bar is yellow and part orange-red, and the same with the spots on the inner secondaries; the wings and central tail-feathers are black, and the pale portions of the tail yellow.

Obs. Mr. Hume gives the measurements of the wings of a series of males from South India as varying from 3.6 to 3.75 inches, and of females from 3.45 to 3.7. These, it will be seen, exceed the usual size of Ceylonese individuals. Two examples in the British Museum, from Travancore and Madras respectively, measure in the wing 3.5 and 3.6, and they have the wing-spot extending as far as the 5th primary; there is another, collected by Captain Elliott, the locality unknown, with the spot extending upon the 4th primary, but it does not reach across the web from the margin quite to the shaft. The northern species (*P. speciosus*), which inhabits the eastern portion of the slopes of the Himalayas as far as Western Bhotan and also Central India, and the eastern and smaller race of that bird, which inhabits Burmah and Assam (*P. elegans*), are allied to the present. The former is a larger bird than *P. flammeus* (wing, ♂, from 4.0 to 4.3), and has the wing-band extending further out than in the latter—that is to say, the first two primaries only, according to Mr. Hume, in the male, and the first three in the female and young male want the bright patches on the outer webs. The female is of a more orange hue than that of the present species. Mr. Hume speaks of it as follows:—"Is a clear full gamboge- or orange-yellow below, the orange of the forehead extending over the anterior half of the crown, and sometimes further." The wing in *P. elegans* is similarly marked; but the outer webs of the central tail-feathers are red, whereas in the larger form they are wholly black, as in *P. flammeus*.

Distribution.—This conspicuously-plumaged bird is found in most of the forests and wild jungles of Ceylon. It is numerous in the coffee-districts of the centre and south of the island and in the main range, including the Horton Plains, in the woods of which it was one of the commonest birds I saw there during the month of January. Among other places in the Kandyan Province where it is frequent is the Knnekles district. It is found pretty generally in the forests between Colombo and Saffragam, in the Pasdun Korale, and in the wild country on the banks of the Gindurali from Baddegama up to the Singha-Rajah forest. In the jungles of the flat country lying between Haputale and Kattregama, in the Friars-Hood hills, and in the interior of the northern portion of the island it may always be met with where the trees are large and shady. Mr. Parker tells me it is very common at Uswewa, near Puttalam. It is not found in the Jaffna peninsula, as far as I am aware—its northernmost limit being fixed by Layard at Vavonia Velankulam; as there is, however, much heavy forest north of that place, I am of opinion that it will be found between it and "Elephant Pass."

On the mainland this Minivet is confined to the south of India. Mr. Hume thus sketches out its distribution (Str. Feath. 1877, p. 198):—"It is essentially a bird of the hills of Southern India. . . . In the Assamboo hills and their continuation, the Audaman hills, the Western Ghâts, as far north, at any rate, as Khandala, whence I have specimens, the Pulneys, Anamallis, and Nilghiris, the bird is common, and in the cold season it may even be found, at some little distance from the bases of these, in convenient jungles, and on the Malabar coast to the shores of the sea; but it is in no sense a plains bird, and never occurs in India in the open country at any distance from one of these hill series." Now it is singular that though it cannot be called a denizen of open country in Ceylon, it should be so plentiful an inhabitant of low-country forest in many parts of the island. The solution of this problem, no doubt, lies in the fact that the flat or low districts of South India are not covered with forest as in Ceylon. Jerdon remarks that it is found in all the lofty jungles from near the level of the sea to 5000 feet on the Nilghiri slopes, and says that it is, perhaps, most abundant at moderate elevations.

Habits.—The Orange Minivet affects lofty trees in the up-country forests and in patna-woods, keeping much to the topmost branches, or flying gaily about from limb to limb; in the low country it is partial to fine jungle bordering rivers or surrounding remote or secluded tanks. The male is a very showy bird, enlivening the gloom of the primeval forest as it flies from tree to tree or displays its bright red plumage among the green boughs far overhead. When not breeding, it associates in little flocks, either of several females alone, or one or two males accompanied by a little party of the other sex; and from this habit it has acquired its name of "Sultan" in the coffee-districts. It is constantly uttering a weak, though cheerful, little warble, or

otherwise it would be generally overlooked by the collector while threading his way in the underwood beneath it. Its diet consists of small butterflies and various winged insects, some of which it will occasionally take on the wing as they pass through the branches. In the woods of the Horton Plains I saw it catching insects in the moss with which the trees are entirely covered in that cool region, and its brilliant plumage furnished a striking contrast to the cold grey-looking aspect of the jungle.

Jerdon notices that in India "it keeps generally to the tops of high trees, usually in flocks of four or five; the sexes often apart from one another, all frisking about, picking insects off a branch or leaf, or occasionally catching one in the air."

Nidification.—I have never been able to obtain any information concerning the nesting of this species in Ceylon; but Mr. Hume describes the nest, in his 'Rough Draft of Nests and Eggs of Indian Birds,' from information received from Miss Cockburn. He says, "The nests are comparatively massive little cups placed on or sometimes in the fork of slender boughs. They are usually composed of excessively fine twigs, the size of fir-needles, and they are densely plastered over the whole exterior surface with greenish-grey lichens, so closely put together that the side of the nest looks exactly like a piece of lichen-covered branch; there appears to be no lining, and the eggs are laid on the fine little twigs which compose the body of the nest." The season for laying is confined to July, which is probably the same in the damp districts of Ceylon. The egg is described as pale greenish, "pretty thickly streaked and spotted, mostly so at the large end, with pale yellowish brown and pale rather dingy purple."

PERICROCOTUS PEREGRINUS.

(THE LITTLE MINIVET.)

Parus peregrinus, Linn. Syst. Nat. i. p. 342 (1766).

Muscicapa flammea, Forster, Ind. Zool. pl. 15. fig. 2 (1781).

Phœnicornis peregrina, Gould, Cent. Him. B. pl. 9 (1832); Jerd. Cat. B. S. India, Madr. Journ. 1839, x. p. 244.

Pericrocotus peregrinus, Gray, Gen. Birds, i. p. 282 (1845); Blyth, Cat. B. Mus. A. S. B. p. 193 (1849); Kelaart, Prodromus, Cat. p. 123 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 127; Horsf. & Moore, Cat. B. Mus. E. I. Co. p. 140 (1854); Gould, B. of Asia, pt. ix. (1857); Jerdon, B. of Ind. i. p. 423 (1862); Holdsworth, P. Z. S. 1872, p. 438; Hume, Nests & Eggs (Rough Draft), p. 184 (1873); id. Str. Feath. 1873, p. 184; id. ibid. 1874, p. 209; Legge, Ibis, 1875, p. 284; Sharpe, Str. Feath. 1876, p. 209; Armstrong, t. c. p. 318; Hume, ibid. 1877, p. 179; Tweeddale, Ibis, 1877, p. 315; Hume and Davison, Str. Feath. 1878 (Birds of Tenass.), p. 212; Sharpe, Cat. B. iv. p. 76 (1879).

The Crimson-rumped Flycatcher, *The Malabar Titmouse*, Latham; *Small Red Flycatcher*, Sportsmen in Ceylon.

Bulal-chasm, Hind.; also *Sath-sayili* and *Chota sath saki kapi*, Bengal.; *Kunkum-pu-jitta*, Telugu (Jerdon); *Batu gene kurula* or *Kos-kurula*, Sinhalese.

Adult male and female. Length 5·8 to 6·0 inches; wing 2·6 to 2·75; tail 2·6 to 2·7; tarsus 0·65; mid toe and claw 0·55; bill to gape 0·58 to 0·6.

Male. Iris sepia-brown; bill black; legs and feet black.

Forehead and head above, hind neck, and back dark ashy; lores, face, ear-coverts, chin and throat, wings, and three central pairs of tail-feathers, with the bases of the remainder, black; upper tail-coverts, a band across the secondaries, and all the primaries but the first four (in all specimens I have seen), breast, and flanks flame-red or scarlet, palest on the wings; two outer rectrices on each side and a terminal spot on the next pair orange-red; abdomen yellowish red, blending into the scarlet of the breast; under tail- and under wing-coverts yellowish red; thighs blackish.

Female. Iris and bill as in the male; legs and feet brownish black.

The upper parts, which in the male are ashy, are in the female brownish cinereous; wings and tail brownish black, with the same markings as in the male but of a more yellowish colour; upper tail-coverts scarlet, gradually blending with a greenish hue into the brownish grey of the back; above the lores, which are concolorous with the crown, a whitish stripe extending to the anterior upper edge of the eye; beneath whitish grey, washed with orange-yellowish, which becomes the ground-colour on the lower parts; under tail-coverts pale orange-red, concolorous with the outer tail-feathers; under wing-coverts yellowish red.

Obs. In India this species varies to an extraordinary extent in the tone of the orange coloration, which is particularly noticeable in the wing-markings. Mr. Hume, in an exhaustive article on the species ('Stray Feathers,' 1877, p. 179), gives the result of his elaborate researches into the question, from which it may be gathered that males vary in their colours from the blackish iron-grey mantle and orange-scarlet of the breast, abdomen, under tail-coverts, rump, and wing-spot observable in specimens from the extreme south of India, to the pale grey mantle, greyish dusky throat, whitish lower parts (tinged with fiery saffron on the breast), and mingled pale yellow and pale scarlet rump and wing-spot existing in specimens from Sindh. Elsewhere, in the same journal for 1873, he remarks that the deepest-coloured specimens are from peninsular India, then those from Lower Bengal and the eastern portions of the Central Provinces are somewhat paler, those from the rest of the Central Provinces,

the North-west Provinces, and the Punjab paler still, and finally those from Sindh much the palest of all. As regards size, examples from different parts of India, Burmah, and the Andamans are shown to vary in the wing, both in males and females, from 2·6 to 2·9 inches. I observe that three specimens in the British Museum from Kamptee measure 2·6 in the wing, and they have the upper surface precisely as in Ceylonese birds, the breast perhaps a trifle less brilliant, and the wing-bar extending out to the 6th primary. A fourth, from Madras, has the wing 2·8, and the wing-bar reaching to the 5th primary. In Ceylon specimens I have always found this band limited to the 5th quill, the first four being without any orange marking. Mr. Hume notices that from Anjango, Sindh, Dehra, Tenasserim, and Elephant Point males sometimes have the wing-bar extending upon the 5th quill, and from Akyab, Amherst, Port Blair, Moulmein, and Alteran river females exhibit the same character.

Distribution.—The Little Minivet is generally diffused throughout Ceylon, but it is more numerous in the northern half, from Colombo to Jaffna, than to the south of the former place. It may often be seen in the cinnamon-gardens and in the adjacent cultivated, though woody, country. It is plentiful in the Jaffna peninsula, where it replaces the last species, and is also numerous throughout the dry forest-regions between there and Dambulla, as also in the Seven Korales and corresponding low country on the other side of the island. To the south of the Haputale ranges it is likewise to be found in the forests. In the damper portions of the south-west of the island it is not so frequent. I have observed it in most of the coffee-districts; and Mr. Holdsworth records it as a winter visitor to Nuwara ELLIYA, but it is neither so common there nor in the hills of the south as the foregoing species.

On the continent this bird enjoys a more extended range than any of its congeners. Mr. Hume writes:—"I have the species from almost every part of India, Burmah (including Pegu, Arrakan, Tenasserim), and the Andamans; but it is not known to occur in the Nicobars, and is not found, to the best of my knowledge, in the north-west Punjab (Trans-jhilm, in fact), and it neither ascends the Nilghiris nor the Himalayas." In the latter assertion, as regards the south of India, the experience of Messrs. Bourdillon and Fairbank bear him out; for the former does not record it from the Travancore hills, and the latter did not find it above 5000 feet in the Palanis. Mr. Armstrong says it is abundant in Rangoon, and Mr. Davison found it to be a permanent resident in the Andamans. From the latter island its range extends still further to the south, as Lord Tweeddale records a specimen in Mr. Buxton's collection from Lampong, S.E. Sumatra. Mr. Wallace also procured it in Java.

Habits.—This pretty little bird frequents a variety of open situations, but does not like the interior of heavy forests. It is found in the compounds about native villages, among isolated groves, in bushy jungle dotted with large trees, in woods surrounding paddy-fields, and in forest near the edges of tanks and rivers. It usually frequents large trees and keeps mostly to the upper branches. It associates in small parties, which often consist of several females in company with one male, the whole uttering a weak sibilant note resembling the syllables *tsetze*, *tsetze*, and moving on in the pursuit of insects from one tree to another. It may sometimes be seen in company with the preceding species, and often launches out into the air to capture a passing insect. Mr. Holdsworth noticed that at Nuwara ELLIYA it frequented bushes; but in low country it is usually seen seeking for its food in the top branches of umbrageous trees. Jerdon remarks that it is a "restless and active little creature, ever engaged in diligently examining the extreme branches of trees, gleaning among the foliage, and hanging from the slender twigs like a Titmouse. It feeds upon various larvæ (which are its favourite food) and small insects."

Nidification.—I have reason to believe that this bird breeds in the Western Province in May and June, but I was never fortunate enough to obtain its nest. In India it nests during the months of June, July, and August. Mr. Hume writes that the nest is small and neat, and done up generally, like a Chaffinch's, to resemble the bark of the tree on which it is placed. It is sometimes "composed of very fine needle-like twigs carefully bound together externally with cobwebs and coated with small pieces of bark or dead leaves. . . . There appears to be rarely any regular lining; a very little down or cobwebs form the only bed for the eggs, and even this is often wanting." Mr. F. Blewitt writes that in Jhansic and Saugor the tamarind is the favourite tree: nests built in them were composed of "fine petioles of leaves with a thick coating all over

of what looked like spiders' webs ;" attached to this were the dry leaves of the tamarind-tree. The nests were fixed in between two delicate forks at the extreme end of a branch near the top of the tree. The eggs, which are usually three in number, are pale delicate greenish white, and they are richly marked with bright, slightly brownish-red specks or blots, "which, always more numerous at the large end, have a tendency there to form a mottled irregular cap." They average in size 0.67 inch in length by 0.53 in breadth.

Genus LALAGE.

Bill more slender and narrower at the base than in *Pericrocotus*; the culmen gently curved from the base and not suddenly bent at the tip. Nasal bristles short and stiff; rictal bristles scanty. Wings longer than the tail, pointed, and with the 3rd and 4th quills subequal and longest; the 1st longer than in the last genus. Tail moderately long, rounded at the tip. Tarsus about equal to the middle toe and its claw, and shielded with broad scutæ. Toes slender; the middle toe equal to the inner with its claw.

LALAGE SYKESI.
(THE BLACK-HEADED CUCKOO-SHRIKE.)

Ceblepyris canus, Sykes, P. Z. S. 1832, p. 87.

Lalage sykesi, Strickl. Ann. & Mag. Nat. Hist. 1844, xiii. p. 36; Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 175; Sharpe, Cat. B. iv. p. 89 (1879).

Campephaga sykesii, Gray, Gen. B. i. p. 283; Blyth, Cat. B. Mus. A. S. B. p. 191 (1849); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 128; Blyth, Ibis, 1866, p. 368.

Volvocivora sykesii, Bp. Consp. i. p. 356; Jerd. B. of Ind. i. p. 414 (1862); Hume, Nests and Eggs, i. p. 179 (1873); Ball, Str. Feath. 1874, p. 399, et 1875, p. 291; Butler, ibid. 1875, p. 464; Fairbank, ibid. 1876, p. 256, et 1877, p. 400; Butler, ibid. 1877, p. 220.

Lesser Caterpillar-catcher of some.

Jungli kasya, Hind.; *Chuma akurayi*, lit. "Lesser File-bird," Telugu.

Adult male. Length 7·3 to 7·75 inches; wing 3·8 to 4·0; tail 3·0; tarsus 0·8; middle toe and claw 0·75 to 0·8; bill to gape 0·85.

Iris brownish red; bill black; legs and feet black, with slaty edges to the scales of the tarsi; claws black.

Head, back, and sides of neck, chin, throat, and fore neck glossy black, abruptly divided from the pale grey of the chest and flanks, and blending into the slate-grey of the back, scapulars, wing-coverts, and upper tail-coverts, on which latter this colour is palest; wings and tail black, the 1st primary wholly so, the remainder with the basal portion of their inner webs white; secondaries and greater coverts margined with the grey of the back; the three outer pairs of tail-feathers white at the tips; the next pair have their extreme tips slaty white, the two central ones slaty, darkening into blackish near the tips; lower parts white, blending into the grey of the flanks and chest; under wing-coverts whitish, washed with slaty; thighs slaty.

Adult female. Shorter in the wing, which usually measures 3·7 inches.

Iris brown; bill blackish, light at the gape and base of lower mandible; legs and feet brownish slate.

Above dusky bluish grey, wanting the black head; a light line above the brownish lores; ear-coverts striped with white; rump barred with white; wings brownish black, with the edgings whitish; the central rectrices without the black patch. Beneath white, barred, except on the belly and lower tail-coverts, with blackish brown; thighs slaty, barred with dark grey.

Young. Bill not so black as in the adult female. Upper surface brownish slate, the feathers with a blackish subterminal bar and white tip. Tertials very broadly edged with white, and the quills and tail-feathers all tipped white. Beneath barred as the female.

Male in second stage very similar to the adult female. The lores and ear-coverts black, and the head generally mingled with black feathers; a bluish wash over the throat and chest; the bars on the flanks and lower breast not so bold as in the adult female. The loreal spot is blacker than adults of the other sex. An example in this stage before me has also the ground-colour of the throat pervaded with greyish, but nevertheless barred quite up to the chin; there are a few black feathers on the crown, some of which are new, while others are old and appear to be changing from the grey to the black colour.

Obs. Blyth has stated that the adult female has a black head and neck, as in the male. Mr. Holdsworth's experience of the plumage of this sex accords with my own; and I cannot come to any other conclusion but that Blyth's specimens from which he drew this inference were wrongly sexed. Mr. Adam, I observe, speaks of an immature female, shot at Sambhur, having some of the head-feathers black, and the under surface, from the throat to the abdomen, crossed with wavy lines; this is the precise character of the change of plumage in the young male.

Ceylonese specimens of this bird compare well with Indian. The latter are, perhaps, a trifle larger. Two examples

(males) in the British Museum, from Mysore, have the wings 3·9 and 4·0, and the tails 3·0 and 3·3; both these are *slightly* more nigrescent on the interscapular region than Ceylonese birds, and the slate-colour of the breast descends further down the under surface. A young male from Vingarla has the wing 4·1, and is somewhat more cinereous on the back than immature Ceylonese examples.

Distribution.—This small Cuckoo-Shrike is found in most lowland districts in the island, and ascends into the Kandyan Province to a general altitude of 3000 feet, although in Uva and Madulsima I have seen it much higher than this. It probably finds its way to the Nuwara-Elliya district from the Uva patnas in the dry season, for I find there are some examples from the Sanatarium in the British Museum. They were collected by Mr. Boate, and, I imagine, must have been stragglers thither during the N.E. monsoon. Neither Mr. Holdsworth nor Mr. Bligh have seen it at Nuwara Elliya; but I observe that Layard says it is found "over the whole island." This expression, however, may refer to the low country. As regards the latter region, I may remark that it is a common bird in the maritime districts of the south-east and north, and in the Western district between Puttalam and Galle it is likewise frequent. According to my experience its numbers decrease towards the hills, except perhaps in the Eastern Province, throughout which I found it plentiful; for it evidently prefers the low open jungles of the sea-board to the thick forests of the interior. In the Western Province it is, however, more plentiful in Saffragam and in the Raygam and Pasdun Korales than near Colombo.

On the mainland it is found, according to Jerdon, throughout the whole of India; but is neither common nor abundant. It is most plentiful in wooded countries where there are considerable tracts of low jungle, not being found in the forests of Southern India, although it is met with in avenues in that part of the country. I do not find it recorded from the Travancore hills; but Mr. Fairbank obtained one example at Periur in the Palanis; he also found it rare at Ahmednagar, though common in certain localities in the Belgaum district. Proceeding north we find Mr. Ball recording it as a rare bird in Chota Nagpur, Mr. Levin having shot a single example at Palamow; further to the north-east it is found, according to Jerdon, at Calcutta; on the western side of the peninsula it does not appear to be common. Captain Butler obtained a few specimens at Mount Aboo, but none elsewhere; and Mr. Adam records it from the Sambhur-Lake district, though only as a straggler.

Habits.—This species frequents tall trees in open forest or in native compounds, low bushes on the borders of waste land on the sea-coast, isolated clumps in partially cleared forest, and low scrub jungle. Out of the breeding-season the males wander about alone, and the females and young birds become gregarious, associating in flocks of 5, 10, or 20, and may be seen at evening time flying from bush to bush on the flats round the salt lagoons in the north. In the south it affects Jack-trees in preference to others, climbing about the small branches and among the leaves, preying on the caterpillars and various insects which abound in them. The note of the male is a melodious whistle, and the females have a monosyllabic chirp. Layard merely remarks of it that it is "found in pairs, frequenting high trees and avoiding the neighbourhood of habitations; it feeds on insects." This observation as to its consorting in pairs is only true of it as regards the breeding-season. Jerdon writes more correctly of it that "it hunts usually in small parties, occasionally singly or in pairs, flying from tree to tree, and slowly and carefully examining the foliage, prying searchingly all round and under the leaves to discover a suitable morsel. It continues its search, hopping and flying from branch to branch, till the tree has been well inspected, when the flock flies off together to another tree. Its favourite food is caterpillars and other soft insects. It is usually a silent bird, but has a harsh call; and on one occasion in June I heard the male giving out a clear whistling call as he was flying from tree to tree."

Nidification.—With us this Cuckoo-Shrike breeds in April in the Western Province. Mr. MacVicar writes me of the discovery, by himself, of two nests last year near Colombo. One was built in the topmost branch of a young Jack-tree, about 40 feet high. It was very small and shallow, measuring 2·8 inches in breadth and only 0·8 inch in depth, and the old bird could be seen plainly from beneath sitting across it. The other was situated on the top of a tree about 20 feet from the ground, and was built in the same manner. The materials are not mentioned; but I conclude they consisted of thin twigs and roots with most likely a coating of

spiders' webs on the exterior, as has been found to be the case in India. The eggs measured 0.87 inch by 0.62 and 0.85 by 0.62 respectively.

Mr. Blewitt found the nest in India in July, and describes its construction as above, with the remark that its formation was exactly that of the Large Cuckoo-Shrike, *Graucalus macii*. The eggs were two in number, deep green, mottled densely with brown towards the large end, and blotched and streaked throughout with pale blue; they measured 0.85 by 0.65 inch.

PASSERES.

Fam. PRIONOPIDÆ.

Bill Shrike-like, with a distinct notch in the tip of the upper mandible. Tail moderate, rounded or even. Legs and feet small.

Feathers of the rump not stiff, as in the last family.

Subfam. PRIONOPINÆ.

Bill broader than it is high. (*Sharpe*, Cat. B. iii. p. 270.)

Genus TEPHRODORNIS.

Bill stout, wider at the base than high; culmen keeled and curved rather suddenly near the tip. Nostrils covered by bristly plumes; rictal bristles long. Wings with the 4th quill the longest, the 2nd equal to the secondaries, and the 1st about half the length of the 2nd. Tarsus longer than the middle toe, and feathered slightly below the knee. Outer toe slightly syndactyle and longer than the inner; claws well curved.

TEPHRODORNIS PONDICERIANUS.

(THE COMMON WOOD-SHRIKE.)

Muscicapa pondiceriana, Gm. Syst. Nat. i. p. 939 (1788).

Tephrodornis superciliosus, Jerdon, Cat. B. S. India, Madr. Journ. 1839, x. p. 237.

Tephrodornis pondiceriana, Blyth, J. A. S. B. 1840, xv. p. 305; id. Cat. B. Mus. A. S. B. p. 153 (1849); Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 169 (1854); Jerdon, B. of Ind. i. p. 410 (1862); Holdsworth, P. Z. S. 1872, p. 437; Hume, Nests and Eggs, i. p. 176 (1873); id. Str. Feath. 1873, p. 177; Adam, *t. c.* p. 376; Ball, Str. Feath. 1874, p. 399; Hume, *ibid.* 1875, p. 92; Legge, *ibid.* 1876, p. 243; Hume, *t. c.* p. 458.

Tephrodornis affinis, Blyth, J. A. S. B. 1847, xvi. p. 473; id. Cat. B. Mus. A. S. B. p. 153 (1849); Kelaart, Prodromus, Cat. p. 124 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 131; Blyth, Ibis, 1867, p. 305; Hume, Str. Feath. 1873, p. 437; Legge, Ibis, 1874, p. 16.

Tephrodornis pondicrianus, Sharpe, Cat. B. iii. p. 275.

Gobe-mouche de Pondichéry, Sonnerat; *The Keroula Shrike*, Latham; *Butcher-bird*, Kelaart; *The Bush-Shrike* in India.

Keroula, Hind.; *Chudukka*, Beng.; *Ula pitta*, lit. "Whistling-bird," Tel.

Adult male and female. Length 5.9 to 6.4 inches; wing 3.2 to 3.5; tail 2.4 to 2.5; tarsus 0.7 to 0.8; mid toe and claw 0.65; bill to gape 0.95 to 1.05.

Iris pale olive or yellowish olive, sometimes with the inner half bright yellow, at others with a green inner ring; bill with the upper mandible and terminal half of the lower dark brown, base beneath light fleshy; legs and feet dusky slate-blue or bluish slate, claws blackish.

Above slaty grey in specimens from the hills and Western Province, duskier or ashy brown in those from the northern parts of the island; lores, upper part of cheek, and the ear-coverts blackish brown; a whitish supercilium, variable in size and in length, but always more or less well defined; beneath the brown cheek-patch a whitish stripe; wings brown, the tertials pale-edged; tips of the longer rump-feathers and the shorter upper tail-coverts white, forming a bar across the rump, which is variable in width and usually broadest in birds which are most slaty in hue; longer upper tail-coverts black, four central pairs of rectrices blackish brown, darkening to black at the base; two outer pairs white with dark bases, and the tips marked as follows:—a brown stripe near the tip of the external web of the outermost, the same at the tip of the next, with an adjacent spot often across the inner web; in some specimens, probably not very old, this latter does not exist, the streaks on the outer webs are very small, and the outer web of the 3rd feather has a white streak at the centre.

Throat, lower breast, belly, and under tail-coverts white; the sides of the throat more or less washed with brownish, in the form of streaks, and the chest and upper part of the breast pale cinereous ashy; thighs brownish.

Obs. As already remarked, the tints in the plumage of this species vary. I have found that the most slaty-coloured specimens come from the Western Province and the Nuwara-Elliya district; a Haputale and a Dumbura specimen are both brownish, nearly as much so as a Trincomalie and an Aripu example. Birds from the Galle district do not seem to be as slaty as those from Colombo. It must be also observed that when newly acquired, the feathers are most bluish; on becoming abraded, they lose the slaty tint and present an ashy appearance.

Young. Bill lighter than the adult, as a rule; iris olive.

In nestling plumage pale rufous-brown above, the forehead and head very conspicuously spotted with white, the back less so; greater wing-coverts and tertials fulvous, with a dark crescentic line and white tips; the three outer rectrices are white and more marked at the tips; the dark stripe from the base of the lower mandible is more defined and the supercilium absent, although the white spots sometimes take the form of a stripe.

In the next stage the upper surface is darker and less spotted; there is a trace of a supercilium beyond the eye; in some the upper tail-coverts are partially white; the third rectrix from the exterior is now blackish brown, as in the adult, and all are tipped with white. Under surface much as in the adult; the chest, perhaps, a little darker.

Obs. Concerning few species of Indian birds have opinions differed so much as with reference to the present. The Ceylonese race was separated by Blyth (*loc. cit.*) on account of "its being greyer, and wanting the conspicuous white supercilium." Layard followed Blyth; and then Mr. Holdsworth, in his admirable 'Catalogue of Ceylon Birds,' after the examination of a large series of Indian and insular examples, reunited it with the Indian form. Mr. Hume, in a review of some of the Ceylonese species mentioned in Mr. Holdsworth's paper, expressed his doubts as to the possibility of keeping the Ceylon race distinct, on account of the extremely variable character of the bird throughout its entire range from Burmah across to Sindh, and thence to the south of India and Ceylon. Finally, Mr. Sharpe, in his 'Catalogue of Birds,' vol. iii., adheres to Blyth's determination, and remarks that he considers it not only distinct, but more nearly allied to the Malaccan *T. gularis* than to the Indian bird. I entered upon the battle-field, I must say, somewhat biassed in favour of Mr. Sharpe's weighty verdict; but after a most careful examination of all the Ceylonese and Indian examples I could lay my hands on, I find that it is a species which is most unreliable in all those characteristics which are alleged as sufficient to divide it into the two races in question; and I consider that if the Ceylonese bird is separated from the South-Indian on account of its more slaty tints, so must the N.W.-Himalayan bird be held to be distinct from the Nepal and Pegu race on account of the cinereous hue of the former, as distinguished from the sandy colour of the latter. The colour of the upper surface varies throughout the whole range of the bird; and though the supercilia in the Indian birds are longer and generally broader, and the white rump-band less in extent than in the insular form, yet these characters are not always alike in either one race or the other. The distribution of the facial markings is absolutely the same in the Indian and the Ceylon birds, and the coloration of the outer tail-feathers precisely alike in both. Climate has no doubt much to do with the brownish and the slaty tints in this bird throughout its Indian range: it has in Ceylon; for the northern birds are, as a rule, the brownest, and those from the damp parts the bluest. Mr. Hume shows the same to be the case in the south of India, as he finds the birds from the hot arid island of Ramisserum earthy brown, and those from the wet district of Anjango as ashy almost as those from Ceylon. With regard to size the Indian birds are slightly larger; but this is the rule with most species found in both localities. The following are some of the wing-measurements I have taken from a large series examined:—Pegu, w. 3.4 inches; N.W. Himalayas, w. 3.55; Behar, w. 3.45; N.W. Himalayas, w. 3.5; ditto, w. 3.5; Kamptee, w. 3.55. Birds from Pegu and N.E. Bengal appear to have the largest supercilia.

Distribution.—The Bush-Shrike is found throughout all the low country and the hill-regions to about 5000 feet. Large tracts of country may, however, be traversed without seeing it, showing that it confines itself to particular localities. It is generally distributed over the northern and eastern portions of the island, and is resident there during both monsoons. It is likewise numerous in the south-west, and slightly less so on the west coast; but in the latter part it retires from exposed places on the sea-board to some distance inland during the wet weather of the south-west monsoon. I have, however, found it between Kotte and Colombo in June and July, so that its migration is only partial. Mr. Holdsworth, I believe, observed that it left the Aripu district in May; and this movement would be occasioned by the force of the S.W. monsoon. I did not observe the same inland march in the south-western part of the island, probably on account of the sheltered nature of the country, which is hilly close to the sea-coast. Layard, who speaks of it as being common about Jaffna, Colombo, and Kandy, thought it to be migratory. It appears to be a straggler to the upper hills, as there is a specimen in the national collection from "near Nuwara ELLIYA," collected by Mr. Boate. I have never heard of any one else having obtained it there; and it is possible that the locality may be wrong in this instance, as near Nuwara ELLIYA might well mean Wilson's bungalow or other locality down the pass towards the Uva side, where it is no doubt met with. Mr. Bligh has obtained it in Haputale at about 5000 feet elevation.

On the continent it is found in the north of India from Tenasserim and Burmah, through Bengal and the sub-Himalayan districts to the N.W. Himalayas and Sindh, and thence through the peninsula to the extreme south and Adam's Bridge. At Thayetmyo Mr. Oates says it is often seen, and it was obtained as far south as Tonghoo by Lieut. Ramsay. There are specimens from Nepal, N.W. Himalayas, and Behar in the national collection. About the Samblur Lake Mr. Adam did not find it common; but in Sindh it is the reverse in cultivated regions, though never seen in barren districts. At Mount Aboo Captain Butler remarks that it is somewhat common, though less often seen in the plains. In Chota Nagpur it is resident, says Mr. Ball; and at Maunbhum Captain Beavan noticed that it bred chiefly. Mr. Fairbank procured it at Ahmednagar, and remarks that it is more common along the Sahyadri hills; he likewise met with it in the Palanis. It is not

recorded from the Travancore hills, where Mr. Bourdillon procured the allied species *T. sylvicola*; and I observe that he says it is more abundant in the Carnatic than "either on the Malabar coast or on the bare tableland."

Habits.—This little Shrike frequents isolated trees standing in low scrub or in young cocoanut- or cinnamon-plantations, the edges of forest, small groves in open land, and compounds surrounding villages and native houses. It usually associates in small troops of four or five, which wander from tree to tree, flying one after the other when they move until the flock are again reunited. They are not very active in their movements, hopping slowly about among the leafy boughs of trees, and peering under the leaves in search of their food, all the while uttering a melancholy little whistle of several notes, which has the peculiarity of being very easily carried on the wind, and being, consequently, heard at a considerable distance. Moths and small butterflies form a considerable portion of its food. Jerdon says that the Telugus give it the name of "Whistling-bird" on account of its mellow notes; and Mr. Oates writes that it occasionally "seats itself upon the top of a bough and sings a well-conducted and rather pretty song."

Nidification.—I have no information concerning the nesting of this Wood-Shrike in Ceylon; but its nest appears to be well known in India; and in 'Stray Feathers' we gather that it breeds from the latter part of March until August, although April is the usual month for rearing its young. I have procured the immature bird in spotted plumage in April, and judge from the appearance of its feathers that it had arrived nearly at the end of its first year, which would make the nesting-season in the west of Ceylon about the middle of the S.W. monsoon. Mr. Hume describes the nest as "a broad shallow cup, somewhat oval interiorly, with the materials very compactly and closely put together. The basal portion and framework of the sides consisted of very fine stems of some herbaceous plant about the thickness of an ordinary pin; it was lined with a little wool and a quantity of silky fibre; exteriorly it was bound round with a good deal of the same fibre and pretty thickly felted with cobwebs. The egg-cavity measured 2.5 inches in diameter one way and only 2.0 the other way, while in depth it was barely 0.86." This nest contained three eggs; but the number varies, as Captain G. Marshall found four and Captain Beavan two in a nest. They are described as very Shrike-like in appearance, of "a pale greenish-white or creamy stone ground-colour, more or less thickly spotted and blotched with different shades of yellowish and reddish brown, many of the markings being almost invariably gathered into a conspicuous, but irregular and ill-defined zone near the large end, which is intermingled with pale and dingy purple clouds. The average of a dozen eggs is 0.75 by 0.61 inch" (*Hume*).

Genus HEMIPUS.

Bill wide at the base, triangular; the culmen keeled, straight at the base, and suddenly curved at the tip, which is distinctly notched. Nostrils protected by a tuft of bristles. Wings long, with the 4th and 5th quills the longest, and the 2nd shorter than the secondaries. Tail rather long, the lateral feathers falling short of the middle pair by about the length of the hind toe and its claw. Legs and feet weak; the tarsus longer than the middle toe and its claw.

HEMIPUS PICATUS.

(THE LITTLE PIED SHRIKE.)

Muscicapa picata, Sykes, P. Z. S. 1832, p. 85; Blyth, J. A. S. B. 1842, xi. p. 458; Gray, Gen. Birds, i. p. 263 (1845).

Hemipus picatus, Blyth, J. A. S. B. 1846, xv. p. 305; id. Cat. B. Mus. A. S. B. p. 154 (1849); Kelaart, Prodromus, Cat. p. 123 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 126; Jerdon, B. of Ind. i. p. 413 (1862); Holdsworth, P. Z. S. 1872, p. 437; Hume, Nests and Eggs (Rough Draft), p. 178 (1873); id. Str. Feath. 1873, p. 435; Ball, ibid. 1874, p. 399; Legge, Ibis, 1874, p. 16; Hume, Str. F. 1875, p. 93; Bourdillon, ibid. 1876, p. 393; Sharpe, Cat. B. iii. p. 307 (1877); Hume, Str. Feath. 1878 (B. of Tenasserim), p. 207.

The Black-and-white Flycatcher, The Shrike-like Flycatcher of Indian authors; *The Black-and-white Hemipus*, Kelaart.

Adult male and female. Length 5·2 to 5·4 inches; wing 2·2 to 2·4; tail 2·2 to 2·3; tarsus 0·6; mid toe and claw 0·55; bill to gape 0·65 to 0·75.

Iris reddish brown, with a light mottled outer circle; bill black; legs and feet blackish, claws paler.

Head, hind neck, back, wings, upper tail-coverts, and tail deep black, glossed with green on the head and back; an incomplete nuchal collar, a broad band across the rump, a bar on the wing formed by the tips of the greater coverts, the edges of the longer tertials and of several of the secondaries, and the terminal portion of the 4 outer rectrices white; the white marking extends up most of the outer web of the lateral tail-feather and is confined to a small spot at the tip of the 4th; chin, lower part of cheeks, sides of neck, belly, under tail- and under wing-coverts whitish, passing into the reddish ashy of the lower throat, breast, and flanks.

Obs. The northern form of this little Shrike (*H. capitalis* of McClelland) is united with the present bird by Mr. Hume, but kept distinct by Mr. Sharpe, on account of its brownish back. The former contends (Str. Feath. 1873, p. 475) that the brown birds are females. I have not observed this feature in Ceylon examples, the females being just as black as the males; and Ceylonese birds are identical with examples which I have examined from South India and Mahabaleshwar, as regards size, colour of upper and under surface, and distribution of white marking. A male from Darjiling, in the British Museum, is similar to the Mahabaleshwar bird, but has the tail more deeply tipped with white; but several others from the former locality, which may, perhaps, be males, have the upper surface, wings, and wing-coverts brown. The latest testimony, however, with regard to the northern race, and which is contained in Mr. Hume's admirable paper on the birds of Tenasserim, shows that Assam, Sikkim, and Kumaon specimens of both sexes have brown backs, and that out of ten males from Darjiling, one only has the back black. Others, again, from various localities along the Himalayas have the back black; and this, I think, goes to prove that there are two different races—the southern with black head and back, and the northern with black head and brown back, both of which may occur, as Mr. Hume suggests, in the Himalayan districts. The latter seems to be the larger, measuring in total length from 5·35 to 5·45, and in the wing from 2·3 to 2·4. The Mahabaleshwar example above noticed measures—wing 2·3 inches, tail 2·3, tarsus 0·45, bill to gape 0·7.

Hemipus obscurus, Horsf., from Java, is not distantly related to our bird; it has the back and wings green-black, no bar or white marking on the wing; the upper tail-coverts white, without the transverse bar of black in the centre of the white patch; tail black, the lateral feathers with an outer and an inner white edge; beneath white; chest washed with grey.

Distribution.—This little Shrike is dispersed throughout the forests and heavy jungles of the island, but is generally more numerous in the Kandyan Province, even at high altitudes, and in the southern coffee-districts than in the low country. Although scarce at Horton Plains, it is a common bird about Nuwara ELLIYA, Kandapolla, and in the main range, and is likewise met with in all the intermediate coffee-districts. In the timber-forests and also in the cultivated country near the sea-board of the south-west it is tolerably plentiful; and the same may be said of the jungles in the eastern portion of the island, and of the forest-

tract of the northern plains, stretching from Puttalam across to the Mahawelliganga, in a part of which (the high jungles between Minery and Kowdella) I found it as plentiful as in the hills. In the Saffragam forests and the wilder districts of the Western Province nearer the sea it is likewise found; and I have procured it as near Colombo as the jungle at Atturugeria, on the Kotte and Bopé road.

This little Shrike is common in the south of India and the central portions of the peninsula. Jerdon found it in the Nilghiris and along the crest of the Western Ghâts. On the Nilghiris he obtained it as high as 7000 feet. Mr. Bourdillon remarks of it that it is not very abundant in Travancore; and Mr. Fairbank observed but few on the Palanis. Should Mr. Hume be correct in joining the two species, *H. capitalis* and *H. picatus*, the range of this little bird becomes considerably extended, as the northern form is found in Chota Nagpur, Northern India, the Himalayas up to an elevation of 5000 feet, and also in Burmah. In Tenasserim Mr. Davison procured it in the neighbourhood of Palphoon only; and I conclude this is the most southerly point to which it has been traced on the eastern side of the Bay.

Habits.—This is a tame but at the same time an interesting little bird; so unobservant is it of human intrusion on its haunts that it may be watched most closely without its being disturbed; and I know no diminutive denizen of the tall forests of the Ceylon mountains, save perhaps the lively little Grey-headed Flycatcher (*Culicicapa ceylonensis*), which better repays a cursory glance at its manners and occupations. It is generally found in pairs, frequenting tall trees near the edges of forest and heavy jungle; and it perches high aloft among the branches, sallying out from its seat after the manner of a Flycatcher, and catching a passing insect, which it will frequently convey to its original perch before devouring. It is slower in its movements than the members of the family Muscicapidæ, but on the whole its habits are more those of a Flycatcher than a Shrike. It is of stationary habit, frequenting the same spot for hours together; and it usually prefers the company of its own fellows to that of other small birds, though it may at times be seen with Minivets, Bluetits, and Grey-headed Flycatchers. It constantly utters its shrill little note, which may be likened to the syllables *tchēetiti*, *tchēetiti*, *tchēetiti-chēē*. Jerdon remarks that in India "it is generally seen in small parties of five or six wandering about from tree to tree, and every now and then darting on insects in the air. It has a pleasing little song, not often heard however." My experience of it in Ceylon differs from this, for there it constantly utters the above-described note. Mr. Oates, in writing of the Tenasserim bird, likewise comments on its Flycatcher-like habits as follows:—"They are rather Flycatchers than Shrikes in their habits, moving about, no doubt, amongst the leaves at the tops of trees like the Wood-Shrike, but continually darting out and seizing insects on the wing, which the Wood-Shrikes, I think, never do. They continually call to each other, uttering a sharp soft note."

Nidification.—In the south of India this little Shrike breeds in March. Mr. Davison thus describes a nest he found:—"For the size of the bird it was an exceedingly small, shallow nest, and might very easily have passed unnoticed; the bird sitting on it appeared to be resting only on a small lump of moss and lichen." It was placed in the fork of an upper branch of a rather tall *Berberis leschenaulti*, and was composed of grass and fine roots, covered externally with pieces of cobweb, grey lichen, and bits of moss, taken evidently from the same tree on which the nest was built. The eggs were three in number, elongated ovals, and entirely devoid of gloss; the ground-colour pale greenish or greyish white, profusely blotched, blotted, and streaked with darker and lighter shades of umber-brown, more or less confluent, in one case, at the larger, and in the other at the smaller end. Dimensions 0·7 by 0·5 inch, and 0·69 by 0·49 inch.

PASSERES.

Fam. LANIIDÆ.

Bill strong, deep, much compressed, with the culmen curved from the base to the tip, which is very deeply notched. Nostrils placed nearer the margin than the culmen; gape armed with stout bristles. Wings shorter or equal to the tail. Legs and feet short. Tarsus covered with stout shields. Outer and middle toes joined at the base; hind toe large.

Genus LANIUS.

Bill with the characters of the family. Nostrils round, protected by a few well-developed bristles. Wings rather short; the 2nd quill longer than the secondaries, and the 3rd and 4th the longest. Tail long and graduated, exceeding the closed wings by about their own length. Tarsus slightly longer than the middle toe with its claw.

LANIUS CRISTATUS.

(THE BROWN SHRIKE.)

Lanius cristatus, Linn. Syst. Nat. i. p. 134. no. 3 (1766); Jerdon, B. of Ind. i. p. 406 (1862); Walden, Ibis, 1867, p. 212; Swinhoe, P. Z. S. 1871, p. 375; Holdsworth, P. Z. S. 1872, p. 436; Hume, Nests and Eggs, i. p. 175 (1873); Str. Feathers, 1874, p. 198, et 1875, p. 91; Butler, ibid. p. 464; Armstrong, ibid. 1876, p. 316.

Lanius phœnicurus, Pall. It. iii. p. 693. no. 6 (1776); Prjevalski, B. of Mongolia, Rowley's Orn. Misc. vol. ii. p. 274 (1877).

Enneoctonus lucionensis, G. R. Gray, Gen. B. i. p. 291 (1845); Swinhoe, Ibis, 1864, p. 420.

Enneoctonus cristatus (Linn.), Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 167 (1854).

Lanius superciliosus (Lath.), Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 130.

Lanius lucionensis (L.), Blyth, Ibis, 1867, p. 304.

Otomela cristata, Schalow, Journ. für Orn. p. 130 (1875).

The Crested Red or Russet Butcher-bird, Edwards, Nat. Hist. Birds, pl. 54; *The Crested Red*

Shrike, *The Woodchat Shrike*, *Rufous-tailed Shrike*, *Supercilious Shrike* (Latham); *Butcher-bird* in India.

Batti gadu, Telugu; *Curcutea*, Bengal. (on account of its harsh voice).

Adult male. Length 7·5 to 7·7 inches; wing 3·4 to 3·55; tail 3·0 to 3·2; tarsus 1·0; mid toe and claw 0·85; bill to gape 0·85.

Female. Length 7·4 to 7·6 inches; wing 3·4 to 3·5.

Iris dark brown, sometimes hazel-brown; bill with the upper mandible and tip blackish, gape and base of lower "fleshy;" legs and feet varying from bluish grey to blackish slate; claws darker than the toes.

Adult male (Colombo, Sept. 29, 1876). A broad facial streak from the nostril over the lores, and passing beneath the eye to the ear-coverts, black. Nasal plumes black; a more or less narrow frontal streak, widening as it passes over the eye to above the ear-coverts, white; forehead, crown, and nape brownish rufous, passing on the hind neck.

back, scapulars, lesser wing-coverts, and lower back into ashy brown, more or less, according to the individual, tinged with rufous; the change from the colour of the head to that of the hind neck always more or less marked; the brown of the rump passes on the upper tail-coverts into lighter rufous than the head; tail brownish rufous, the shafts of the feathers blackish and the tips albescent; wings brown, the median and greater coverts and the secondaries edged and tipped with rufescent fulvons; throat and lower face white; fore neck and under surface *whitish*, tinged with rufous-buff on the chest, sides of breast, flanks, and vent; under tail-coverts more strongly tinged with this colour than the throat, and the flanks most rufous of all; under wing concolorous with the chest.

Female. Differs from the male in having the eye-streak of less size and not so black; this streak is blackish brown, and only partially envelopes the lores, there being merely a small blackish spot in front of the eye.

Young. Birds of the year have the wing varying from 3·3 to 3·4 inches. Bill paler than in the adult; legs and feet bluish grey.

In the nestling or first plumage the feathers of the head and upper surface are rufescent fulvous, each with a dark terminal edging and ray across the centre; the wing-coverts are broadly margined with rufous, with an internal dark edge; the secondaries are similarly marked, the dark line being chiefly conspicuous at the tips of the feathers; eye-streak narrow, darker in the male than the female; beneath whitish, tinged with buff on the chest and flanks, and marked, except on the throat and belly, with crescentic rays of blackish brown. In the plumage worn by most of our new arrivals, the nestling-feathers on the upper surface have partly or entirely disappeared, and the new feathers are somewhat of the same hue as in the adult, only the back is just as rufous as the head, and is thus wanting in the brown distinctive character; the wing-coverts and secondaries are more or less broadly edged with fulvous, with the internal black edge and the under surface in all stages of marking, the crescentic edgings being of course chiefly confined to the chest and flanks (young females seem to be more tinged with buff than males on the chest); the supercilium is crossed with transverse lines. Some birds are much more advanced on the under surface than the upper, and *vice versa*; but the last remnant of the immature plumage is always to be seen on the flanks. The young of this species, though very similar to, may, I think, be distinguished from those of *L. lucionensis* by being *rufous*-brown on the head, and by having a certain amount, more or less, of pale edging at the margin of the forehead. I have observed this to hold good in a large series of both species which I have examined. The amount of rufous on the crown as distinguished from the hind neck varies considerably in individuals.

Obs. The Ceylonese examples of this species are identical with those from India, as would naturally be the case when we consider that the species is migratory to both countries from beyond the Himalayas. Layard considered it to

LANIUS LUCIONENSIS.

(THE GREY-HEADED SHRIKE.)

Lanius lucionensis, Linn. Syst. Nat. i. p. 135 (1766); Swinhoe, Ibis, 1860, p. 59, et 1863, p. 272; Walden, *ibid.* 1867, p. 215; Swinhoe, P. Z. S. 1871, p. 376; Hume, Str. Feath. 1873, p. 434, et 1874, p. 199.

Adult male and female. Length 6·5 to 7·0 inches; wing 3·5 to 3·65; tail 3·4 to 3·6; tarsus 0·9; mid toe 0·6, its claw (straight) 0·23; bill to gape 0·8.

These measurements are from a series of examples in the Swinhoe collection and a single example in my own from the S. Andamans. Hume gives the length of Andaman examples as attaining 8·25 inches, and the wing 3·75.

"Iris brown; upper mandible horny brown, edged whitish near the gape; the terminal line of the lower mandible horny brown, the basal two thirds bluish or fleshy white; legs and feet dull leaden blue, or dull bluish, or sometimes even greenish horny." (*Hume.*)

Male. Back, scapulars, and sides of neck earth-brown, passing gradually on the hind neck and crown into the greyish

be a variety of the Indian bird (which he styles *L. superciliosus*, the rufous-backed bird found in Java and Japan), being paler and wanting the rufous crown of that form; but he probably was dealing with immature specimens, which predominate in the island. Blyth (*loc. cit.*) referred these specimens of Layard's to *L. lucionensis*, the species dealt with below. Schalow and Swinhoe unite the Indian bird with Pallas's Shrike (*L. phoenicurus*) from Amoor-land; and I think it is generally admitted now to be the same as the latter species. I have examined specimens of this bird in the Swinhoe collection, now in the possession of Mr. Seehohm, and also examples collected at Krasnoyarsk for this gentleman during June last year, and they are, both as regards young and adult, identical with my own from Ceylon. An immature bird from Lake Baikal (wing 3.3 inches) corresponds with one of my specimens; and three adults from Krasnoyarsk, in summer plumage, correspond precisely with examples in full winter plumage from Ceylon. They measure in the wing 3.4, 3.42, 3.5 inches; the extent of whitish grey on the forehead varies, as it also does in Ceylonese specimens.

Lanius superciliosus, which I take to be the species inhabiting Japan, is apparently nothing but a rufous race of *L. cristatus* with a more conspicuous white forehead and supercilium. It is slightly larger in the wing and tail, and is principally distinguished from the present bird by having the back and hind neck almost as rufous as the head, and the head itself, as also the rump, lighter rufous than in our species. Three specimens (Mus. Seeböhm) from Yokohama measure—wings 3.6, 3.65, 3.65, tails 4.2, 4.2, 3.9 inches respectively. The tails too are crossed by obsolete dark rays. I may remark here that the figure of *L. phoenicurus* ('Ibis,' 1867, pl. v.) is in reality a representation of this bird, the hind neck being much too rufous, and the frontal band too broad for the former species.

L. isabellinus, which is apparently identical with *L. arenarius*, Blyth (Blanford, Zool. Persia, p. 140), is not very distant from the present species, much resembling it in summer plumage, when it becomes rufous on the head and rump. It may, however, as pointed out by Lord Tweeddale, in his excellent paper on the Rufous-tailed Shrike ('Ibis,' 1867), be distinguished from *L. cristatus* by its broader and less graduated tail. The old male has a white wing-bar extending from the 4th to the 9th primary.

The present species was named *cristatus* by Linnæus on account of the erroneous delineation of a crest in the figure on Edwards's plate. Though the coronal feathers in this section of the Shrikes are elongated, I do not think they are ever raised by the birds even when under the influence of emotion.

Distribution.—This Shrike is a very abundant species in Ceylon during the cool season. It arrives in the north in great numbers, the better part of which are immature birds, during the early part of September, and establishes itself in the islands off the Jaffna peninsula and on the adjacent mainland, considerably outnumbering the resident species, *L. caniceps*; thence it spreads over the whole island, inhabiting the east and west coasts in equal numbers; and ascending the hill-zone it takes up its quarters in many of the open valleys in the coffee-districts, and finds its way up to the Nuwara-Elliya plateau. It is very common on the

of the forehead; on the hind neck there is generally a rufous shade, and the hue of the back is always slightly pervaded with grey; upper tail-coverts rufous-brown, passing into brown on the rump; wings liver-brown, the primaries with a faint rufous edging, and the secondaries and tertiaries rather broadly edged with fulvous; tail light rufous-brown, the margins lighter than the rest of the web; tips of the outer feathers pale.

Lores and a broad stripe through the eye and over the ears black, surmounted by a whitish supercilium blending into the brown of the head; chin, throat, and face white, passing into the rufous-buff of the chest and underparts; the centre of the breast and belly are generally paler than the flanks; in some examples, fully aged probably, the chest is uniform rufous right across, and the separation between it and the white of the throat plainly indicated: under wing pale rufous-buff and its edge white.

Female has the lore-spot much smaller and, together with the ear-stripe, less black than the male; underparts paler.

Young. After leaving the nest the young are brownish rufous above, brightest on the upper tail-coverts; the head concolorous with the back, and the forehead no paler than the crown, except just at the bill, where the bases of the feathers are more buff than further back; the whole upper surface, including the lesser wing-coverts, crossed with wavy bars of blackish; wings rich brown, the coverts, secondaries, and tertiaries broadly margined with rufous; primaries narrowly edged and tipped with a paler hue; tail brownish rufous, with a pale tip, which is preceded by a black edging; upper part of lores and an undefined stripe above the eye buff; lower part of lores

west coast, and is one of the best-known birds to ornithological observers in the cinuamon-gardens and similar open bushy grounds in the vicinity of Colombo. Further south it is not so plentiful in the wooded semi-cultivated country west of Tangalla as it is in the south-east of that place. In the low jungle-covered seaboard around Hambantota, and thence north, it is very common, as it also is in districts of similar character between Batticaloa and Trineomalie. Though not uncommon about Nuwara ELLIYA and Kandapolla, it does not seem to pass over the Totapella range on to the Horton Plains. In the coffee-districts it prefers the patnas to any other localities, and even frequents bushy situations at the top of such isolated peaks as Allegalla, on the summit of which I have met with it. Its departure from the island takes place at the latter end of April. I have seen it about Colombo until quite the end of that month. At Aripu Mr. Holdsworth gives the duration of its visit from October till April.

This species is spread throughout India during the cold season, leaving the country in the hot weather, although some are said to remain and breed in the north. Blyth even says that a few are found about Calcutta at all seasons. It is not recorded from the Travancore hills, nor from the Palanis, either by Mr. Bourdillon or Mr. Fairbank, and the latter says it is rare at Ahmednagar. In Chota Nagpur it is, says Mr. Ball, "common throughout." It extends to the eastward as far as Mount Aboo, where it arrives about the 1st of September, according to Capt. Butler. Mr. Hume remarks that Mount Aboo is quite on the confines of its distribution to the east; and, in fact, it is not recorded at all from Sindh nor the Sambhur-Lake district. Whether, in its migration northwards, it passes round the western end of the Snowy range seems to be not quite certain; for though Mr. Hume at first identified Dr. Henderson's Yarkand birds as this species, Dr. Scully, though he searched well for it, did not meet with it there, and was, moreover, assured by the Yarkandis that only one species, *L. arenarius*, inhabited that region. To the east of the Peninsula it is numerous. Mr. Hume writes that it is a cold-weather visitant to the Province of Tenasserim, and thence it is a straggler to the Andamans as well, though not found in the Nicobars. In Pegu it is, says Mr. Oates, "common during the greater portion of the year, coming in, however, in great numbers in September." The influx here spoken of, which affects the whole of the peninsula of India, is caused, doubtless, by a migration over the ranges to the eastward of the Himalayas, from Thibet, Mongolia, and perhaps Eastern Siberia. In these distant regions it chiefly breeds, leaving them in vast flocks to travel many thousand miles southwards

and aurial stripe dark brown, paler and less of it on the lores in the female; all the under surface buff-white, tinged with rich buff or rufous on the flanks; vent and under tail-coverts, and the sides of the neck, chest, and flanks crossed with crescentic markings of dark brown.

In what is probably the plumage of the second year the upper surface is a ruddy brown with a tinge of grey in it, the rump and upper tail-coverts rufous with blackish-brown bars, and the quills and wing-coverts less conspicuously edged; the forehead is still concolorous with the head, and the crescentic margins of the lower parts less pronounced and faded from off the chest. Some examples (for instance one shot in May) have the forehead pale, the upper surface pervaded with greyish, and yet the under surface well marked with the brown bars, but the sides of the chest and flanks have a rufous adult look about them.

In some instances these under-surface markings do not vanish for several years: a specimen before me is fully adult on the upper surface, but has most of the lower surface and even the sides of the neck crossed with brown pencillings; and out of twenty-three, adult as regards the forehead and back, *nearly half of them have some few bars on the flanks.*

Obs. I doubtfully include this species in our lists, not on the evidence of Blyth and Layard (for it appears to me that they were speaking of the race of *L. cristatus* as a whole, as exemplified in the birds which migrate to Ceylon), but on the testimony of Mr. Hume, who writes ('Stray Feathers,' 1873, p. 434) of *an adult* example received by him from Ceylon, of which he speaks as follows:—"An adult bird, with the grey-brown head and back and pale forehead of *lucionensis*, either belongs to that species or to a very closely allied one not yet discriminated."

I know of no other adult bird with the characters of *L. lucionensis* having been obtained in Ceylon. I cannot positively assert whether one or two immature specimens in my collection may not belong to this species, for, as I have said in my article on the last, the young of the two species are very similar; and though, as a rule, the head in the young *L. cristatus*, after getting beyond its nest-plumage, is more rufous than the back, this may not invariably

to its furthest limit, Ceylon. In the solitudes of Thibet it appears to be a resident throughout the year; for Col. Prjevalski writes that it "was observed throughout our travels, with the exception of Koko-nor, Tsaidam, and Northern Thibet. In those localities which we visited in winter, or early in spring, we found it most numerous in the Hoang-ho valley. In Ala-shan they breed in the saesaulnies; and in Kan-shan they generally inhabit the low wooded plains. The first migrants were seen to arrive in the Hoang-ho valley on the 28th of April. It breeds commonly in the woods of Ussuri country, especially in those localities where there are many decayed or felled trees." Swinhoe merely mentions it being found at Amoy, and that he had frequently received it from Trans-Baikal in full summer plumage. Père David is of opinion that it migrates from India to the borders of Lake Baikal and into the eastern parts of Siberia, as also into Southern China. It seems not unreasonable to doubt whether it performs such a stupendous journey as would be incurred in crossing the vast territory known as Mongolia, with its lonely deserts and lofty ranges of mountains, and thence through the scarcely less extensive region of Thibet, passing finally over the spurs of the Snowy ranges, and then spreading throughout the plains of India; and I would suggest that there is probably a double migratory stream—the one from Thibet and the Hoang-ho valley passing into India and Burmah, and the other from the Trans-Baikal region into China. As the *L. phænicurus* of Pallas, it was, remarks Lord Tweeddale, met with first by this traveller in the month of June "amongst the rocks of the mountain of Adon-Scholo, near the river Onon in Dauria."

Habits.—This "Butcher-bird" frequents bushy land, uncultivated scrubby ground, hedge-rows, the borders of jungle, and all situations in which there are low trees and shrubs, on the tops of which it perches, flying from one to another, and repeatedly uttering its harsh cry. It is very querulous in its disposition; and there is no Ceylonese bird that I know of which gives one so much the impression of always being in a rage as this! On a sudden, when scarcely a bird-note is heard during the usual lull after the morning feed is over, one of these Shrikes will suddenly appear on the top of a cinnamon-bush, having flown up from the ground or from some low shrub, and commence screaming with all its might, whether by way of expressing its approbation of the flavour of the last lusty grasshopper that it has put an end to, or for the purpose of scolding its nearest fellow mate must be left to some one better versed in bird-language than I; but certain it is that the

be the case. I have examples with heads almost as brown as those of the Philippine species. Mr. Hume observes, in his account of this species at the Andamans, that the bill is generally slightly longer than in *L. cristatus*; but this rule does not invariably seem to hold good.

Distribution.—Should this species visit Ceylon to a limited extent (and there is no reason why it should not, as it is found in the Andamans), it most probably strays over most of the low country. Mr. Hume does not mention from what district his specimen came. It was originally described from Luzon, one of the Philippines, whence it was brought by Poivre. Lord Tweeddale writes that "it migrates to North China during the spring, and returns south to the Philippines at the close of summer, many in their passage resting in Formosa, and some, according to Mr. Swinhoe's latest observations, passing the winter in that island. He also observed it passing over at Hong-Kong in the spring, and found it at Talien Bay, North China, during the end of June, where it, however, became much scarcer towards the middle of July." It must breed in China, for Swinhoe remarks (P. Z. S. 1871) that "those collected on the passage through Formosa were all immature, as if they had not strength to make the through voyage to the Philippines without rest." In the Andamans many immature birds no doubt remain during the cool season, for Mr. Hume says it appears to be a permanent resident in those islands. It was found in this group at Port Blair, and at Camorta in the Nicobars. In Tenasserim it is a "straggler to the southern extremity of the Province," and must of necessity occur there on its passage westward from the adjacent north-eastern portion of the continent. An example of a Shrike, similar to that sent to Mr. Hume from Ceylon, is recorded by this gentleman as having been obtained in the Travancore hills in February; it was nearly adult; and this, at such a season of the year, is such an extraordinary occurrence that it fosters the belief already expressed of its being perhaps a new and not yet discriminated species.

Habits.—Mr. Davison remarks that the habits of this Shrike do not differ from *L. erythronotus*; it kept to gardens in the Andamans and was very silent. Swinhoe, however, says that it has a sweet song.

said companion very soon appears on a neighbouring bush and vies with him in creating a general disturbance! There is this much to be said, that it is more noisy when it first arrives than after it has settled down in its new quarters; and is it to be wondered that after *such* a journey it should desire to proclaim its safe arrival? It is a restless bird, continually on the move, and is very difficult to come within range of, as directly it perceives that it is being approached it flies off to another perch. I have often seen it on the ground pursuing grasshoppers by darting at them as they fly out of the grass, and have noticed it proceeding across a road with prodigious hops and very erect carriage. Although its food is almost entirely insectivorous, it is occasionally guilty of the crime which has acquired for its family the name of "Butcher-birds," as Mr. Bligh informs me that he has known it to impale a White-eye (*Zosterops ceylonensis*) after the manner of the European species. It never takes long flights while resident, merely proceeding from the top of one bush to another; and during the winter season its note consists of nothing but the harsh chattering above mentioned. Blyth says that it warbles very sweetly at the end of the cold season at Calcutta.

Nidification.—I am unable to give my readers any further particulars touching the nesting of this bird than those already contained in my extract from Colonel Prjevalski's notes. That it does not breed in India is evident, although Tickell was led to suppose that it did so. The nest and eggs described by him were evidently those of a Bulbul.

LANIUS CANICEPS. (THE RUFOUS-RUMPED SHRIKE.)

Lanius caniceps, Blyth, J. A. S. B. 1846, xv. p. 302; id. Cat. B. Mus. A. S. B. p. 151 (1849); Horsf. & Moore, Cat. B. Mus. E. I. Co. p. 164 (1854); Fairbank, Str. Feath. 1877, p. 400.

Lanius tephronotus (Vig.), Kelaart, Prodrum, Cat. p. 124 (1852).

Lanius erythronotus (Vig.), Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 130; Jerdon (in pt.), B. of Ind. i. p. 402 (1862); Holdsw. P. Z. S. 1872, p. 436; Legge, Str. Feath. 1876, p. 243.

Collyrio caniceps (Bl.), Hume, Nests and Eggs, i. p. 169 (1873).

Lanius affinis, Legge, Str. Feath. 1876, p. 243.

Pale Rufous-backed Shrike of some; *Butcher-bird*, Europeans in north of Ceylon.

Adult male. Length 9·0 to 9·2 inches; wing 3·55 to 3·65; tail 4·5; tarsus 1·05; mid toe and claw 0·95; hind toe and claw 0·75; bill to gape 0·9.

Adult female. Length 8·7 to 8·9; wing 3·45 to 3·6; tail 4·1 to 4·3.

Iris hazel-brown; bill black; legs and feet blackish brown.

A broad facial band encompassing the eye, and passing from below the ear-coverts to the nostril and across the forehead, where it narrows, wings, and three central pairs of tail-feathers black; head, back and sides of neck, back, and scapulars pale bluish grey, with a whitish edging at the frontal band and above the eye; edge of the wing and a band at the base of the primaries from the 5th to the 10th quill, under wing, throat, fore neck, and centre of breast white; rump, upper tail-coverts, and flanks rufous; under tail-coverts and *terminal portion of the longer scapulars* rufescent, or paler than the rump.

In abraded plumage the head and edges of the back-feathers become whitish; and I observe that when the plumage is new the longer scapulars are more rufous than when it is abraded, as this colour is chiefly confined to the external portion of the webs.

Female. Has the eye-stripe or band less black than the male, and the frontal bar narrower.

Young. (Nestling shot by Mr. Holdsworth, 8th February, 1869.) Above pale sandy fulvous, darkening gradually into rufous on the rump, longer scapular-feathers, and upper tail-coverts; on the hind neck a slight tinge of greyish; all the feathers barred with wavy marks of dark brown; lesser wing-coverts rufescent, broadly barred with blackish brown; inner webs of the tertials rufous, their external margins and tips of the same colour; four central tail-feathers brown, the remainder and the tips of the first-named rufous tinged with brown; eye-band blackish brown, not extending to the forehead; beneath whitish, tinged with rufescent strongly on the flanks and under tail-coverts.

Obs. This fine Shrike is the southern representative of *Lanius erythronotus*, the Rufous-backed Shrike, found in the Deccan, Central and Northern India. Specimens from Malabar and from the Godaveri-river district have just as little rufous on the scapulars and lower back as our birds; in fact a Malabar example in the national collection has less rufous on these parts than some Ceylonese specimens. Two birds from the districts named measure 3·5 and 3·75 inches in the wing, and two from the Palanis, obtained by Mr. Fairbank, 3·3. At the time I wrote my note on this species ('Stray Feathers,' 1876) I had only specimens of *L. erythronotus* in my collection, and was unacquainted with the true *L. caniceps*, and hence my remark as to our bird perhaps being a local race of the former. The Rufous-backed Shrike has the back as far up as the interscapular region, and nearly all the scapular tuft, rufous; and in all specimens I have examined there is an absence of the pale margin at the posterior edge of the frontal band; the secondaries and tertials are more broadly edged with fulvous than in *L. caniceps*. Two examples from Behar measure 3·5 and 3·4 inches in the wing, and two from Futteghur 3·5 and 3·55 respectively.

As our species was entered as *L. tephronotus* in Kelaart's Catalogue, it may not be out of place to mention, for the information of my Ceylon readers, that this Shrike is a very distinct bird from either of those in question. It is a large bird, with the wing varying from 3.9 to 4.3 inches, and the tail about $5\frac{1}{4}$; dark grey on the head and back, with the rump and upper tail-coverts dusky rufous; the wings and tail not so black, but the under surface much as in *L. caniceps*.

Distribution.—This large Butcher-bird inhabits the Jaffna peninsula, the extreme north of the Vanni, and the whole of the N.W. coast, from Poonerim to the country between Chilaw and Puttalam, including the islands of Manaar and Karativoc. On the Erinativoe Islands I did not observe it. It does not seem to extend far inland, although it is very abundant on the sea-board. It has been procured by Mr. Hart on the Puttalam and Kandy road as far up as Nikerawettiya; westward of that about Kurunegala, in the Seven Korales, and in the region along the base of the west Matale hills I searched diligently for it without success. In the Jaffna peninsula it is chiefly abundant about Point Pedro. In the island of Manaar, and on the open bushy plains of the adjacent coast as far south as Pomp-Aripu, it is abundant. Southward of this place its numbers diminish; and no example has ever, to my knowledge, been *procured* south of Chilaw, although I observe that Mr. Holdsworth is of opinion that he saw it occasionally in the cinnamon-gardens at Colombo. The foregoing species is very common in that locality, but the present bird has not yet been obtained there up to the date of my latest advices from the Colombo museum.

On the continent the Rufous-rumped Shrike is found in the south of India and up the east coast as far north as the Godavari river. I do not observe that it has been found either by Messrs. Fairbank or by the authors of the recent contribution to the avifauna of the Deccan, Messrs. Davidson and Wender, in this region. Mr. Ball likewise does not record it from the coast region north of the Godavari. It would appear, however, that it has been found in Cashmere and in Afghanistan—that is, if Blyth's identification of Captain Hutton's specimens was correct. As late as 1873 Mr. Hume incorporates the latter gentleman's notes on its nesting in that region in 'Nests and Eggs;' and I therefore infer that he considers the identification correct. It is also found in the N.W. Himalayas; but from intermediate localities, such as Sindh, Guzerat, Sambhur, or the neighbourhood of Futteghur, it does not appear ever to have been recorded. Jerdon writes of this species, in his 'Illustrations of Indian Ornithology,' 1847, at a time when he considered it distinct from *L. erythronotus* (for in his 'Birds of India' he unites the two), that though "occasionally found in the more wooded parts of the country in the Carnatic, it is only common in the neighbourhood of the jungles of the west coast, and is very abundant on the top of the Nilghiris." Mr. Fairbank says that it is resident on the summit of the Palani ranges and breeds there.

Habits.—In its mode of living the present species resembles the remainder of this interesting family. It frequents low thorny jungle, scrubby land, and open places near the sea-coast, which are dotted here and there with clumps of low trees and bushes. When not engaged in catching its prey it seems to pass most of its time on the top of a shrub, uttering its harsh cry as if it were on bad terms with all its neighbours. It is very noisy in the mornings and evenings, flying about from bush to bush, and is so restless that it is very difficult to approach. There is in its disposition evidently that dislike for the presence of man that characterizes all its congeners with which I am acquainted; and it decidedly disapproves of his endeavouring to make acquaintance with its habits by even presuming to watch its movements, for as soon as it observes that it is an object of interest it immediately decamps. It feeds on grasshoppers, which it entraps on the ground, and also preys on Mantidæ and dragonflies.

Nidification.—This bird breeds in the Jaffna district and on the north-west coast from February until May. Mr. Holdsworth found its nest in a thorn-bush about 6 feet high, near the compound of his bungalow, in the beginning of February. He describes it as cup-shaped, made of rather slender twigs, and lined with roots. Unfortunately the young were just fledged at the time he discovered it, and he therefore obtained no information as to the eggs of the species. Layard speaks of the young being fledged in June at Point Pedro, and says that it builds in *Euphorbia*-trees in that district.

Referring to Mr. Hume's 'Nest and Eggs,' I find it recorded that the breeding-season of this Shrike in South India extends from March until July. Concerning its nesting in the Nilghiris, Mr. Wait writes:—

"The nest, cup-shaped and neatly built, is placed in low trees, shrubs, and bushes, generally thorny ones; the outside of the nest is chiefly composed of weed (a white downy species is invariably present), fibres, and hay, and it is lined with grass and hair. There is often a good deal of earth built in with roots and fibres in the foundation of this nest. Four appears to be the usual number of eggs laid." Mr. Davison's account of its nesting is as follows:—"This species builds in bushes or trees at about 6 to 20 feet from the ground. A thorny thick bush is generally preferred, *Berberis asiatica* being a favourite. The nest is a large, deep, cup-shaped structure, rather neatly made of grass mingled with old pieces of rag, paper, &c., and lined with fine grass. The eggs, four or five in number, are white, spotted with blackish brown chiefly at the thicker end, where the spots generally form a zone." Mr. Hume remarks that the eggs are undistinguishable, in many instances, from those of its close ally *L. erythronotus*, though they vary less and average longer. In length they range from 0.93 to 1.0 inch, and in breadth from 0.7 to 0.72 inch; but the average of twenty was 0.95 by 0.7 inch.

PASSERES.

Fam. DICRURIDÆ.

Bill stout, both wide and high at the base, the upper mandible moderately curved, and the tips of both mandibles notched; gape armed with stout bristles. Wings moderately long. Tail of 10 feathers only, forked, and with the lateral feathers occasionally much lengthened. Legs short; feet rather small.

Plumage black. Sternum with a tolerably large foramen in each half of the posterior edge (*Chibia hottentota* and *Bhringa remifer*).

Genus BUCHANGA.

Bill stout, broad at the base, the upper mandible high; the culmen keeled and well curved to the tip, which, as well as that of the under mandible, has a distinct notch. Nostrils oval, small, concealed by the impending plumes. Rictal bristles long and stout. Wings pointed; the 4th quill the longest, the 2nd subequal to the 7th and twice as long as the 1st. Tail long, deeply forked, and expanding at the tip. Tarsus longer than the middle toe, protected with stout transverse scutæ. Feet rather small and stoutly scaled; hind toe and claw large.

BUCHANGA ATRA.

(THE BLACK DRONGO.)

Muscicapa atra, Hermann, Obs. Zool. p. 208 (1804).

Dicrurus macrocerus, Vieill. N. Dict. ix. p. 588 (1817); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 129; Jerdon, B. of Ind. i. p. 427 (1862).

Buchanga albirictus, Hodgs. Ind. Rev. i. p. 326 (1837); Hume, Nests and Eggs, p. 186 (1873); Butler, Str. Feath. 1875, p. 465.

Edolius malabaricus!, Kelaart, Prodrum, Cat. p. 124 (1852).

Dicrurus minor, Blyth, Cat. B. Mus. A. S. B. p. 22 (1849); id. Ibis, 1867, p. 305.

Dicrurus longus (Temm.), Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 152 (1854).

Buchanga minor (Bl.), Holdsw. P. Z. S. 1872, p. 438; Legge, Str. Feath. 1875, p. 202.

Dicrurus albirictus (Hodgs.), Hume, Str. Feath. 1875, p. 97.

Buchanga atra, Sharpe, Cat. B. iii. p. 246 (1877).

Le Drongolon, Levaill. Ois. d'Afr. iii. pl. 174.

The Drongo-Shrike of some; *King-Crow*, "*Flycatcher*," Europeans in Ceylon.

Kolsa, Hind.; *Finga*, Bengal.; *Japal kalchit*, Punjab; *Kunich* in Sindh; *Thampal*, N.W. Prov.; *Kotwal*, Natives in Deccan; *Yeti-inta*, also *Passala-poli-gadu*, lit. "Cattle Tom-bird," Telugu; *Kurri kurumah*, Tam., Jerdon.

Kari kuruvi, Tamils in Ceylon; *Pastro barbeiro*, Portuguese in North Ceylon.

Adult male and female. Length 10.75 to 11.1 inches; wing 5.0 to 5.45; tail 5.1 to 5.7, depth of fork 2.1; tarsus 0.8 to 0.85; mid toe and claw 0.82 to 0.9; bill to gape 1.05 to 1.15.

Males slightly exceed females in size.

Iris dull red, or brownish red in not fully adult birds; bill black; legs and feet black.

Above and beneath metallic blue-black; quills brown-black, glossed on the tail with green; lower surface of quills brown; a small white spot at the lower corner of the gape, not perceptible in many specimens until the black feathers round it be lifted up; in some it consists of a single feather.

Young. Birds of the year have the wing from 4.8 to 5.0 inches.

Iris reddish brown; bill and feet as in adult.

Above glossed as in the adult; beneath, from the chest, the feathers are fringed with white, coalescing into whitish on the abdomen; under tail-coverts and primary under wing-coverts with white terminal bars; greater under wing-coverts with a white spot at the tips. This plumage is acquired after doffing the nestling dress, which is brownish beneath, with similar white markings. After the next moult the white tips are present in the longer under tail-covert feathers, and sometimes on the under wing, this latter part losing the spots first, as a rule.

Obs. The Ceylon birds form a small race of this widely-spread species, and have been usually separated as *B. minor*; I cannot, however, keep our bird distinct as a subspecies even, for I find an example in good plumage in the British Museum from Behar which is no larger than fine specimens from Jaffna. It measures in the wing 5.5, tail 6.3, and has a small rectal spot. The generality of Indian specimens are, however, larger than this. Several from Nepal measure 6.0, 6.1, and 6.2 in the wing, and about 7.0 in the tail. In Burmah they are similar in size to those in the Himalayan subregions. The Black Drongo of China and Formosa (*B. cathaeca*) is united by Mr. Sharpe with *B. atra*; and, I think, justly so too, for I can see no difference whatever between specimens in the British Museum from either of these localities and those from Nepal and Burmah. An example from Formosa measures—wing 5.7, tail 6.5; one from China—wing 6.2, tail 7.0. I find the white rectal spot present in these, although it is very minute, and it likewise exists in all Indian specimens I have examined. South-Indian birds

are usually about the size of the above noticed Behar example. I notice that in some instances the young of continental birds have a great deal of white near the edge of the under wing; but in this respect Ceylonese examples vary too, though apparently not quite to the same extent as the former.

Distribution.—This Drongo has a very singular distribution in Ceylon, which, as in the case of the Red-legged Partridge, leaves the impression that it had found its way, at some remote period, to the island, and, not liking it, had determined not to continue its explorations much beyond the point of its arrival! It is confined to the Jaffna peninsula and the north-west coast, down as far south as Puttalam, perhaps occurring as a straggler about Colombo, though it is certainly not resident there. I never saw it anywhere on the west coast south of the above-mentioned town, though I searched most diligently for it at Chilaw, a locality which I was prepared to find it in, as the conditions of climate and vegetation are those of the more northern parts which it frequents. Layard writes of it:—“*D. minor* is common about Colombo, frequenting natives’ gardens.” This is the habit of *B. leucopygialis*, and there must have therefore been a wrong identification here. Mr. Holdsworth says, “it is also found about Colombo, but by no means commonly within my experience.” No specimens were procured by him there as I understand, and it is possible that the above-mentioned bird may have been mistaken for it. Others have been on the look-out for it for years past, but have not yet seen it in the Colombo district; and this is, therefore, one of the points in the island distribution of this bird which requires settling. There is no reason why it should not stray down the coast to Colombo; and if Mr. Holdsworth’s identification of the bird at large were correct, it was most likely as a wanderer to the district that it made its appearance there. It does not seem to pass down the east coast at all. I have seen it near Elephant’s Pass, but did not meet with it on the sea-board south of that, though it may occur at Mullaitivu. In the island of Manaar, on the open plains near Salavatori and to the north of Mantotte, it is very common, but it does not appear to take to the paddy-lands of the interior.

On the continent, the “Common King-Crow” is found, according to Jerdon, throughout the whole of India, extending through Assam and Burmah into China, and is to be met with in every part of the country, except where there is dense and lofty jungle. Commencing at the north-western limit of this wide range, I find that Mr. Ball observed it on the lower parts of the Suliman hills, and Mr. Hume procured it in Sindh; Captain Pinwill collected it in the N.W. Himalayas; Dr. Hinde at Kamptee; Messrs. Adam and Butler speak of it as common in the Sambhur-Lake district and in Northern Guzerat, though it is scarce, according to the latter gentleman, in the Mount-Aboo range. It is “very abundant in Chota Nagpur” (*Ball*), and also, further south, in the Deccan and the Carnatic. Mr. Fairbank found it common at the base of the Palanis and on the plains, but not at any elevation on the hills themselves. It is spread throughout the country to the south of this district as far as the island of Ramisserum. Turning to the north-east again, we trace it through north-eastern Cachar, where it is “extremely common” (*Inglis*) to Burmah, in which country Mr. Oates says that for many months of the year it is very abundant, being rare, however, from April to September. He did not see it on the Pegu hills. In Tenasserim Mr. Hume writes that it does not occur east of the Sittang. South of Monlmein it is not rare, and it extends to the Pakehan river. Concerning the country which forms the eastern limit of its range, namely China, Mr. Swinhoe writes (*P. Z. S.* 1871) that it is found throughout it, including the peninsula of Hainan and the island of Formosa; southward it extends into Siam, and thence across to Java, where it is the *Edolius longus* of Temminck.

Habits.—In Ceylon this Drongo frequents open lands, tobacco- and pasture-fields, bushy plains, and scattered thorny jungle on the outskirts of the latter. It is, like the rest of its genus, a tame bird, and is frequently to be seen sitting quietly on the backs of cattle or on the tops of fences near the bungalows in Jaffna, until a passing beetle attracts its notice, and it darts suddenly after it; sometimes a long chase occurs, and when the hapless insect is captured, it is dispatched on the nearest fence or tree, and the watch again commences. It often alights on low eminences on the ground, such as the top of a rut or a similar projection; and when frightened from this flies along close to the earth with a buoyant flight, and generally alights on a fence or low bush. It is usually solitary, or associates, perhaps, with one or two of its fellows in scattered company; but in close company I have not noticed it often. Its principal food consists of Coleoptera, grasshoppers, winged termites, of which it is very fond, and ticks, which latter it takes from cattle. It was the

species referred to by Layard when, in writing of *B. longicaudata*, he remarked that it perched on the backs of cattle to seek for ticks, on which it largely fed. Its flight is undulating and buoyant; and when chasing its prey it is capable of performing very rapid evolutions, darting hither and thither, and rising and falling until it has succeeded in its pursuit. Its note is more melodious than that of the rest of its congeners in Ceylon.

Dr. Jerdon has the following complete account of its habits in India:—"It feeds chiefly on grasshoppers and crickets, which, as Sundevall remarks, appear to be the chief insect-food for birds in India; also now and then on wasps or bees (hence the Bengal name), on dragonflies, and occasionally on moths or butterflies. It generally seizes its insect-prey on the ground, or whips one off a stalk of grain, frequently catching one in the air; now and then, when the grasshopper, having flown off, alights in a thick tuft of grass, the King-Crow soars for a few seconds over the spot like a Kestrel. When it has seized an insect, it generally, but not always, returns to the same perch. On an evening, just about sunset, it may often be observed seated on the top of a tree, taking direct upward flights, and catching some small insects that take wing at the time. Like most other birds, when a flight of winged termites takes place, it assembles in numbers to partake of the feast.

"The King-Crow obtains his familiar name in this country from its habit of pursuing Crows, and also Hawks and Kites, which it does habitually, and at the breeding-season, especially when the female is incubating, with increased vigilance and vigour. If a Crow or Kite approach the tree in which the nest is placed the bold little Dronko flies at them with great spirit and determination, and drives them off to a great distance; but although it makes a great show of striking them, I must say that I have very rarely seen it do so; and certainly I have never seen it fix on the back of a Hawk with claws and beak for some seconds, as Mr. Phillipps asserts that he has seen. Occasionally others will join the original assailant, and assist in driving off their common enemy."

A correspondent in 'Stray Feathers,' Mr. Wender, writing from Sholopoor Deecan, says:—"On the 8th inst. (Jan.) I saw a King-Crow (*B. albirictus*) sitting on a telegraph-wire with a lizard about 6 inches long in its claws, pecking away at it, just as you see a Hawk eating a lizard or a mouse. The lizard, one of those fragile light-coloured little fellows which one sees running about in long grass, was not quite dead, though he had ceased to struggle violently. The bird appeared to be pulling the lizard's intestines out in a most deliberate manner."

Some very interesting details concerning this well-known bird are furnished by Mr. Ball in his excellent paper on the Birds of Chota Nagpur. Referring to Dr. Jerdon's doubt as to its striking other birds, he says:—"On one occasion, however, I saw one actually carried on the back of a large Owl (*Ascalaphia bengalensis*) which flew out of a tree where it was being tormented by these birds and Pies (*Dendrocitta rufa*). In illustration of the somewhat miscellaneous character of the food of these birds I may mention that I remember one day in Calcutta opening a verandah *chick* (curtain) which had not been in use for some time, thus disturbing a colony of Bats that had made the inside coils their home; out they flew into the daylight, when they were immediately seen and hawked up by some King-Crows, who took them to neighbouring trees, where they quietly devoured them Late as they are in going to roost they are generally the first birds to be on the move in the morning. I have frequently heard them calling to one another long before dawn, when I have been travelling in the hot weather."

Nidification.—I was unable while in Ceylon to obtain any information from my correspondents at Jaffna concerning the nesting of this species. A comparison of its eggs with those of the continental form would be extremely interesting, and the matter is one which future workers in the island should pay attention to. In India, May, June, and July are said to be the favourite months for nesting, although eggs are occasionally taken in April and August. Mr. Hume writes that it usually builds pretty high up in tall trees, in some fork not quite at the outside of the foliage, "constructing a broad shallow cup, and lays normally four eggs, although I have found five." The nests "are all composed of tiny twigs and fine grass-stems, and the roots of the *khus-khus* grass, as a rule, neatly and tightly woven together, and exteriorly bound round with a good deal of cobweb, in which a few feathers are sometimes entangled; the cavity is broad and shallow, and at times lined with horsehair or fine grass, but most commonly only with *khus*. The bottom of the nest is

very thin, but the sides, or rim, rather firm and thick The variation in this bird's eggs is remarkable; out of more than one hundred eggs nearly one third have been pure white; and between the dead glossless pure white egg and a somewhat glossy, warm, pink-grounded one with numerous spots and specks of maroon colour, dull red, and red-brown, or even dusky, every possible gradation is to be found: each set of eggs, however, seems to be invariably of the same type, and we have never yet found a pure white and a well coloured and marked egg in the same nest." These latter "are a pale salmon-colour, spotted with rich brownish red." The average of 150 eggs was 1.01 by 0.75 inch, the smallest measuring 0.95 by 0.7 inch; the latter dimensions would be quite equalled, if not exceeded, by those of our Ceylonese birds.

BUCHANGA LONGICAUDATA.

(THE LONG-TAILED DRONGO.)

Dicrurus macrocercus, Jerd. Cat. B. South India, Madr. Journ. 1839, x. p. 240 (*nec* Vieill.).

Dicrurus longicaudatus, "A. Hay," Jerd. Madr. Journ. 1845, xiii. pt. 2, p. 121; Blyth, Cat. B. Mus. A. S. B. p. 202 (1849); Horsf. & Moore, Cat. B. Mus. E. I. Co. p. 152 (1854); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 129; Bourdillon, Str. Feath. 1876, p. 394; Jerd. B. of Ind. i. p. 430 (1862); Hume, Str. Feath. 1875, p. 97.

Buchanga longicaudata, Walden, Ibis, 1868, p. 316; Holdsw. P. Z. S. 1872, p. 438; Hume, Nests and Eggs (Rough Draft), p. 189 (1873); Legge, Str. Feath. 1875, p. 202; Sharpe, Cat. B. iii. p. 249.

Buchanga waldeni, Beav. Ibis, 1868, p. 497.

King-Crow, Europeans in India and Ceylon.

Nil finga, Beng.; *Sahim* or *Sahem Pha*, Lepchas; *Chéchum*, Bhot.

Erratoo valan kuruvi, Tam., lit. "Double-tailed bird;" *Pastro barbeiro*, Portuguese in Ceylon.

Adult male and female. Length 10·5 inches; wing 5·0 to 5·4, average dimensions of wing in males procured in Ceylon 5·2; tail 5·8 to 6·0, depth of fork about 2·0; tarsus 0·7; mid toe 0·55 to 0·6, claw (straight) 0·3 to 0·33; bill to gape 1·1 to 1·12.

The above dimensions are from examples killed in Ceylon; an immature female shot in Ramisserum Island measures only 4·8 in the wing; one procured by Mr. Bourdillon in Travancore 5·4; a second 5·0. The measurement of a third, of which the sex is not stated, is given at 5·55.

Iris red, in some almost scarlet; bill, legs, and feet black.

Above metallic bluish black with a grey tinge on the back, increasing towards the upper tail-coverts; quills and tail with a strong greenish lustre on the outer webs, the inner being brownish black; beneath dull black pervaded with greyish, which hue is strongest on the breast, flanks, and abdomen; a slight steel-blue gloss on the chest; under wing-coverts greyish black; under surface of quills near the base brownish.

Young. Iris brownish red. The immature or bird of the year has the lower parts greyer than in the adult; the under tail-coverts have deep white tips in the form of terminal bars; beneath the carpal joint the feathers are also tipped with white, and the under wing-coverts have terminal spots of the same. The white markings, as in the case of *B. atra*, leave the under wing-coverts first; they seem to remain on the under tail-coverts until the bird is almost mature, as few specimens which I have seen are entirely without them; immature examples occasionally have one more white spot at the tips of the tail-feathers.

Obs. This is a variable species in size. Probably the birds which visit us in the cool season are bred in the south of India, and are consequently smaller than those from the northern parts of the Empire. A male, however, in the national collection from Darjiling has the wing 5·62 inches, tail 6·4, dimensions not much exceeding those which visit Ceylon.

Allied forms inhabit Burmah and the sub-Himalayan district, and were united by Jerdon with the present. *B. cineracea*, from the former region, is a smaller bird than the present species and much paler, being "ashy grey" above, and the same, but somewhat duskier, beneath; wing 4·9 to 5·2 inches. *B. pyrrhops* is, according to Mr. Sharpe, a good subspecies of the above, being larger than it. Mr. Hume considers it to be merely a grey form of *B. longicaudata*.

Distribution.—This species arrives in the north of Ceylon about the middle or latter part of October. It is decidedly migratory, as no individuals are seen between April and September, and at the season of its appearance it is always first met with on the seashore. At Trineomalie I noticed it in the Fort when it first arrived; it lingered about the neighbourhood and then betook itself to the jungles, through which it is diffused in tolerable numbers as far south as the Seven Korales. It does not appear to be common in the north. I have seen one or two individuals from the Jaffna district, but I did not meet with it on the north-

west coast, nor does Mr. Holdsworth appear to have done so. It is therefore singular that it should be a common species on the opposite side of the island. It is an occasional visitant to the west coast: I once noticed an example in October in the Fort at Colombo, but it quickly disappeared into the interior. Mr. Holdsworth likewise met with it in that district, obtaining a specimen about sixteen miles from Colombo. Further south on this side of the island it is unknown. I have seen it in the Wellaway Korale; and Mr. Bligh writes me of a Black Drongo which frequented his estate in Haputale in the month of November, which must have belonged to this species. Other evidence than this of its ascending the hills I have never obtained.

This Drongo inhabits the whole of the Indian peninsula. Jerdon writes of it:—"The Long-tailed Drongo is found wherever there is lofty forest jungle, from the Himalayas to Travancore . . . I have killed it in Malabar, the Wynaad, Coorg, and the Nilghiris; it is found occasionally about Calcutta and all along the Himalayas up to 8000 feet of elevation. It is tolerably common at Darjiling." Captain Hutton says that it is the only species of Drongo which visits Mussourie, arriving from the Dhoon in the middle of March. Captain C. H. Marshall records it from Muree. In the south of India it appears to be a permanent resident. Mr. Bourdillon remarks that it is common in Travancore, and, as I have remarked, it is probably from there that it visits Ceylon; but why it should arrive so frequently on the east coast is somewhat puzzling.

Mr. Fairbank records it from Khandala, and says that it is rarely found in the Ahmednagar district. Jerdon remarks that Adams found it common in Cashmere, which must be its extreme limit to the north and west.

Habits.—Heavy jungle and forest are the localities principally frequented by this Drongo, the vicinity of open places, banks of rivers, or margins of secluded tanks being usually chosen by it in which to take up its quarters; and there it subsists on the insectivorous diet so rife in the tropical woods. It perches on the tops of tall trees or on some outstanding branch, from which prominent outlook it sallies forth on the beetles and various winged insects which pass it, and then returns to its post to discuss the prey thus captured. It is an inquisitive and somewhat querulous species, chasing Hawks and Crows, and not unfrequently consorting with Bulbuls and other small birds for the purpose of mobbing an unfortunate Owl which has been discovered abroad during the daylight. I have more than once found it pursuing the Devil-bird. On first arriving in the island it is found in avenues and groves of trees near human habitations, but it soon disappears for its sylvan haunts. It is often noticed on the edges of roads leading through the forest, and may easily be recognized from other Drongos by its long tail and generally slender outline. It is one of the last birds to retire in the evening, and often makes a supper off the beetles, termites, bugs, &c. which are abroad during the short twilight of the tropics. Its notes are varied and shrill in tone, and some of them are cleverly imitated by the Common Green Bulbul, *Phyllornis jerdoni*. I have usually met with it in pairs, but once or twice have seen a small party together. Jerdon remarks that it now and then makes a considerable circuit, apparently capturing several insects, before returning to its perch, and then reseating itself on some other tree; he likewise states that three or four are sometimes seen together in scattered company, but that each returns independently to its own perch. Layard's remarks as to this Drongo perching on the backs of cattle apparently apply, as heretofore remarked, to the Black Drongo so common in the open about Jaffna.

Nidification.—This species breeds in India during the months of March, April, and May, building, according to Captain Hutton, a very neat nest, usually placed on the bifurcation of a horizontal branch of some tall tree. "It is constructed of grey lichens gathered from the trees and fine seed-stalks of grasses firmly and neatly interwoven; with the latter it is also usually lined, although sometimes a black fibrous lichen is used; externally the materials are kept together by being plastered over with spiders' webs." There are, says Mr. Hume, two types of this bird's eggs—the one of a pale pinkish salmon-coloured ground, streaked, blotched, and clouded somewhat openly, except at the large end, with reddish pink; the other has a pale pinkish-white ground, blotched boldly, almost exclusively, at the larger end in a broad irregular zone with brownish red. They vary from 0.85 to 1.01 in length by from 0.7 to 0.75 inch in breadth.

BUCHANGA LEUCOPYGIALIS.
(THE CEYLONESE WHITE-BELLIED DRONGO.)

(Peculiar to Ceylon.)

Dicrurus leucopygialis, Blyth, J. A. S. B. 1846, xv. p. 298; id. Cat. B. Mus. A. S. B. p. 203 (1849); Kelaart, Prodrumus, Cat. p. 124 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 130; Blyth, Ibis, 1867, p. 306; Legge, ibid. 1874, p. 16.

Dicrurus caerulescens (Linn.), Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 129.

Buchanga leucopygialis (Bl.), Holdsworth, P. Z. S. 1872, p. 439; Hume, Str. Feath. 1873, p. 436; id. Nests and Eggs, i. p. 192 (1873); Legge, Ibis, 1875, p. 288; Sharpe, Cat. B. iii. p. 253 (1877).

Buchanga caerulescens (Linn.), Holdsw. P. Z. S. 1872, p. 439 (in pt.); Legge, Ibis, 1875, p. 288; id. Str. Feath. 1875, p. 202 (in pt.).

Buchanga insularis, Sharpe, Cat. B. iii. p. 253 (1877).

The King-Crow, Europeans in Ceylon. *Pastro barbeiro*, Portuguese in Ceylon.

Kowda or *Kawuda Panika*, Sinhalese.

Ad. niger, chalybeo nitens, abdomine albicante, crisso et subcaudalibus albis: rostro et pedibus nigris: iride rubrâ.

Adult male. Length 9.5 to 9.9 inches; wing 4.7 to 4.95; tail 4.7 to 5.1; tarsus 0.75 to 0.8; mid toe 0.7, claw (straight) 0.24; bill to gape 1.0 to 1.1.

Adult female. Length 9.5 to 9.7 inches; wing 4.5 to 4.75; tail 4.5 to 4.75.

Iris varying from reddish brown to brownish red, in some obscure red; bill, legs, and feet black.

Obs. These measurements and the colours of the soft parts are taken from a series of northern and southern examples, the representatives of the two types into which this species apparently divides itself; but in order to the more complete insight into the question, I will in my "descriptions" first deal with one type, and then pass through the intermediate form to the other.

Dark form: BUCHANGA LEUCOPYGIALIS, Blyth.

Adult male (Wellewatta, Colombo). Wing 4.75 inches; tail 4.0; bill to gape 1.0.

Iris dull red.

Head and entire upper surface black, illumined with steel-blue; wings and tail brownish black, with a metallic lustre, slightly greener than that of the back on the outer webs of the feathers; ear-coverts and face black, without the metallic lustre of the head; chin, fore neck, and chest dull black, intensifying somewhat on the chest, and slightly glossed in that part; on the breast the centres of the feathers become gradually brown, with the edges iron-grey, the latter paling to greyish white lower down, and thence into white on the abdomen, giving that part, however, only a whitish appearance on account of the dark centres of the feathers; vent and under tail-coverts white.

Adult male (Mapalagama, South Ceylon). Wing 4.85 inches; tail 4.9; bill to gape 1.0.

Iris obscure red.

Much darker on the lower breast and belly than the above, as it is in abraded plumage, and the *whitish edgings* are worn off from this cause; the vent is only greyish white, and the under tail-coverts sullied white; gloss on the upper surface duller, or not so green as in the freshly-moulted specimen.

Adult female (Poorie, W. Province). Wing 4.55 inches; tail 4.4; bill to gape 1.0.

Iris dark red-brown.

In more abraded plumage than the last; the entire breast and belly dull brown, the vent greyish, and the under tail-coverts greyish white.



$\frac{4}{5}$

BUCHANGA LEUCOPYGIALIS.

Adult female (Heneratgoda). Wing 4·7 inches; tail 4·7; bill to gape 1·0.

Iris dull red.

In abraded plumage, but not so dark as the above, owing to some of the feathers not being so much worn as others; the breast is greyish brown; the vent whitish, and the under tail-coverts slightly less albescent than the vent, being so much worn as to show the brownish bases of the feathers.

Female (Colombo). Wing 4·5 inches; tail 4·4.

Iris light reddish. An abnormally pale-breasted example.

Throat and chest brownish black, the sides of the latter glossed with green, the centre of the breast brownish grey, the edges of the feathers whitish, the feathers at the sides of this part still paler, and the sides of the belly whitish; vent and under tail-coverts pure white.

Intermediate form.

Male (Chilaw, 50 miles north of Colombo). Wing 4·8 inches; tail 4·9; bill to gape 1·05.

Back with a somewhat *greener* gloss than in the Colombo specimens; chest and throat black, much glossed with metallic green; the centre of the breast brown, the feathers edged paler, the flanks very dark, and the belly suddenly turning white; vent and under tail-coverts pure white.

Male (Deduru-Oya, N.W. Province). Wing 4·98 inches; tail 4·7; bill to gape 1·05.

Upper surface with a still *greener* gloss than the above, the entire belly and the under tail-coverts white, this colour extending up the breast in the form of a point, and becoming at the uppermost part sullied, that is to say, *whitish*.

Two adults (British-Museum specimens *b, c*, "Uva district;" but probably from the *west* of Nuwara Eliya). Wings 4·65 and 4·55 respectively. Resembling the above in plumage both as regards upper surface and lower parts; the whitish hue of the lower part of the breast passing into dark slate on the upper part of it.

Two adults (Kandy district). Wing 4·9 inches. Upper breast very dark; abdomen turning abruptly to white.

Light form: BUCHANGA INSULARIS, Sharpe.

Adult female (Trincomalie). Wing 4·6 inches; tail 4·4; bill to gape 1·0.

Upper surface with a marked *greenish* gloss; throat blackish brown; chest black, glossed with green; upper breast dark slate, rather abruptly changing into white on the lower part of the breast and rest of under surface.

Adult male (British-Museum specimen *a*, "Ceylon," from Badulla district).

Similar to Trincomalie specimen, except that the white colour takes a pointed form on the breast.

Male, not quite adult (Badulla). Wing 4·75 inches; tail 4·9; bill to gape 1·03.

Paler on the chest and tail than any of the foregoing specimens. The upper tail-coverts are tipped with whitish.

Young (dark form on leaving the nest). Blackish brown above, without the black-green gloss of the adult. Chest and throat blackish brown, the breast slaty, the feathers of these parts finely tipped with greyish fulvous; the belly and under tail-coverts sullied whitish, the latter tipped with dusky grey.

A young bird about two months old (Ambepussa, June 29, 1875), shot with the hen bird, which was feeding it, is already acquiring the mature plumage; the black-green feathers on the upper surface predominating over the brown "nestling" ones; the chest nearly all moulted to black feathers, and the centre of the breast whitish as high up as birds from the N.W. Provinces. Wing 4·5 inches. The old bird shot with it was of the true *leucopygialis* type, the breast *much darker* than that of the young bird.

A young bird in a similar stage of change (shot at Deltota, May 29, 1876) is much darker on the breast than the Ambepussa specimen. Wing 4·8 inches.

Young (pale form: Galoya, Trincomalie Road). Similar to the Ambepussa example on the upper surface, being in a state of change from the brown nest-feathers to the glossy black-green; the under surface is paler, inasmuch as the whitish immature plumage extends higher up the breast, and instead of running up towards the chest in a point is distributed right across to the flanks.

Obs. No bird in Ceylon is so puzzling as the present, and there is none to which I have given so much attention with a view to arriving at a satisfactory determination as to whether there are two species in the island or only one. I cannot come to any other conclusion than that there is but one, the opposite types of which are certainly

somewhat distinct from one another, but which grade into each other in such a manner as to forbid their being rightly considered as distinct species; and I will leave it to others who like to take the matter up for investigation to prove whether my conclusions are erroneous or not. I see no reason why, in writing of birds from the north of Ceylon, future collectors should not style them *B. insularis*, inasmuch as these birds form a race of themselves. A perusal of the above-mentioned localities will show that the pale birds inhabit the dry portions of the island, grading into the dark race on a line drawn from Chilaw across the southern part of the N.W. Province, and thence over to the Badulla country and down into the Park districts. Mr. Boate's specimens in the British Museum came from "between Kandy and Nuwara ELLIYA," which I take to be the Rambodde or Pusselawa districts; they are neither strictly *leucopygialis* nor *insularis*, but resemble Deltota and N.W.-Province birds, which are intermediate, whereas examples from the dry district of Uva are the same as those from Trincomalee. The dark form from the South-west and Western Provinces is extremely variable as regards the pale lower parts, the dusky hue of which depends, as I have shown, on abrasion of plumage; and in some instances, as exemplified in the Ambepussa bird, the offspring are paler than the parents. As the plumage becomes abraded, it darkens, and the whole appearance of the pale belly is changed. Moreover it seems probable that the light form in the north sometimes becomes dark; for I have a specimen shot by Mr. Cotterill, C.E., at Hurullé tank, which is in highly abraded plumage it is true, but which has the lower breast and belly so very dusky that it could scarcely, when in new feather, have been a very light-coloured bird.

Mr. Sharpe rightly discriminated the pale Ceylonese form of the present species from *B. cœrulescens*, the Indian bird. The latter has a greyer hue on the green gloss of the upper surface, the tail is a rather pale brown, instead of a dark blackish brown, and the throat and chest are dull ashy blackish, *without any green gloss on the latter*. These distinctions are especially noticeable in northern birds, from Nepal, Kattiawar, and Behar; but from further south I have examples which are darker on the chest, but of course not black, glossed with green, as in Ceylonese. South-Indian birds may perhaps be very close to ours; but I regret to say I have not seen any from that region. It is not improbable that an almost unbroken sequence from the Himalayan to the Ceylonese type could be got together, proving that there is but one species of this Drongo, divisible into local races, the darkest of which would be *B. leucopygialis* of Blyth from South Ceylon.

Examples of *B. cœrulescens* which I have measured vary from 4.9 to 5.1 inches in the wing.

Layard's specimens from Pt. Pedro evidently belonged to the usual pale-bellied bird found in the north of Ceylon, which were not discriminated by Blyth, at the time they were sent to him, as distinct from the Indian birds.

Distribution.—The dark race of this Drongo inhabits the South-western District, the Western Province, and the adjacent slopes of the Kandyan hills, perhaps as far eastward as the valleys in Pusselawa and Kotmale; while, turning to the south again, we find it spreading into the country lying between Badulla and Hambantota, and inhabiting the dividing valley which is continuous with the Saffragam division. It is generally diffused through the Western Province, being numerous in the Korales surrounding Colombo and along the sea-board generally. In large forest-tracts like those on the Pasdun and Kukkul Korales it is scarce, but even there it will be found in the open country formed by isolated tracts of cultivation. A short distance inland from Colombo it is a very common bird, and is one of the most familiar species to those who enjoy the usual evening drive round the outskirts of the "cinnamon-gardens." It is equally well known in the Galle and Matara districts.

In the Seven Korales, where the country is open in many places, it is tolerably numerous, becoming scarcer (*in the light form*) in the forests as we proceed north. In this part of the island it is not nearly so plentiful as its dark relative is in the south; but the heavy nature of the jungle probably tends much to its concealment; and the spots in which I have chiefly observed it were the outskirts of forest, clumps of jungle in grassy wastes, or the borders of village tanks. Layard seems only to have obtained it at Pt. Pedro, and regarded it as a visitor, an opinion which its scarceness on the peninsula naturally occasioned. It extends down the eastern side of the island to the country between Batticaloa and the Uva ranges, in which it is also found to an elevation of about 4500 feet. On the eastern side of the Badulla valley I frequently observed it on the estates between the capital of Uva and Lunugalla; but I did not see it on the Fort-MacDonald patnas, although I believe it is found in that tract of country.

Habits.—The "King-Crow," one of the best-known Ceylonese birds to European residents in the island, frequents native compounds, openly wooded land, the borders of paddy-fields and tanks, the outskirts of jungle, or the vicinity of grassy forest-glades; and in the coffee-districts it may usually be seen seated on stumps or

perched on the branches of dead trees left standing among the luxuriant sweeps of Ceylon's staple plant. To the admirer of bird life it must always be an interesting species, as its lively manners, familiar habits, and bold onslaughts on its winged prey make it an unfailing subject of observation. Its diet is entirely insectivorous, consisting chiefly of beetles, bugs (*Hemiptera*), termites, and such like, which it catches on the wing, returning again to its perch, on which I have observed it striking its prey before swallowing it. It is occasionally, when there is an abundance of food about, a sociable species, as many as three or four collecting on one tree and carrying on a vigorous warfare on the surrounding insect-world. It is abroad at daybreak, and retires very late at night to roost, appearing to be busy throughout the whole day, and never to be tired of uttering its cheerful whistle. One or more may often be seen chasing an unoffending Crow to a great height in the air; and though their attacks must be comparatively feeble, I have observed that they have the capability of considerably disconcerting their powerful enemy; it is from this singular habit that these and other Drongos have acquired the name of King-Crow. The ordinary note of the dark race is a whistling cry, accompanied by a quick jerk of the tail, a movement which the bird is constantly performing; but in the breeding-season the male has a weak twittering song, somewhat resembling that of the Common Swallow. I have listened to this in the north-country birds; but the ordinary note of the latter always seemed to me to be less powerful than that of the Western-Province form. This species and the Long-tailed Drongo have an inveterate hatred of Owls, and never fail to collect all the small birds in the vicinity when they discover one of these nocturnal offenders, chasing it through the woods until it escapes into some thicket which baffles the pursuit of its persecutors.

Nidification.—The breeding-season of this Drongo is from March until May; and the nest is almost invariably built at the horizontal fork of the branch of a large tree, at a considerable height from the ground, sometimes as much as 40 feet. It is a shallow cup, measuring about $2\frac{1}{4}$ inches in diameter by 1 in depth, and is compactly put together, well finished round the top, but sometimes rather loose on the exterior, which is composed of fine grass-stalks and bark-fibres, the lining being of fine grass or tendrils of creepers. The number of eggs varies from two to four, three being the most common. They vary much in shape, and also in the depth of their ground tint; some are regular ovals, others are stumpy at the small end, while now and then very spherical eggs are laid. They are either reddish white, "fleshy," or pure white, in some cases marked with small and large blotches of faded red, confluent at the obtuse end, and openly dispersed over the rest of the surface, overlying blots of faint lilac-grey; others have a conspicuous zone round the large end, with a few scanty blotches of light red and bluish grey on the remainder; in others, again, the markings are confined to a few very large roundish blotches of the above colours at one end, or, again, several still larger clouds of brick-red at the obtuse end, with a few blotches of the same at the other. Dimensions from 1.0 to 0.86 inch in length, by 0.72 to 0.68 in breadth. I once observed a pair in the north of Ceylon very cleverly forming their nest on a horizontal fork by first constructing the side furthest from the angle, thus forming an arch, which was then joined to the fork by the formation of the bottom of the structure.

The parent birds in this species display great courage, vigorously swooping down on any intruder who may threaten to molest their young.

The figure of the southern bird in the Plate (fig. 1) accompanying this article is that of a female from Hencratgoda, that of the northern bird (fig. 2) is of a female shot near Trincomalie.

Genus DISSEMURUS.

Bill stout, the culmen more acutely keeled than in *Buchanga*, as also higher at the base; forehead furnished with a tuft of frontal plumes, the anterior ones projecting forwards, and the posterior more or less curved back over the forehead. Wings with the 4th and 5th quills the longest, and the 3rd shorter than the 6th. Tail with the outer feathers prolonged more or less, in some species with the web complete and slightly upturned, in others with the shaft denuded of the webs to within a short distance of the tip.

Of large size. Plumage highly glossed above and below; the feathers of the hind neck "hackled."

DISSEMURUS LOPHORHINUS.

(THE CEYLONESE CRESTED DRONGO.)

(Peculiar to Ceylon.)

Dicrurus lophorhinus, Vieill. N. Dict. d'Hist. Nat. ix. p. 587 (1817); Gray, Hand-l. B. i. p. 285 (1869).

Dicrurus edoliiformis, Blyth, J. A. S. B. 1847, xvi. p. 297 (1847); id. Cat. B. Mus. A. S. B. p. 202 (1849); Kelaart, Prodromus, Cat. p. 124 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 129; Blyth, Ibis, 1867, p. 305; Legge, Ibis, 1874, p. 17.

Dicrurus lophorhinus, Gray, Hand-l. B. i. p. 285.

Dissemurus lophorhinus, Holdsworth, P. Z. S. 1872, p. 439.

Dissemuroides edoliiformis, Sharpe, Cat. Birds, iii. p. 256 (1877); Tweeddale, Ibis, 1878, p. 78.

Le Drongup, Levaill. Ois. d'Afr. pl. 173.

Jungle King-Crow, in Ceylon.

Kowda, Sinhalese; *Kaputa-baya*, Sinhalese in Southern Province.

Niger, chalybeo-viridi nitens, caudâ valdè forficatâ, rectricibus nigris chalybeo-viridi marginatis, rectrice extimâ longiore et ad apicem paullo recurvatâ: cristâ frontali densâ, setis nasalibus longis anticè directis et plumis cristæ posticis paullo recurvatis: subtus niger, chalybeo nitens, plumis præpectoralibus chalybeis vix lanceolatis: rostro et pedibus nigris: iride brunnescenti-rubrà.

Adult male. Length 13·4 to 14·1 inches; wing 5·6 to 6·0; tail—outer feathers 7·2 to 7·6, central feathers 2·3 to 2·5 shorter; tarsus 1·0 to 1·1; mid toe 0·75, claw (straight) 0·3; hind toe 0·5, claw (straight) 0·4; bill to gape 1·35 to 1·4; limit of the length of frontal feathers about 0·5.

Adult female. Somewhat smaller than the male. Length 13·25 inches; wing 5·0 to 5·6; tail 7·0.

In this species the tail assumes a constant character, and does not vary at all. It is shaped as in the genus *Buchanga*; the web is the same width throughout, broad and flat, the outer portion *only slightly* upraised, but not sufficiently to be called curved.

The anterior frontal plumes are directed forward, and the posterior ones are erect, but have no tendency to curve back over the forehead as in *D. paradiseus*.

Iris dull brownish red or dark yellowish red; bill, legs, and feet black.

Plumage black, highly glossed with a metallic lustre, which on the head, hind neck, throat, and chest is of a steel-blue tinge, and on the back, wing-coverts, and outer webs of the tail-feathers dark green; quills black, the outer webs glossed; bases of the feathers at the sides of the rump greyish, generally showing on the surface of the plumage; flanks and abdomen brownish black, scarcely glossed; the under tail-coverts glossed at the tips; the frontal plumes in fine specimens reach to within 0·4 of the tip of the culmen; the feathers of the hind neck are pointed and to some extent elongated.



$\frac{1}{2}$

DISSEMURUS PARADISEUS.
(Abnormal Form)

$\frac{3}{4}$

DISSEMURUS LOPHORHINUS.

Young. Iris brown, gradually becoming reddish with age. The nestling is black, with but little of the metallic sheen; the outer tail-feathers not much elongated. Immature birds have the under tail- and under wing-coverts tipped white; the flanks pervaded with grey, and in some examples the lower parts faintly edged with white; the under wing-coverts retain their white markings after they have disappeared from the under tail-coverts, few specimens being found without a few white terminal spots on the under wing. In this feature the genus *Dissemurus* is an exact contrast to *Buchanga*.

Obs. I have placed this species in the genus *Dissemurus*, from which it was removed by Mr. Sharpe, because the crest resembles that of some of the local races of the next bird, and it does not seem advisable to establish a genus for it simply because the outer tail-feathers are different from typical *Dissemurus*. The bird for which Mr. Hume established his genus *Dissemuroides* has a "tuft of hair-like feathers on the forehead, springing from each side of the base of the culmen," and therefore differs materially from the present species. Concerning the specific name of *lophorhinus* used by Vieillot, I have perused carefully Levaillant's description of the Drongup in his 'Oiseaux d'Afrique,' and likewise Vieillot's of the species to which he gave the Latin name in question; and I think that the latter was really referring to the Drongup. Levaillant says that his bird "est de la taille de notre draine, vulgairement nommée hautegrive;" and Vieillot uses words of similar meaning when he writes "à la taille de la grive-draine." The plate of the Drongup is, it is true, as far as the head is concerned, a very grotesque representation of our bird; but it is perhaps as faithful as one could expect of any drawing in the 'Oiseaux d'Afrique.' I may add that Mr. Sharpe now agrees with this view of the question, although he was of opinion, at the time he wrote on this species (Cat. Birds, iii.), that Vieillot's description was that of a Madagascar bird, *D. forficatus*.

Distribution.—The stronghold of this fine Drongo consists of the Western Province and the south-west corner of the island, including the southern hill-ranges, throughout which it is plentifully diffused. Its northerly limit is the Kurunegala district, extending along the base of the Matale hills and including the southern portion of the Seven Korales. It is found in all the forests and heavy jungles of the Western Province, and is common in the Ikkadde-Barawe forest and in the outlying jungles between there and Kotte. From Ambepussa southwards through Ratnapura to the Pasdun and Kukkul Korales it is everywhere found in heavy forest, and ascends the Ambegamoa Peak and Maskeliya jungles to a considerable altitude. It is located in portions of the interior of the Kandyan Province, as Dr. Holden, formerly resident in Deltota, has procured it in Hewahette at 3000 feet elevation. It does not appear to extend eastward beyond the slopes of the southern ranges, for I did not meet with it in the forest-tract at the base of the Haputale hills, in which district the racket-tailed species is so common. It is very abundant in the forests on the south bank of the Gindurah, appearing to thrive more prosperously in these excessively humid jungles than in those further up the west coast. I have seen what I am nearly sure to be this species in the Friars-Hood forests; but I cannot speak with certainty, as the specimen I allude to may have been an immature Racket-tailed Drongo. Nowhere else in the Eastern Province have I met with any thing but this latter species, which likewise monopolizes the whole of the northern forests beyond Dambulla.

Habits.—Damp forests and even their most gloomy recesses are frequented by this fine bird. While tramping through the humid glens of the southern jungles, when not a sound is heard but the sighing of the wind in the lofty trees around him, the naturalist is suddenly startled by the sudden outburst of the lively notes with which the Crested Drongo is wont to indulge in on being disturbed in its native haunts. Its vocal powers are remarkable and are fully brought out in the breeding-season, when the males give out a pleasing warble for the edification of their consorts; this is varied by a number of loud whistlings and calls, the result of the bird's powers of mimicry, which are quite equal to those of the next species. I have heard it imitate cleverly the cry of the Serpent-Eagle and the call of the Koel, and often listened to what were evidently attempts to mock other smaller inhabitants of the woods. It usually associates in pairs, and perches across the upper branches of lofty trees, whence it makes many a sudden dive upon passing beetles and the many larger members of the insect kingdom which affect the Ceylon forests. Its flight is powerful and swift, and it is capable of darting through thick foliage with great ease: on seizing an insect in the air it returns with it, or carries it to another perch and beats it against the branches before devouring it. I have on several occasions in Saffragam found three or four pairs of these birds in scattered company, and once in

the Opaté hills came on a flock which seemed to be moving from one part of the forest to another; they were making their way along from tree to tree beneath a vast precipice, and uttering a loud whistle, which one bird took up from the other as they disappeared from my gaze through the dense foliage. It has an inveterate dislike of Owls, particularly the "Devil-bird," which is a fellow inhabitant of the gloomy wilds; and whenever it espies one of these birds which has neglected to seek a proper place of concealment, it attacks it with loud cries, and is soon joined by a host of small birds (Bulbuls, &c.), which soon drive the luckless Ulâma to a distant part of the forest.

Nidification.—This species breeds in the south of Ceylon in the beginning of April. I have seen the young just able to fly in the Opaté forests at the end of this month, but I have not succeeded in getting any information concerning its nest or eggs.

The figure in the Plate accompanying this article is that of a very large male example shot in the Kottowe forest, having an exceptionally fine tail.

DISSEMURUS PARADISEUS. (THE RACKET-TAILED DRONGO.)

Cuculus paradiseus, Linn. Syst. Nat. i. p. 172 (1766).

Edolius malabaricus, Layard & Kelaart, Prodromus, Cat. Ceylon B. App. p. 58 (1853);

Jerdon (in pt.), B. of Ind. i. p. 437 (1862).

Edolius paradiseus, Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 128.

Dissemurus malabaricus, Holdsw. P. Z. S. 1872, p. 439; Legge, Ibis, 1875, p. 288.

Dissemurus ceylonensis, Sharpe, Cat. B. iii. p. 264 (1877); Tweeddale, Ibis, 1878, p. 82.

Dissemurus paradiseus, Hume, Str. Feath. 1878, p. 222.

Le Coucou vert hupé de Siam, Brisson; *Paradise Cuckoo*, Lath.; *The Paradise Drongo*; *The*

Long-tailed King-Crow, Europeans in Ceylon. *Bhimraj*, Hind., lit. "King of the Bees."

Maha-kawuda, Sinhalese; *Erattu valem kuruvi*, lit. "Double-tailed bird," Tamils in North of Ceylon.

Adult male. Length 17·0 to 19·0 inches, according to length of tail; wing 5·8 to 6·2; tail 11·0 to 12·5 to tip of outer feather, the penultimate, in one of the latter measurement, 6·8 shorter; racket never exceeding 2·75; tarsus 0·9 to 1·0; mid toe 0·8, its claw (straight) 0·35; bill to gape 1·45.

Female. Length 15·0 to 16·0 inches; wing 5·6 to 6·1; tail 10·0 to 11·0 to tip of outer tail-feather, which projects not more than 5·5, and in some only 4·0, beyond the penultimate.

The above measurements are taken from an extensive series shot, during a period extending over five years, in the north and south of the island; and I have never met with an example with a longer racket tail-feather than 12·5 inches, extending 6·8 beyond the adjacent or penultimate feather, nor ever obtained one in which, when the bird was fully adult and the shaft *quite bare*, the racket exceeded 2·75 inches in length. In males, the largest of the sexes, the racket-feather seldom reaches 12 inches, and in females seldom exceeds 10·5; the bare portion of the shaft varies from 3·0 to 4·75 inches in length.

Iris varying from brownish red to deep red, mature, but not aged, birds having it of the former hue; bill, legs, and feet black.

Plumage deep black, highly glossed on the head, back, rump, wing-coverts, throat, and chest with dark metallic green; on the breast and lower parts the metallic sheen is of a bluer cast than that of the upper surface; a large frontal crest, the anterior feathers of which are short, very narrow and scantily webbed, and stand erect, while the posterior plumes attain a length, in the finest and oldest specimens, of 1·0 to 1·2 inch and recurve over the forehead touching the crown; feathers of the sides and back of neck "hackled"; bases of the rump and upper tail-coverts and lower flank-feathers greyish; abdomen and under tail-coverts glossless, a few white terminal spots on the under wing-coverts.

The "racket" turns up perpendicular to the horizontal plane of the tail and curves *slightly* inwards.

Young (nestling). Iris brown; bill black; legs and feet bluish black.

Just after quitting the nest (July) the crest is only slightly developed, the posterior feathers scarcely recurved at all and very short; the plumes of the head and hind neck are short and rounded at the tips; back and tail glossed with metallic green; the lateral rectrices are usually about 3 inches longer than the adjacent pair and almost fully webbed, there being a slight indentation, or hollow so to speak, opposite the end of the penultimate; beneath blackish brown; under tail-coverts fluffy and without any terminal white spots; under wing-coverts spotted with white.

In the next stage (January following), probably acquired by moult in September, the crest is tolerably developed, the posterior feathers lengthened and recurved, but rather open-webbed, the racket-feathers are denuded for about 2 inches of most of the inner web, a border next the shaft of about 0·05 inch remaining, the racket about 3·0 in length, and the whole projecting about 4½ to 5·0 inches beyond the penultimate; the feathers of the hind neck

are more lengthened than before and pointed at the tips; under tail-coverts and under wing-coverts both with white terminal spots.

At each succeeding stage the shafts of the racket-feathers become more denuded and the crest lengthens; the spots on the lower tail-coverts finally disappear, but one or two always remain on the under wing-coverts.

Obs. The Ceylonese Racket-tailed Drongo constitutes a race in which the racket-feathers are *almost* constantly smaller than those from any of the localities in the wide range of this species. It may, I think, safely be laid down as a rule that the *maximum* length of these feathers in our adult birds is about equal to the minimum in the same from Malabar, Burmah, Tenasserim, and Siam. This, at least, is the result of an examination of all the material at my disposal in England. In adult examples in the British Museum from Travancore, Malabar, Moalmaza, and Shenogah, the length by which the racket-feathers exceed the penultimate varies from 7.0 to 9.0; and I notice that Mr. Hume gives the measurement of the entire feather of a Travancore specimen collected by Mr. Bourdillon at 18.75 inches. The racket in these birds is of different shape from the Ceylonese; it is of greater length in the first place, and again longer in proportion to the breadth of the web; as a rule, likewise, the basal part of the web slopes off to the shaft beyond the tip of the penultimate. The wings also attain a greater length than in the island forms, 6.3, 6.4, 6.6 inches being some of the measurements recorded by Mr. Hume in his exhaustive article contained in the 'Birds of Tenasserim.' In fully adult specimens from South India, the crest resembles that of our old birds; but in the different stages of immaturity I observe that it bears a different character. The crest in the young bird is less developed: an example in the British Museum with the racket well formed, and a bare shaft of 2 inches in length, has no more crest than a Ceylonese *D. lophorhinus*; in another bird from Travancore the anterior portion of the crest is *bushy* and erect; in another, still older, from Moalmaza, the whole crest projects forward in a long tuft (this is not from the making-up of the skin), the posterior portion of which stands up to a height of 0.9 inch above the culmen. In all immature birds that I have examined, the prevailing characteristic is that the anterior feathers of the crest are longer than the posterior ones.

I find, on examination of the Tenasserim examples in the British Museum, and in the collection lately sent home by Mr. Hume, that the length of the racket-feathers averages the same as in the South-Indian, exceeding the penultimate from 7.0 to 9.5 inches; the racket is likewise of the same character, recurving more* inwards than in our bird. The Siamese birds vary much in length of the racket-feather. One in the British Museum exceeds the penultimate by nearly 10 inches; another, however, in the Swinhoe collection, approaches nearest of all that I have examined to the Ceylonese form. Its measurements are:—wing 6.1 inches; outer tail-feather 12.75, exceeding the penultimate by 6.9; racket 3.0; bill to gape 1.3 (shorter than Ceylonese examples as a rule); crest precisely the same. It is on the evidence of this specimen, coming from the opposite extreme of this bird's wide range, coupled with the fact of the species being so variable, that I do not keep the Ceylonese form distinct as a subspecies under Mr. Sharpe's title *ceylonensis*. More extended observations than I have been able to make, and a greater series of examples, are both necessary in order to prove whether the extreme limit of the length of the racket-feather and the size of the racket itself as given above are correct.

In the north of the island there are sometimes to be found very singular and abnormal examples of this bird with the crest tolerably well developed and recurving over the forehead, but with the outer tail-feather intermediate between that of *D. lophorhinus* and a mere nestling *D. paradiseus*. I obtained a specimen in the depths of the forest between Kanthelai and Hnnullé tanks, and another in some magnificent timber-jungle at Umeragolla, on the Dambulla and Kurunegala Road; a third exists in the Layard collection at Poole. The web is entire, recurving quite inwards at the tip, whereas that of a young nestling even, of the ordinary form, has a recess or gap, as shown in the woodcut, p. 402; furthermore, one of the specimens is quite adult, having no spots on the under tail-coverts. Having met with but these examples, I feel inclined to look upon them as an abnormal form of *D. paradiseus*. If, however, additional specimens come to hand, eventually it may prove to be a distinct species; and for it I would then propose the name of *D. intermedius*.

Distribution.—This showy bird is chiefly an inhabitant of the dry region of Ceylon, from the Vauni to Puttalam on the west side, extending through all the eastern portion of the island and flat jungle-clad country between Haputale and the south-east coast up to the slopes of the Morowak-Korale ranges. In the latter region, particularly in forest on the banks of rivers, and in most of the northern forests, it is very numerous, approaching

* This is, of course, when the bare portion of the shaft near the racket is pressed down into a horizontal position, which always gives the racket the normal twist, provided it be not injured.

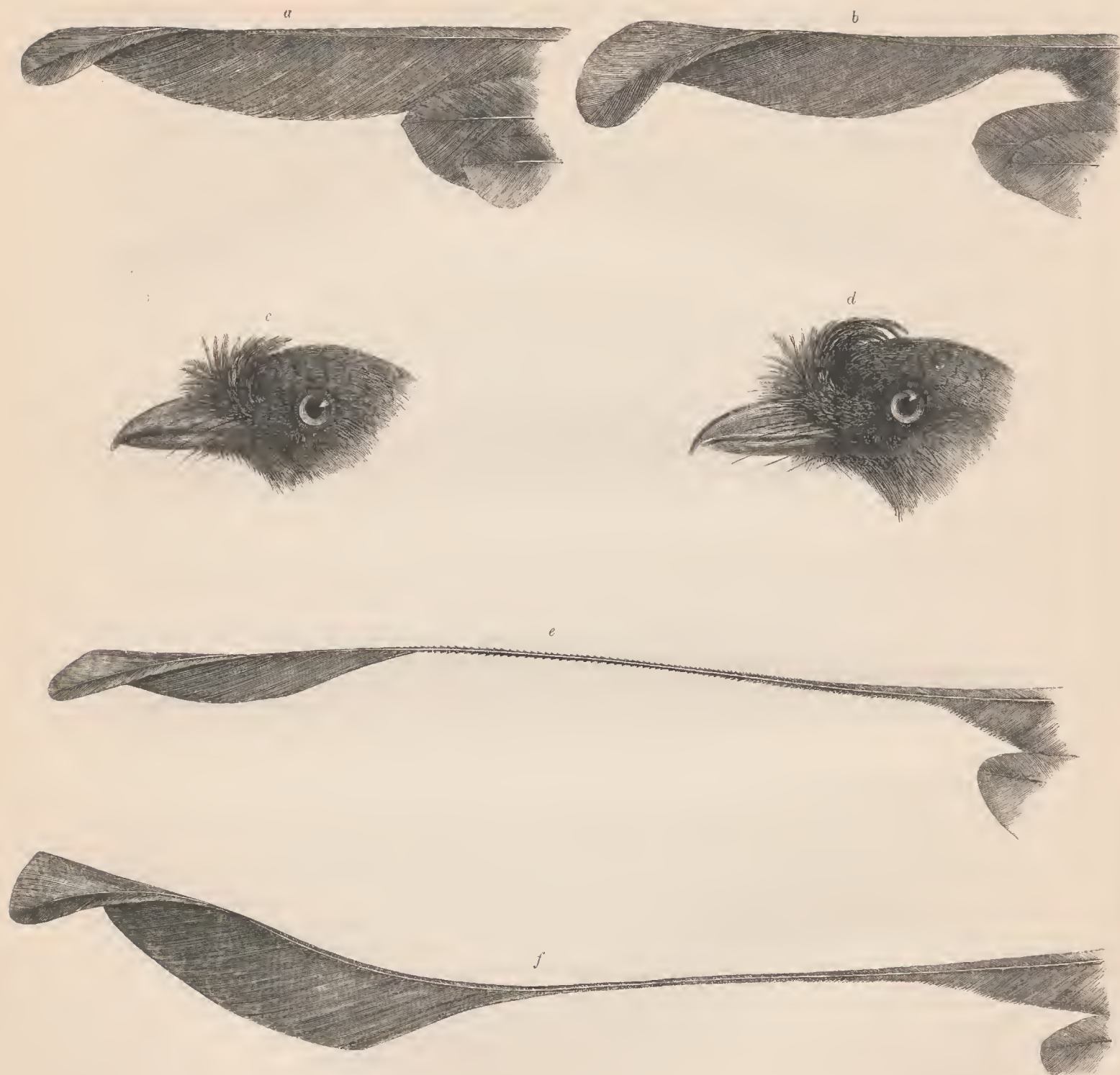
close to the sea-coast in places where the jungle is heavy. I have found it on the Luungalla pass up to 2000 feet, and it doubtless ranges to the same elevation on the entire eastern and northern slopes of the central zone. In the Western Province I never met with it; but in 1872 I obtained an example in the forest of Kottowe, near Galle, a remarkably isolated position, some 50 miles distant from the limits of its general range. It is therefore possible that it may still be found in some of the lower forests between that point and Kurunegala, thus extending its range throughout all the low country. I have no certain evidence of its occurrence in the higher jungles of the coffee-districts; but it may possibly ascend the Haputale ranges to a considerable altitude in the dry season, and in the neighbourhood of Kandy it has been procured by Mr. Whyte's collectors. Layard procured it first at Anaradjapura, and wrote of it as being confined to the Vanni; it was also in the northern forests that Mr. Holdsworth met with it.

On the continent this fine bird ranges through India* into Burmah and Tenasserim, and spreads eastwards through Siam, whence many specimens have found their way into European collections; on going south through the peninsula of Malacca we lose it in its typical form, and find this region inhabited by the smaller race (*D. platyurus*). It has a peculiar range as far as the peninsula of India is concerned; and this is defined by Mr. Hume as the "whole of Southern India and the Western Ghâts as far north as Kandeish;" beyond this it is replaced by the large crested ally (*D. malabaroides*), again to appear in most of Burmah and Tenasserim. Jerdon says that it is found in all jungles of the west coast, from Travancore up to Goa, especially in the Wynaad and other elevated districts. In the Travancore hills themselves, Mr. Bourdillon found it common, both at the foot of the hills and up to 3000 feet elevation, and Mr. Fairbank observed it in the Palani hills. In the Deccan it is, of course, wanting; and in Chota Nagpur we find, in accordance with Mr. Hume's outline above noticed, the larger crested race, while further west no racket-tailed Drongo is found at all. In Tenasserim, Messrs. Hume and Davison say that it is common alike on hills and plains, frequenting chiefly the forests, but occurring also in gardens and scrub-jungle. With regard to Siam, I am unable to give particulars of its local distribution in that kingdom; but I have seen specimens from Bangkok and other localities, and I have no doubt it has been met with in whatever forest-districts Europeans have been able to collect.

Habits.—Wherever the forest is luxuriant in the north and east of the island, this splendid bird delights to reign; he is a petty monarch among the numerous feathered denizens of the woods—now exercising his varied talents in closely mocking their notes, now dashing at some diligent Woodpecker who has ventured to "fix" himself for a moment on a trunk too near the swarthy tyrant; and while he thus amuses himself, he does not miss a chance of capturing a passing beetle or locust by the exercise of a few strokes of his powerful wings. It is consequently on the banks of the romantic forest-lined rivers, or the sylvan borders of the lonely village tanks, which are both features of the wilds of Ceylon, that the Racket-tailed Drongo is met with; or it may, with equal certainty, be found on the sides of the low hills, clothed with tall timber-trees, which everywhere intersect the low-country jungles not far from the base of the mountain system. When seen flying about from limb to limb of the lofty monarchs of the forest, it gives one the impression of spending a very happy existence, displaying its long tail-feathers as it launches itself into the air and sweeps down with a graceful flight on its insect prey. When seated, it is constantly jerking up its tail, and jumping to and fro on its perch, while it calls to its companion, who is performing doubtless the like antics in some neighbouring tree. Its notes are wonderfully varied; and at one time or another I have heard it mock almost every bird in the forest. Mr. Parker writes me that its favourite note in the jungles near Uswewa is that of the Crested Eagle (*Spizaetus ceylonensis*). It has a metallic-sounding call, somewhat similar to that of the last species, which it utters in the early morning, usually from the top of a tall tree; and this is so different from its general notes that it is difficult to identify it with the bird, which is not easily caught sight of at the time. With regard to its antipathy for Woodpeckers, I may remark that I have not unfrequently seen it following about both species of our Red Woodpeckers, and darting at them while they were searching for food on the trunks of the trees.

The imitative powers of this species are matter of comment with nearly every writer who has observed it in its native wilds. Mr. Bourdillon writes, "I have often been amused to hear it imitate the cry of the Harrier-

* Although I consider that ultimately the Ceylon bird will probably stand as a distinct and small-tailed race or subspecies, I will here treat of its range as appertaining to the Indian form.



- a. Racket-feather of nestling *D. paradiseus*.
 b. Racket-feather of adult abnormal form of *D. paradiseus*.
 c. Head of adult abnormal form.

- d. Full-crested head of adult Ceylon *D. paradiseus*.
 e. Racket-feather of Ceylon *D. paradiseus*, maximum size.
 f. A small racket-feather of Malabar *D. paradiseus*.

Eagle, and see it make a sudden charge down on some smaller bird, either in sheer mischief, or to secure some insect which the latter has captured. I have also heard one imitate exactly the evening note of the Ground-Thrush (*Brachyurus coronata*). During the breeding-season they are very bold, and a pair think nothing of attacking and driving off from the neighbourhood of their nest the Harrier- or Black Kite-Eagle. I once had an adult bird brought to me which had been captured with lincd twigs. Within a few hours of capture it would take cockroaches and other insect food from the hand, and soon got very tame." Mr. Davison, who remarks that its powers of imitation are perfectly marvellous, writes, "I have heard it take off *Garrulax belangeri* so that I am sure the birds themselves would not have detected the imposture. These Babbling Thrushes, by the way, always associate with other kindred species in large flocks, and hunt, straight on end, through the forest; and you will invariably find two or more of the Drongos following or accompanying each such flock."

It is noteworthy that this bird always sweeps *down* from its perch at its prey; I never saw it fly up at it, although it generally mounts again with the impetus imparted by its first onset.

Concerning the nidification of either the Ceylonese or Indian races of this species, I am, I regret to say, unable to give any information. As I have shot the young in nestling plumage in July, it is patent that the breeding-season is at the commencement of the S.W. monsoon rains. The northern form of this Drongo, *D. malabaroides*, builds, according to Jerdon, who had the nest brought to him at Darjiling, "a large structure of twigs and roots." Doubtless our bird has a similar habit, and its eggs are very probably three in number.

The accompanying woodcuts are explanatory of the various points treated of in this article, and are carefully drawn to life-size.

On the Plate accompanying the preceding article will be found a figure of the abnormal form of this species referred to above. As the subject is in the background, the full development of the crest, as it appears on the opposite page, cannot be shown in the drawing.

PASSERES.

Fam. MUSCICAPIDÆ.

Bill straight, wide, depressed; tip decurved and distinctly notched; gape furnished with bristles directed forwards. Wings more or less pointed, the 1st quill fairly developed. Tail variable. Legs and feet small and feeble. Tarsus shielded with smooth broad scales.

Genus TERPSIPHONE*.

Bill large, compressed suddenly near the tip; culmen well keeled; rictal bristles very long. Nostrils protected by a few rather long bristles. Wings pointed, the 1st quill about half the length of the 2nd; the 4th and 5th longest, and the 3rd shorter than the 6th. Tail long, with the two central feathers greatly elongated in the adult males. Tarsus longer than the middle toe, which is nearly equalled by the outer.

* The generic term *Terpsiphone*, Gloger, has precedence of *Tchitrea*, Lesson, by four years. The older term *Muscivora* is restricted by Mr. Sharpe to New-World Flycatchers—the Crested Tyrants.

TERPSIPHONE PARADISI.

(THE PARADISE FLYCATCHER.)

Muscicapa paradisi, Linn. Syst. Nat. i. p. 324 (*ex* Briss.); Sykes, P. Z. S. 1852, p. 84; Jerdon, Ill. Ind. Orn. pl. 7 (1847); Gould, B. of Asia, pt. 5 (1853).

Muscipeta castanea, Temm. Pl. Col. iii. text to pl. 584.

Tchitrea paradisi, Less. Traité, p. 386 (1831); Blyth, Cat. B. Mus. A. S. B. p. 203 (1849); Kelaart, Prodromus, Cat. p. 123 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 126; Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 133 (1854); Jerdon, B. of Ind. i. p. 445 (1862); Holdsw. P. Z. S. 1872, p. 440; Hume, Nests and Eggs, i. p. 196 (1873); Ball, Str. Feath. 1874, p. 403; Hume, *ibid.* 1875, p. 102; Butler, *t. c.* p. 466; Ball, *ibid.* 1877, p. 415.

Terpsiphone paradisi, Cab. Mus. Hein. i. p. 38 (1850); Sharpe, Cat. B. iv. p. 346 (1879).

The Pyed Bird of Paradise, Edwards, Nat. Hist. Birds, iii. pl. 113; *Paradise Flycatcher*, Latham; *Bird of Paradise*, Europeans in Ceylon. *Shah bulbul*, Hind. (White Bird); *Sultana bulbul*, Hind. (Red Bird); *Taklah*, Hind., N.W. Provinces; *Tonka pigli pitta*, Tel.; *Wāl-kondalati*, Tam., lit. "Long-tailed Bulbul."

Ginni hora (Red Bird), lit. "Fire-thief," *Radde hora* (White Bird), lit. "Rag- or Cotton-thief," Sinhalese; *Wāl-kuruvi*, Ceylonese Tamils; *Ladram de fogo* (Red Bird), Portuguese in Ceylon.

Old male (with long tail). Length 17.75 to 21.0 inches, according to the length of the tail, which, on the average, varies from 13.0 to 15.0, but sometimes attains a length of 17.0; centre tail-feathers 9.0 to 13.0 longer than the adjacent pair; wing 3.7 to 3.8; tarsus 0.7; mid toe and claw 0.6; bill to gape 1.0 to 1.1.

Old male (with short tail). Central tail-feathers, *fully grown*, exceeding the rest by only 0.5 inch.

Iris dark brown; eyelid cobalt-blue; bill fine cobalt-blue; legs and feet paler blue than the bill; claws bluish brown. Entire head and neck, with a long coronal crest of lanceolate feathers, shining blue-black, which colour terminates in an abrupt edge round the throat and hind neck: rest of the body above and beneath, with the wing-coverts and tail, white; quills and primary-coverts black, with white edges, increasing in width towards the innermost secondaries, and not reaching to the tips of the outer primaries; two innermost secondaries all white but a black shaft-streak; edges of all but the centre tail-feathers, and the shafts of all except the terminal portion of the centre pair, black. In some specimens the shafts of the dorsal and wing-covert feathers, and those of the plumes at the sides of the breast, are black.

Adult male. At an age in which the male breeds, probably in the second year, the back, wings, upper tail-coverts, and tail are cinnamon-red; the head and throat blue-black, as in the older bird; the chest, just beneath the black boundary, slate-grey, fading off into white on the lower breast and rest of the underparts; under wing-coverts white, with the bases of the feathers cinnamon.

Birds at this stage have, for the most part, long tails, the centre feathers varying from 9 to 11 inches in length beyond the remainder; but some have these feathers only slightly elongated, as in the female noticed below.

Adult female. Like the short-tailed males, with the same parts of the plumage red: wing 3.5 to 3.6 inches; central tail-feathers 4.5 to 5.0.

Young. Nestling, scarcely fledged (in National collection). Head and hind neck brownish, tinged with chestnut-reddish; back, wings, rump, and tail paler chestnut than the adult; inner webs of quills brown; fore neck and chest greyish, tinged with chestnut, passing into fulvous on the flanks; remainder of under surface whitish, blending into the above-named colours.

When fully fledged the back, wings, and tail are chestnut-red, the inner webs of the quills dusky, the head, crest, and hind neck glossy black, and the chin and throat dark iron-grey, almost black on the chin, and blending into the paler grey of the chest and breast, which changes into greyish white on the lower parts. The female has the throat paler than the male.

Change of plumage. At a certain age, and at a season of the year varying in Ceylon from November until May, the male birds change by an alteration in the colour of the feathers from chestnut-red to white. The red colour on the quills, scapulars, and rectrices changes or fades into white, and the shaft-streaks of black simultaneously appear. The scapulars and primaries usually change first, and then the tail-feathers; and of the body-feathers, I have generally noticed that the upper tail-coverts are the first to fade. While this is going on (and, in fact, from what I have been able to gather from all the specimens that I have examined, almost before any of the upper-surface feathers have changed) *the grey breast just beneath the black throat turns white.* I have a short-tailed example with a pure white chest and only one white feather (in the scapulars) on the upper surface. There are a series of long-tailed chestnut examples in the national collection with various white feathers among the primaries, secondaries, scapulars, and rectrices, and all with chests pure white.

Obs. Mr. Sharpe remarks, in his Catalogue, that South-Indian and Ceylonese red birds have the chest greyish, and those from Northern India white. I observe, however, that these white-chested examples are all in a state of change on the upper surface to the white plumage; and at this period the chest is always white in Ceylon birds, inasmuch as it seems to be the first part to change.

The nearest ally to this species is *T. affinis*, which inhabits Burmah, Malacca, and portions of the Malayan archipelago. It is distinguished from *T. paradisi* by having the feathers of the crest all of the same length, giving it a broad and "bushy" appearance, and also by the white bird having the feathers of the hind neck and back with black shafts, and the adjacent edges of the web grey, which imparts a streaky appearance to the upper surface. Red birds which I have examined in the national collection have nearly all the under surface dark iron-grey, the abdomen and under tail-coverts only being white. Young birds have the back *yellowish* chestnut, changing into a darker hue on the rump, and the under surface yellowish or fulvous grey. The measurements of a red bird from Burmah are—wing 3.5 inches, tail 13.5; a white example (Sumatra)—wing 3.5, tail 10.5; another (Flores)—wing 3.55, tail 13.4.

Distribution.—The Paradise Flycatcher is a partial migrant to Ceylon, and its movements are perhaps the most singular and the most difficult to study of any Ceylonese bird. The adults, in red and white plumage, arrive in the island about the last week in October, spreading over the whole country, and not finally leaving again until the latter end of May. In the damp districts on the western side lying between Negombo and Tangalla it remains no longer than March. An inland movement then takes place north and east, many birds, however, at the same time (according to my observations) quitting the island entirely. Others remain in the last-named quarters to breed, and do not leave until the end of May, or even the first week in June. By this time the whole of the white birds have disappeared, and I believe also the adult red ones. I have never seen a long-tailed red bird between the months of May and October, nor can I find any one who is certain of the contrary. Should I be correct, therefore, in this hypothesis, the fact of a total migration of the adults is established. The young birds remain in the island, inhabiting the northern half and the eastern side as far as Hambantota; and on the arrival of the adults in the following season many of these yearlings follow them into the west. It appears, however, probable that with the general inflow in October many yearling birds arrive from abroad, as the numbers to be met with in all parts of the low country preclude the possibility of their all being recruited from inland-bred birds. Here, then, we have the extraordinary fact of the disappearance of all old birds in the island, whereas their progeny are left behind to await their return in the following season, and likewise the arrival, with these latter, of many more young from the mainland, who partake in the general stream of migration throughout the country. As regards the mountainous districts of the island, Dumbura and other parts of corresponding altitude in the Kandyan Province, and also portions of the southern ranges, are visited for the same period as the west coast, the birds quitting the hills in March. I am not aware of its occurrence anywhere above an altitude of 2000 feet, at which Mr. Bligh has seen it in the Kandy district. It inhabits the northern and eastern portions of the island in greater numbers than the west coast, there appearing to be an appreciable diminution of the species south of the Maha-Oya, north of which,

in the Kurunegala district, it is extremely abundant. As regards the young birds during the south-west monsoon, I have found them more abundant in the low-lying forests between Haputale and the sea than anywhere else.

I would add here that in my conclusions concerning the migration of the old birds I am supported by my friend and correspondent, Mr. Parker, who has paid particular attention to the subject during his residence at Madewatchiya, where the species was very numerous and bred in April and May. Mr. Holdsworth observed many immature birds at Aripu during the south-west monsoon; but I am not aware that he met with any adult red birds. As regards the earlier migration of the adults, and the arrival with them of many young birds, it can be explained on the assumption that most birds leave the island to breed on the mainland, bringing their young back with them, while a few that have paired as early as April are constrained to remain behind for a period and breed in the island, departing soon afterwards *without their young*.

On the continent the Paradise Flycatcher is found from the extreme south of the peninsula to the Himalayas. To the westward it extends to the province of Guzerat and the vicinity of Kattiawar; it is, says Capt. Butler, not uncommon at Mount Aboo, and it likewise occurs at Sambhur and Ajmere. Mr. Brooks has observed it in the valley of the Bhagirati, even above Mussoori, but it does not seem to ascend the Himalayas to any considerable altitude. In Travancore, Mr. Bourdillon writes that it ascends the hills in March and April when the weather is hot; but in the Palanis Mr. Fairbank only observed it at the base of the ranges. Messrs. Davidson and Wender say that it is "freely scattered all over the Deccan," and they believe that it breeds at Satara. Mr. Ball writes that it is a remarkable fact that it does not visit the Chota-Nagpur and Sambalpur jungles until March and April. In 1875 he observed no birds until the latter month, and saw them after that daily during the month of May, "while marching through the Orissa tributary mehals."

It is worthy of remark that this bird has been called the Paradise-bird from the earliest times. Edwards, who figured it as the "Black-and-white crested Bird of Paradise," says that it had been described formerly by Mr. Petever in Ray's 'Synopsis Methodica Avium,' published in the 17th century, and he likewise speaks of having seen three skins of it in London.

Habits.—This remarkable bird is very fond of the neighbourhood of water, and is always found in shady trees surrounding tanks, swamps, and wet paddy-fields, or bordering rivers and streams in the forests. The fine bamboos on the western and southern rivers are a favourite resort. It is, however, not confined to aqueous spots, but is found in jungle of all descriptions and in the densest forests. It is a very tame bird, exhibiting not the slightest fear of man, and often takes up its abode in jack, bread-fruit, and other cultivated trees adjacent to native cottages, about which it darts, whisking its long tail to and fro, and when in the white plumage forms a conspicuous and beautiful object as contrasted to the surrounding dark-green foliage. It is very lively in the evenings before roosting, uttering its harsh note, *tchreēt*, and darting actively on passing insects. It is capable of much longer flights than most Flycatchers, frequently compassing the distance across some wide paddy-field with ease and celerity. Its peculiar appearance when thus flying, with its long tail extended like a piece of rag or cotton, has acquired for it the curious native appellations by which it is known. It does not return to its perch after taking its prey, but darts off to another, and so moves about more than is usual with other Flycatchers. I have once or twice disturbed it from the ground, which proves that its habits are to a slight extent terrestrial—a remarkable feature in a Flycatcher. Mr. Ball has seen it alight on the ground, and writes that Captain Gray and Mr. Levin confirm his statement that it does so; the former mentions three of the chestnut birds hopping round his chair, and the latter saw young birds settling on the ground in his garden and hopping about after insects.

Nidification.—Mr. Parker writes me that the Paradise Flycatcher breeds about Madewatchiya in April and May. Layard mentions having found a nest at Tangalla, in the fork of a satin-wood tree, and that the nest was "a neat well-built cup-shaped structure, composed externally of mosses and lichens, and lined with hair and wool."

Mr. Hume writes that "the nest is commonly a delicate little cup, never very deep, often rather shallow, composed, according to locality, of moss, moss-roots, vegetable fibres, and fine grass, which latter generally constitutes the greater portion of the framework, bound round exteriorly with cobwebs, in which little silky-

white cocoons are often intermixed ! The exterior depth is about 2 inches, and the cavity varies in diameter from 2·0 to 2·75, and in depth from 1·0 to 1·6. There is not uncommonly a good deal of horsehair woven in the exterior surface of the cavity, and this, with the fine grass, forms a sort of lining." The structure is usually placed on a horizontal branch, often where three or four twigs spring from it, which, Captain Hutton remarks, are incorporated into its sides, the materials entirely enveloping them. It is sometimes fixed to the branch by means of grass and spiders' webs. In Cashmere Dr. Henderson found the nests of these birds in apple- and mulberry-trees, placed high up in small branches, and made of fine hair-like strips of bark. The number of eggs usually laid is four ; the ground-colour is pinkish white or salmon-pink, more or less thickly speckled, chiefly at the large end, with rather bright brownish-red spots. They average in size 0·81 by 0·6 inch.

Genus HYPOTHYMIS.

Bill very broad and not compressed until near the tip ; upper mandible flattened, and the lower inflated beneath ; rictal bristles long and directed forward. Wings with the 5th quill the longest, the 2nd shorter than the secondaries, and the 3rd and 7th subequal. Tail equal to the wing, even at the tip. Legs and feet slender ; the tarsus much longer than the middle toe, protected with well-developed scutæ ; outer toe longer than the inner ; claws well curved.

HYPOTHYMIS CEYLONENSIS.

(THE CEYLONESE AZURE FLYCATCHER.)

(Peculiar to Ceylon.)

Myiagra cœrulea (Vieill.), Layard & Kelaart, Prodrömus, App. p. 58 (1853); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 126.

Myiagra azurea (Bodd.), Jerdon, B. of Ind. i. p. 450 (1862), in pt.; Legge, J. A. S. (Ceylon B.) 1870-71, p. 36; Holdsworth, P. Z. S. 1872, p. 440; Legge, Ibis, 1874, p. 18, et 1875, p. 275.

Hypothymis ceylonensis, Sharpe, Cat. B. iv. p. 277 (1879).

The Blue Flycatcher, Europeans in Ceylon.

Marawa, Sinhalese (applied to small Flycatchers).

Similis H. azureæ, sed maculâ nuchali nigrâ parvissimâ et fasciâ nigrâ jugulari nullâ distingnenda.

Adult male and female. Length 6.0 to 6.2 inches; wing 2.6 to 2.8; tail 2.75; tarsus 0.6; mid toe and claw 0.5; bill to gape 0.6 to 0.7.

Male. Iris dark brown; bill dull cobalt-blue; legs and feet dusky blue or bluish plumbeous. Head, neck, back, wing-coverts, throat, and chest azure-blue, the head and throat of a brighter though paler hue than the rest; a spot above the nostril and a small patch on the nape velvety black; wings brown, edged with the hue of the back; tail the same, the lateral feathers tipped pale; breast, abdomen, and under tail-coverts white; thighs bluish; under wing-coverts bluish, edged and tipped with white.

Female. Bill duller blue than male; legs and feet paler.

Head, hind neck, and throat cœrulean blue, less brilliant than the male, and shading on the chest and back into brownish ashy, the feathers margined there with dull blue; wings and tail brown, edged with bluish; lower underparts as in male. The black nuchal patch wanting.

Young. In first plumage the iris is brown; bill blackish, the tip of the under mandible lightish; tarsi bluish, feet dusky. The male has the head and throat dull blue; chest bluish grey; back and wings glossy brown, the tertials with a fulvous tinge; tail dark brown, obscurely washed with bluish; thighs dark grey. Nuchal patch and throat-stripe wanting.

Obs. Mr. Sharpe has separated the Ceylon Azure Flycatcher from its Indian relative (*H. azurea*) on account of the absence of the black throat-bar and its much smaller nape-patch. The specimens he had to assist him in this determination were mine, and, so far as my small series proves, the insular bird certainly differs from the continental. I have minutely examined the chest-feathers of several males, and can find no trace whatever of any black tippings, although, singularly enough, their undersides are *blackish brown*, and, further, the tips of the feathers, where the black bar should be, form a regular, slightly upturned, transverse line, and contrast in their brighter blue with the slightly duller tint of the underlying ones, so that at first sight it would seem as if a fine dark line really did exist. Specimens of *H. azurea* which I have examined from various parts of India, China, Formosa, Sumatra, Borneo, &c., all exhibit a more or less well-developed jugular streak; in some it is nearly $\frac{1}{8}$ inch wide. A Formosan specimen measures in the wing 2.8, an "Indian" 2.75, one from Nepal 2.9, and one from Bintulu 2.75. *H. occipitalis* is a closely allied species from the Philippines, Flores, and other islands, differing in having the abdomen and under tail-coverts washed with bluish instead of being pure white, as in *H. azurea* and *H. ceylonensis*. The throat-bar is present in all examples I have examined.

Distribution.—This pretty blue Flycatcher is generally dispersed throughout the jungles and forests of the interior, not ranging much above the lower hill-districts, except, perhaps, in Uva and in the ranges to the

north-east of Kandy, where I have seen it between 2000 and 3000 feet. It is common enough in its sylvan haunts; but I doubt if it is a familiar bird to any but those who frequent the jungle. In the low thorny scrubs bounding the sea-board on the dry portions of the island it is not found, nor did I observe it anywhere in the Jaffna peninsula. In the Western Province it may be seen close to the shore, frequenting the woods at the back of the cocoanut-plantations which border the sea, while further inland, as well as in the south-west hill-region, it is tolerably numerous.

Habits.—This species is found, either singly or in pairs, affecting forest, shady jungle, and bamboo-thickets, and is also met with in small groves or detached woods in cultivated districts. It usually keeps to underwood, or dwells in the lower branches of forest trees, generally selecting those spots which are enlivened with a gleam of sunshine, where it may be seen actively darting on small flies and insects, while it utters its sharp little note, resembling the word *tchreēt*. After the breeding-season young birds associate in small troops; and at such times I have noticed them following each other about among the upper branches of tall trees.

Nidification.—In the Western Province this Flycatcher breeds from April to July, or during the south-west monsoon rains, building a beautiful little nest in the fork of a sapling or shrub at about 4 feet from the ground; it is constructed of moss and fine strips of bark, very neatly finished off at the edge, decorated with cobwebs on the exterior, and lined with very fine creeper-tendrils, the interior forming a deep cup of about $1\frac{3}{4}$ inch in diameter. The eggs are either two or three, round in form, of a buff-white ground-colour, spotted openly, chiefly at the obtuse end, with light sienna-red, mingled with darker specks of red. They measure 0.66 by 0.55 inch.

The centre figure in the Plate accompanying my article on *Alseonax multui* (p. 417) represents a male bird of the present species from Aekmimina, near Galle.

Genus CULICICAPA.

Bill more compressed towards the tip and the culmen more raised than in the last; rictal bristles very long. Wings long, the 4th quill the longest, and the 2nd equal to the 8th. Tail even. Legs and feet very small. Tarsus feathered at the top.

CULICICAPA CEYLONENSIS.

(THE GREY-HEADED FLYCATCHER.)

Platyrrhynchus ceylonensis, Swains. Zool. Illust. ser. 1, pl. 13 (1820-21).

Cryptolopha cinereocapilla, Blyth, Cat. B. Mus. A. S. B. p. 205 (1849); Kelaart, Prodromus, Cat. p. 122 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 127; Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 147 (1854); Jerd. B. of Ind. i. p. 455 (1862).

Culicicapa cinereocapilla, Swinhoe, P. Z. S. 1871, p. 381.

Myiolestes cinereocapilla, Holdsw. P. Z. S. 1872, p. 441; Hume, Nests and Eggs, i. p. 205 (1873); Legge, Ibis, 1874, p. 18.

Culicicapa ceylonensis, Fairbank, Str. Feath. 1877, p. 401; Hume, B. of Tenass., Str. Feath. 1878, p. 226; Sharpe, Cat. Birds, iv. p. 369 (1879).

The Ceylonese Flatbill, Swainson; *Zird phutki*, Beng.

Adult male and female. Length 4.9 to 5.2 inches; wing 2.4 to 2.6; tail 1.9 to 2.2; tarsus 0.55 to 0.6; mid toe and claw 0.45 to 0.5; bill to gape 0.55.

Iris brown; bill, upper mandible blackish, lower fleshy at base, with the tip dark; legs and feet brownish yellow, yellowish brown, or greyish yellow; soles yellow, claws pale brownish.

Lores, head, hind neck, and cheeks cinereous grey, the centres of the feathers on the head blackish slate-colour; on the hind neck the grey blends into the greenish yellow of the back, scapulars, wing-coverts, and rump, the latter being more yellow than the back; wings and tail dark brown, edged with the hue of the rump, except on the two outer primaries and the lateral rectrices; orbital fringe greyish; throat, chest, and sides of neck pale ashy grey, blending into the grey of the upper parts; beneath, from the chest, saffron-yellow, shaded with greenish on the sides of the breast and flanks; under wing-coverts greenish yellow.

Young. Immature birds in their first plumage almost resemble adults; the lores are greyish, and the colouring of the breast more overcast with greenish; the wing-coverts are tipped with yellowish, and the lower parts not so yellow as in the adult.

Obs. I have compared an extensive series of this species with Ceylonese examples, with the following results:—A Cashmere, a Pegu, a West-Javan, and a N.W.-Himalayan example are all slightly yellower on the back than the majority of Ceylonese birds, and vary in the wing from 2.25 to 2.5, the latter measurement being that of the Pegu example. Another specimen, from the N.W. Himalayas, is paler than all, and has the rump yellower and the quills more conspicuously edged than in the rest of the series. A Sarawak example is an exact match with those in my collection from Ceylon. It therefore appears that this species is spread over a very large geographical area, with but little variation in the character of its plumage.

Distribution.—In Ceylon the present species is essentially a hill-bird, and is, within its own limits, the most abundant of its family in the island. It inhabits the Kandyan Province from the Horton Plains and the tops of the highest ranges down to a general elevation of about 1800 feet; in the wilderness of the Peak, however, I have met with it at an altitude of only 1000 feet, a little above the pretty elevated plain of Gilly-mally. In the southern coffee-districts it is quite as numerous as in the Central Province, and it is also found in the more elevated parts of the Kukkul Korale, as well as in the great Singha-Rajah forest. In large tracts of mountain-forest, such as those covering much of the Nuwara-Elliya plateau and its great outlying spurs and the upper portion of the Knuckles range, it is more abundant than in the lower-lying coffee-districts which have been denuded of forest.

Jerdon writes that the Grey-headed Flycatcher is dispersed throughout all India, from the Himalayas to the Nilghiris, the only locality in the south of India where it is common being the summits of the latter hills. In Central India it is occasionally met with, and is not rare in Lower Bengal. As it is so common in Ceylon

it is singular that it is not found in all the elevated forests in the south. I observe that it is not recorded from the Travancore hills, though Mr. Fairbank says it is common on the *top* of the Palanis and in "groves lower down." It does not seem to extend towards the north-west frontier beyond the Sambhur Lake, where Mr. Adam remarks that it is very rare. Turning to the east, however, it is diffused throughout the sub-Himalayan region, breeding up to 7000 feet, and stretches into Assam, Burmah, and Tenasserim, in which latter province Mr. Hume says it is found sparingly, extending the whole way down the Malayan peninsula to Singapore island. Further south than this it is found in Java and Borneo; and returning again to the continent we find Swinhoe recording it from the Szechuen Province.

In common with not a few other widely-distributed species, this little Flycatcher was first made known from Ceylon, the specimen figured by Swainson in his 'Zoological Illustrations,' and called by him the Ceylonese Flatbill, having been sent to him by that diligent naturalist Governor Loten.

Habits.—This is a charmingly tame and fearless little bird, whose merry little whistle is one of the characteristic sounds of the cool up-country forests of Ceylon. It frequents the lower branches of forest trees, the edges of clearings in the jungle, patna-woods, &c., and is particularly fond of trees at the sides of roads and on the borders of mountain-streams. It is exceedingly active, and for the most part lives in pairs, carrying on its insect-trapping vocation in perfect disregard to any thing going on around it. I have known it swoop at an insect and alight on a fallen log or low stump within a few feet of a bystander. It accompanies its occupations by the exercise of its vocal powers, frequently giving vent to its cheerful note, while it snaps up its prey with an audible sound of its mandibles. The whistle of the male is a more than usually loud note for a bird of such small size, and resembles the syllables *tit-titu-whēēē*, and in the morning is very frequently repeated. Birds of the year congregate in little troops unaccompanied by adults, and keep up a constant twittering note.

Jerdon writes of its habits as follows:—"It is tolerably active and lively, making frequent sallies after small insects, and not always returning to the same perch, but flitting about a good deal, though it usually remains in the same tree or clump of trees for some time."

Nidification.—I have not had the good fortune to obtain any information concerning the nesting of the present species in Ceylon; but on consulting Mr. Hume's admirable work on the nests and eggs of Indian birds, we find that in India the Grey-headed Flycatcher lays during the months of April, May, and June, and constructs its nest, according to Indian observers, amidst the growing moss on some perpendicular rock or old trunk of a tree; it is composed of moss, cobwebs, and lichens, sometimes lined with moss-roots or with fine grass-stalks. The nests resemble little watch-pockets of moss, the interior of which is about 1 inch in diameter by about 2 inches in depth, and, fixed as they are to the moss-grown trunks, are very difficult to discover. Capt. Hutton speaks of one which had depended beneath it "a long bunch of mosses, fastened to the tree with spiders' webs, and serving as a support or cushion on which the nest rested." The number of eggs is usually four; Mr. Hume describes them as moderately broad ovals, scarcely compressed towards the small end; they are dingy yellowish white, and they have a broad conspicuous confluent zone of spots and blotches towards the large end, the colour of which is a mottled combination of dingy yellowish brown and dingy purplish grey; the rest of the egg is more or less thickly spotted with very pale dingy brown. They are almost glossless, and average 0.62 inch in length by 0.48 inch in breadth.

Genus RHIPIDURA.

Bill compressed suddenly near the tip, culmen raised; rictal bristles very long; nasal bristles well developed. Wings with the 1st quill about half the length of the 2nd; 4th the longest. Tail exceeding the wing, and expanding towards the tip; lateral feathers graduated. Tarsus longer than the middle toe.

RHIPIDURA ALBIFRONTATA.

(THE WHITE-FRONTED FANTAIL.)

Rhipidura albofrontata, Frankl. P. Z. S. 1831, p. 116; Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 145 (1854).

Leucocerca albofrontata, Jerd. Madr. Journ. 1840, xi. p. 12; id. Ill. Ind. Orn. pl. 2 (1847); Blyth, Cat. B. Mus. A. S. B. p. 206 (1849); Hume, Nests and Eggs, i. p. 201 (1873); Ball, Str. Feath. 1874, p. 404.

Leucocerca compressirostris, Blyth, J. A. S. B. 1849, xviii. p. 815; Kelaart, Prodromus, Cat. p. 123 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 126; Jerdon, B. of Ind. i. p. 483 (1862).

Leucocerca aureola, Blyth, Ibis, 1866, p. 370; Holdsw. P. Z. S. 1872, p. 440; Hume, Str. Feath. 1873, pp. 178, 436, et 1875, p. 104.

Rhipidura albifrontata, Sharpe, Cat. B. iv. p. 338 (1879).

The White-browed Fantail, Jerdon; *Fantail*, Europeans in Ceylon *Shamchiri*, Hind. in North-west; *Macharya*, lit. "Mosquito-catcher," Hind. in South; *Manati*, lit. "Washerman," Malabar.

Marawa, Sinhalese.

Adult male and female. Length 6·8 to 7·1 inches; wing 3·0 to 3·25; tail 3·2 to 3·4; tarsus 0·7 to 0·8; mid toe and claw 0·55; bill to gape 0·65 to 0·7.

Iris brown; bill black, pale at base beneath; legs and feet blackish brown or black, in some wood-brown.

Crown, nape, lores, throat, and face black, blending on the hind nape into the cinereous blackish brown of the upper surface; wings and tail brown; forehead and a very broad band over the eye to the nape, under surface from the throat down, and terminal portion of all but the centre tail-feathers pure white; the white of the lateral rectrices occupies its major portion, varying from 1·4 to 1·6 inch on the inner web, and running up the outer web to the base; wing-coverts with terminal white spots; chin and gorge edged white, which varies much in extent, occupying in some individuals the lower part of the checks; quills blackish brown; wing-lining black, edged or barred with white.

The hue of the upper plumage fades with time, and scarcely any two specimens appear to be exactly alike; in such abraded plumage the head is blackish brown, and the back dark cinereous brown, with the *wing-covert tips much reduced in size*. In some specimens the white supercilium meets, though imperfectly, round the nape.

Young (India). A specimen in nestling plumage has the eye-stripe narrower than the adult, the feathers, as well as the adjacent blackish ones on the occiput, slightly tipped with rufous; scapulars, back-feathers, tertials, and wing-coverts tipped with rufous; the white on the tail-feathers reduced; the throat blackish, but not so dark as in the adult, and less tipped with white; under surface white, tinged with buff.

Obs. Blyth separated the Ceylonese bird from the Indian, alleging that its bill was more compressed and that it had less white on the tail. I imagine he was led to these conclusions by an examination of immature specimens, for I

have not been able to verify their distinctness on comparing the insular specimens with Indian. Some of the latter have more white, perhaps, on the lateral tail-feathers than the generality of Ceylon birds, but others have less; and as to the bills, I find that three specimens from N.W. Himalayas, Gondul, and Dehra Doon, in the national collection, are smaller in the bill than ours; they vary from 0.55 to 0.63 from gape to tip. A North-west Province example measures in the wing 3.35 inches, and has the white of the lateral tail-feather extending up it 1.8 inch; one from Rawul Pindi measures 2.9 in the wing, and two from Dehra Doon 3.15 and 3.2 inches respectively; and these last three have the greater wing-coverts very deeply tipped with white; but this, I think, is an individual peculiarity. Mr. Nevill, of the Ceylon Civil Service, in a communication made to the 'Journal of the Asiatic Society,' Ceylon Branch, 1867-70, p. 138, writes of seeing a Fantailed Flycatcher in the Nuwara jungles, which he describes (from seeing the bird on the wing, I conclude) as having the "breast broadly banded with mingled black and white." It is possible, as Mr. Holdsworth suggests, that it may have been *R. pectoralis*, although I consider it more probable that it was the young of the present species.

An adult *R. pectoralis* (Godaveri valley) measures:—Wing 2.7 inches; tail 4.1; tarsus 0.75; bill to gape 0.61. Head and face blackish, paling into brown on the back, and into brown tinged with rusty on the rump; supercilium white; throat white; fore neck and sides black; centre of the chest, breast, and lower parts buff, darkening into rufescent on the abdomen and under tail-coverts; sides of the chest blackish brown; wings and tail pale brown, the tail-feathers gradually paling towards the tips into dull whitish.

Distribution.—The "Fantail" is chiefly an inhabitant of the dry jungle-region between the Haputale mountains and the south-east coast, the eastern portion of the low country as far as the delta of the Mahawelliganga and the district of Uva, including the patna-basin at the foot of the main range. In the first-named tract of country, including the "Park," it is more common than elsewhere, frequenting the jungle on the borders of tanks and also detached clumps of wood. From the Bintenne country it ranges up into Dambara and the valleys in the Hewahette and Maturata districts, where it is by no means rare. In Uva it is found chiefly on tree-dotted patnas, and in the glens intersecting the great basin between Udu Pusselawa and Haputale. It would appear that it is found occasionally on the plateau, the only evidence to this effect being that of the bird seen near Nuwara Eliya by Mr. Nevill. It is rare to the west of Tangalla, but is occasionally seen during the north-east monsoon in the Galle district, as I have met with it at that season at Baddegama. I have never seen it in the neighbourhood of Trincomalie nor to the north of that place; but there is no reason to suppose that it does not inhabit this quarter of the island.

Jerdon writes, "The White-browed Fantail is found all over India, except Lower Bengal, extending to the foot of the Himalayas, only not towards the south-east. It is most common in Malabar and the Deccan, and is not rare in the North-west Provinces and in Sindh." Concerning its north-western limit, Mr. Hume says that it is common throughout the whole region, including Sindh, Mount Aboo, and Guzerat. He remarks that it breeds as high up as 4000 feet on the Himalayas. Extending to the east, I find that Mr. Inglis does not record it from Cachar. In Upper Pegu it appears to be not uncommon, and Blyth recorded it from Tonghoo, although Messrs. Hume and Davison have not found it in Tenasserim. Mr. Fairbank met with it up to 4000 feet in the Palanis.

Habits.—This showy little bird is one of the most interesting of our Flycatchers; it frequents little groves of trees, or those standing isolated on patnas and semicultivated ground, jungle on the borders of tanks, and open grassy glades, and in the Eastern Province cocoanut-topes in the vicinity of villages. It is a fearless species, and when not paired for breeding is usually of solitary habit. At this time its manners are most amusing; for the male, in his endeavours to attract the attention of his consort, displays a nature much akin to that of the Peacock, and seems to delight in displaying his prowess to mankind as well as to his own order. He will sometimes alight on a tree close to a bystander, and proceed with a measured little pace either along a horizontal trunk or up a slanting branch, with an outspreading movement of its wings and a gentle oscillation to and fro of its body, combined with an expanding and contracting of its long tail, the whole reminding one of the balance-step in a hornpipe! Not less singular is its remarkably human-like whistle, uttered in an ascending scale for the edification of its mate; and when this proceeds, as it sometimes does, from a thickly foliated tree, completely hiding the performer from view, it is difficult to persuade one's self that it is made by a bird. It is very active in catching its prey, and, as Jerdon remarks, does not fly far after it, but snaps it up with a sudden dart. I have seen it on the ground, stalking about in the manner above described; and

Jerdon says that he has seen it alight on the back of a cow ; he states that its chief food consists of " mosquitos and other small dipterous insects, as also the small *Cicadella* " which are abundant in India.

Nidification.—This Flycatcher breeds in Ceylon during the early part of the year. I have not had the good fortune to see its cleverly-constructed little nest myself ; but Mr. Jefferies, of Gangarooka estate, described to me one, which was constructed in an orange-tree in his compound at Hindugalla, as being a beautiful little cup-shaped structure, placed on a thin branch, which oscillated to and fro with the wind, and which the architect, with wonderful skill, had tied to an adjacent branch with a "stay" consisting of a fine creeper-tendril. This is so extraordinary, that had not my friend been a well-known observer of bird life and very fond of natural history, I could scarcely have credited the statement. The nest is described by various writers quoted in 'Nests and Eggs' as being a hemispherical or elegant oval little cup, composed of fine grass-stems coated with cobwebs, or fine plant-stalks plastered with "cotton" and seed-down, the internal diameter being about 2 inches and the depth 1 inch. Mr. Hume speaks of one he found at Barcilly as being a "delicate tumbler-like affair, scarcely $\frac{1}{4}$ inch thick anywhere, closely woven of fine grass, and thickly coated over its whole exterior with cobwebs." The eggs are usually three in number, the ground-colour varying from pure white to yellowish brown or dingy cream-colour, spotted and speckled in a broad irregular zone near the large end with greyish brown, "at times intermingled with spots or tiny clouds of faint inky purple." Average size 0.66 by 0.51 inch.

Genus ALSEONAX.

Bill wide at the base, stout, triangular, the under mandible rounded beneath and *pale at the base* ; rictal bristles long. Wings with the 2nd quill longer than the 6th, and the 3rd and 4th the longest. Tail shorter than the wings and even at the tip. Legs and feet small.

ALSEONAX LATIROSTRIS.

(THE BROWN FLYCATCHER.)

Muscicapa latirostris, Raffl. Tr. Linn. Soc. xiii. p. 312 (1821).

Muscicapa grisola, var. *daurica*, Pall. Zoogr. Rosso-Asiat. i. p. 461 (1831).

Hemichelidon latirostris, Gray, Gen. B. i. p. 262 (1845); Blyth, Cat. B. Mus. A. S. B. p. 175 (1849); Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 137 (1856).

Butalis latirostris, Blyth, J. A. S. B. 1847, xvi. p. 121; Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 127; Kelaart, Prodrum, Cat. p. 123 (1852).

Alseonax latirostris, Cab. Mus. Hein. i. p. 53 (1850); Jerdon, B. of Ind. i. p. 459; Holdsw. P. Z. S. 1872, p. 441; Hume & Henderson, Lahore to Yark. p. 185, pl. v.; Walden, Ibis, 1873, p. 308; Hume, Str. Feath. 1874, p. 219; Bourdillon, ibid. 1876, p. 396; Hume (B. of Tenass.), Str. Feath. 1878, p. 227; Sharpe, Cat. B. iv. p. 127 (1879).

Alseonax terricolor, Brooks, Str. Feath. 1877, p. 470.

Zukki, Hind. (Jerdon); *Shima-modzu*, Japan (Blakiston).

Adult male and female. Length 5.1 to 5.3 inches; wing 2.7 to 2.95; tail 2.2; tarsus 0.55; mid toe and claw 0.6; bill to gape 0.6.

Iris brown; bill, upper mandible blackish, lower fleshy with dark tip; legs and feet dark grey or wood-brown.

Lores mingled grey and white; an orbital fringe of fulvous; head and upper surface light cinereous brown, slightly darker on the head; wings and tail hair-brown; wing-coverts pale-margined, inner secondaries and tertials with broad fulvous-grey edgings; tail tipped pale; chin albescent, darkening on the fore neck and chest into cinereous grey; breast and lower parts white; flanks cinereous grey.

The amount of pale edging on the wing-coverts and secondaries varies considerably. Mr. Hume, too, notices this character in 'Stray Feathers.'

Young (nestling: Nepal). Above brown, slightly tinged with rusty on the upper tail-coverts, and each feather of the upper surface with an elongated central spot of greyish near the tip, which becomes fulvous on the rump and upper tail-coverts; wing-coverts with deep terminal edgings of fulvous; inner secondaries the same; quills margined internally with rufescent; ear-coverts tipped with dark brown; under surface whitish, the fore-neck feathers tipped with dusky; flanks dusky.

Obs. I have examined a large series of this Flycatcher from Japan, China, India, the Andamans, Java, Sumatra, Borneo, and Saigon, and am of opinion that there is but the one species, with perhaps a local race, which is rusty-coloured on the upper surface, but similar beneath to our bird, in Cochin China and Borneo. Examples from Japan, nine of which I have examined, are identical to all intents with those which visit Ceylon; they are perhaps greyer on the back and not quite so brown on the chest and flanks; they vary in the wing from 2.6 to 2.85 inches, and in the bill are the same as ours. A Tenasserim example (w. 2.6) is slightly more "earthy" than Ceylonese examples on the rump, and one from N.W. Himalayas still more so; two from Port Blair are positively identical with specimens killed in Ceylon. A Javan bird is very rusty-coloured on the nape and edges of the wing-coverts, therein approaching a Sarawak bird, which measures in the wing 2.55 inches only, and which is very "rusty" on the upper surface, the ferruginous tint increasing towards the rump; the wing-coverts are margined and tipped with ferruginous; and, in fact, were it not for the under surface, which is almost exactly the same as specimens from India and elsewhere, the bird would have the appearance of *Hemichelidon ferrugineus*. An example from Saigon is much the same as the last. These birds might well form a subspecies, I think; but I see that Mr. Sharpe, in the 4th vol. of his great 'Catalogue of Birds,' unites the races from all parts in one and the same species. Mr. Hodgson's specimens of *A. terricolor* in the British Museum are in bad order; but they are clearly nothing but the present species.

Distribution.—This modest little bird is a cold-weather visitant to Ceylon, coming to us from South

India in October and departing again in the following April. It spreads over the whole low country, but is nowhere very plentiful, and liable to be passed over, as it is of solitary habits. From the low lands it ascends into the coffee-districts to an altitude of about 3500 feet. About Colombo and on the west coast generally it is fairly common, inhabiting trees in the vicinity of houses or even in the town itself, and it is liable to be met with anywhere in the interior.

It was described from Sumatra by Raffles, but does not appear to have been procured there of late years, although it is not uncommonly met with in Java, Borneo, and Malacca; it is of course a winter visitor to all this region and also to the Andamans, where Licut. Wardlaw Ramsay procured it in December, January, and February. According to Swinhoe it summers in China, and does the same in Japan and Eastern Siberia, in which regions it no doubt chiefly breeds, and from which it migrates at the latter end of the year to India, Tenasserim, and Malasia. In Tenasserim, singularly enough, Mr. Hume says that it has only been observed in the southern half of the province. It does not appear to be found in Burmah, and is not recorded by Mr. Inglis from Cachar; it is therefore somewhat difficult to follow its line of migration to India from China and North-eastern Siberia; and it may be that the birds which visit the plains of India, the southern part of the peninsula, and Ceylon breed in the Himalayas. Jerdon writes that *A. terricolor* of Hodgson inhabits the Himalayas at no great elevation, and visits the plains in the cool season, which implies, of course, that it summers in the mountains; it will be observed also that the young bird which I have described above is from Nepal. It does not extend into North-western India, keeping quite to the east until it gets to the Deccan, where Messrs. Davidson and Wender obtained it at Sholapoor and Mr. Fairbank at Khandala. In the Travancore hills Mr. Bourdillon says it is common during the winter months.

Habits.—This Flycatcher resembles in its economy the common species of Europe (*Muscicapa grisola*), and reminds one much of this latter species. It takes up its abode in shady trees, often in the middle of towns and villages, or on the borders of streams, in native gardens, and even in the recesses of the dry forests of the north. It chooses in the latter localities a spot which is cheered by the rays of the sun, and quietly perches on the low branch of a tree, every now and then making an active dart on a passing insect and returning with it to its perch. It is very silent and exceedingly tame, sitting fearlessly in the most public situations, entirely regardless of the busy hum of human life. It now and then utters a weak note after catching an insect, and will then sit perfectly motionless until it espies some other object of pursuit.



MAX MUTTUI HYPOTHYMIS CEYLONENSIS.
STOPAROLA SORDIDA.

ALSEONAX MUTTUI.

(THE RUSTY FLYCATCHER.)

(Peculiar to Ceylon.)

Butalis muttui, Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 127; Legge, Ibis, 1878, p. 203.

Alseonax ferrugineus, Jerdon, B. of Ind. i. p. 460, in part (1862).

Alseonax terricolor (nec Hodgs.), Holdsw. P. Z. S. 1872, p. 441; Layard, P. Z. S. 1873, p. 204; Legge, Str. Feath. 1875, p. 366.

Alseonax flavipes, Legge, Str. Feath. 1875, p. 367.

Alseonax muttui, Sharpe, Cat. B. iv. p. 132 (1879).

Suprà brunneus, pileo saturiore, supracaudalibus magis rufescentibus: tectricibus alarum minimis et medianis dorso concoloribus, majoribus brunneis, fulvescenti-rufo marginatis: tectricibus primariorum primariisque brunneis, secundariis fulvescenti-rufo marginatis: rectricibus brunneis, pallidiore brunneo limbatis: loris et anulo ophthalmico albidis: regione parotica brunnea: gutture albo: genis cum pectore et corporis lateribus pallide brunneis fulvescenti lavato: pectore medio et abdomine pure albis: subcaudalibus fulvescenti-albidis: subalaribus et axillaribus cervinis: remigibus infra brunneis, infus cervino marginatis: rostro nigricanti-brunneo, mandibula flavicante ad apicem brunnea: pedibus pallide flavis: iride rufescenti-brunnea.

Adult male and female. Length 5·3 to 5·5 inches; wing 2·7 to 2·9; tail 2·1 to 2·2; tarsus 0·55; mid toe and claw 0·57; bill to gape 0·7 to 0·75. The legs and feet are exceedingly delicate in this species.

Iris hazel-brown; bill, upper mandible dark brown with pale tip, under mandible fleshy yellow: legs and feet pale yellow; eyelid dark plumbeous. In one female the tip of the upper mandible is pale.

Lores, orbital fringe, and a spot beneath the gape whitish; head and upper part of hind neck dark olive-brown, changing into rusty olivaceous on the back, which deepens to ferruginous on the rump and upper tail-coverts: wings dark brown, the primaries with a fine pale edging, and the coverts and tertials conspicuously edged with yellowish ferruginous; tail slightly lighter brown than the wings, margined with rufous-brown; chin and throat white, bounded on each side by a dark cheek-patch; chest brownish, the feathers margined with fulvous; breast and under tail-coverts white, flanks light yellowish brown: wing-lining brownish, paling off into fulvous.

Obs. This Flycatcher was named by Mr. Holdsworth, in his 'Catalogue,' with *Alseonax terricolor*, Hodgson: but this species is identical with the last. There is no doubt that Layard's bird was the same as the subject of the present article; he makes, it is true, no mention of the yellow legs and feet which are so characteristic of it; but his description, though somewhat scanty, is sufficient to preclude my keeping my specimens as distinct under the title of *A. flavipes*. He writes as follows:—"General resemblance of *B. latirostris*, but of a far more rufous colour; this colour most prevalent on the outer webs of the wing-primaries, the outer tail-coverts, and the sides of the breast and belly; throat, belly, and vent whitish; breast rufous ashy; back of the head dark brown. Length 5·0 inches, wing 3·0." This is, I think, near enough to identify his bird with the specimen I have procured in the island.

Cyornis mandellii (Hume, Str. Feath. 1874, p. 510) turns out to be a very closely allied representative of this species, inhabiting Sikkim and the hill-region of Southern India. Since this article was penned, the British Museum has acquired a specimen of this species from the collection sent home lately by Mr. Hume. It was labelled, in error, as a female *Cyornis magnirostris*, but it corresponded with Mr. Hume's description of *C. mandellii*. On Mr. Sharpe and myself comparing it with the Ceylon bird, it proved to be closely allied to it, and a member of the genus *Alseonax*, having the pale lower mandible which does not exist in *Cyornis*, and likewise the wing-formula of the first-named genus. It is almost identical on the upper surface with the insular bird, the head being only slightly darker; but the under surface is very much darker, the flanks are much browner, and the whole breast instead of being white is tawny brown, the vent and under tail-coverts only being white; the chest is much browner than of being white is tawny brown, the vent and under tail-coverts only being white; the chest is much browner than in *A. muttui*, and the white throat-patch smaller. In Mr. Hume's original description he says, "the breast, sides, and flanks are pale brown." The dimensions of this specimen are—wing 3·0 inches, tail 2·5; the legs are, in the dried skin dusky yellow, and they are more robust than those of the insular form. *Alseonax ferrugineus*, now placed by Mr. Sharpe in the genus *Hemichelidon*, is in its coloration not far distant from these two species;

but it is much more rufous, particularly on the back, rump, upper tail-coverts, and edgings of the wing-coverts, and the lower parts are also much more rufescent.

Distribution.—This rare Flycatcher was discovered by Layard at Pt. Pedro, the extreme north of the island; he writes thus of it, after describing the specimen brought to him:—"I name this new species after my old and attached servant Muttu, to whose patient perseverance and hunting skill I owe so many of my best birds. This one he brought to me one morning at Pt. Pedro during the month of June." I am not aware that it was again met with until rediscovered by myself in January 1875, when I obtained one of two specimens seen in forest a few miles from Trincomalie. After that date I did not notice it until February 1877, when I met with several individuals in the forest of Ikkade Barawe, in the Hewagam Korale, and procured three or four of them. It is not improbable that it may inhabit other forests in the south and east of the island; for after I had obtained the above examples I came to the conclusion that Flycatchers which I had not unfrequently seen in heavy forest in the last-named district and taken for the foregoing species, which really does not *commonly* affect such localities, may possibly have been no other than this interesting and little-known bird. I therefore commend the subject of a further acquaintance with it to such of my readers who have the opportunity of ornithologically examining the low-country forests of the island. It is singular that I have only met with it in the north-east monsoon, which would lead to the idea that it was migratory; and the late discovery by Mr. Bourdillon of *A. mandelli* in Travancore would tend to strengthen this suspicion did Mr. Hume make any mention of these southern specimens being white on the breast; he, however, appears to consider them identical with the dark Sikhim examples, as he does not speak of any difference in the under surface. I must add that Layard procured his specimen in June, which goes far to prove that the species is resident in, and peculiar to, Ceylon.

Habits.—This little bird has all the modest and retiring habits of its ally already noticed in the last article. I have always noticed it frequenting the lateral and rather low outspreading branches of forest trees by the sides of tracks, paths, or little open glades. It leads a sedentary life, sitting upright and motionless, and now and then waking into action by darting out at some passing fly. In the stomach of one example I found much larger insects (moderately sized Colcoptera) than I expected to find captured by so small a bird. It is the reverse of shy, not objecting to a close scrutiny, under which I found it would sit motionless until roused into flight by the sight of its prey, which to it was evidently much more worthy of attention than myself and the fatal weapon which was destined to put an end to its quiet existence.

The upper figure in the Plate accompanying the present article represents a male of this species shot in the Ikkade-Barawe forest, near Hanwella.

Genus STOPAROLA.

Bill very similar to *Alseonax*, equally broad, but slightly more robust, and the nostrils more basal; rictal bristles long and fine. Wings with the 2nd quill much shorter than in the last genus, about equal to the 8th; the 4th and 5th the longest. Tail shorter than the wings, even at the tip. Legs and feet rather stout. Tarsus as long as the middle toe and claw.

STOPAROLA SORDIDA.

(THE CEYLONESE BLUE FLYCATCHER.)

(Peculiar to Ceylon.)

Stoparola melanops (nec V.), Kelaart, Prodrömus, Cat. p. 123 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 127.

Niltava ceylonensis, Gray, Hand-l. B. i. p. 326. no. 4897 (1869).

Glaucomyias sordida, Wald. Ann. & Mag. Nat. Hist. 1870, v. p. 218.

Eumyias sordida, Sharpe, Tr. Linn. Soc. new series, i. p. 326; Holdsw. P. Z. S. 1872, p. 441;

Legge, Ibis, 1874, p. 18; Hume, Stray Feath. 1875, p. 401.

Stoparola sordida, Sharpe, Cat. B. iv. p. 440 (1879).

The Bluish Flycatcher, Kelaart.

Suprà sordidè viridi-cinerascens: tectricibus alarum minimis dorso concoloribus, medianis majoribusque cum remigibus rectricibusque fuscis, dorsi colore marginatis: fronte et supercilio antico lætè cyaneis: loris et plumis subocularibus nigris: facie laterali et corpore subtus toto viridi-cinerascentibus: abdomine imo et subcaudalibus albicantibus maculâ ad basin mandibulæ et mento summo nigris: gulâ cyaneo lavatâ: tibiis cinerascenti-brunneis.

Adult male and female. Length 5·8 to 6·2 inches; wing 2·85 to 3·1; tail 2·3 to 2·5; tarsus 0·7 to 0·8; mid toe and claw 0·65 to 0·7; bill to gape 0·67 to 0·75.

Iris varying from reddish brown to brown; bill black; legs and feet dark plumbeous, the feet sometimes blackish, much darker than tarsus; claws black.

Head, hind neck, back, and wings sombre verditer-blue; the edge of the forehead and an ill-defined superciliary stripe lazuline blue; chin washed with the same; lores and extreme point of chin black; wings and tail blackish brown, edged with the blue of the back, the latter mostly towards the base; throat and chest bluish cinereous, blending with the brighter blue of the chin and paling on the breast, the lower part of which, with the under tail-coverts, is white. The amount of white on the lower parts and depth of blue of the upper surface vary, being perhaps dependent on age. In some examples the under tail-coverts alone are unsullied white. The greyish bases of the rump-feathers show in imperfectly-plumaged birds, imparting a pale appearance to that part.

Young. Iris brown; legs and feet dusky than in the adult. In the first plumage the head, back, and wing-coverts are brown, each feather with a fulvous centre, edged off with blackish; feathers of the chin and forehead entirely fulvous; throat and breast fulvescent grey, with dark edges. This dress is doffed a few months after fledging, and specimens in the mixed blue and spotted plumage to be met with in August and September have a curious appearance.

Obs. This species was identified by Layard as *Stoparola melanops*, the Himalayan representative of our bird, but which is a bright verditer-blue instead of the dull colour characteristic of the latter. Gray, in drawing up his 'Hand-list of the Birds in the British Museum,' evidently distinguished the two birds from one another, for he gave the Ceylonese form the name of *Stoparola ceylonensis*; but as he inserted this name in his list with a query as to the species being new, and gave no description, it is not accepted. It was not until 1870 that the late Lord Tweeddale, who states that he received four specimens from Ceylon, bestowed the present title on it. *Stoparola sordida* is more nearly allied to the South-Indian *S. albicaudata* than to the above-mentioned Himalayan species; the Nilghiri bird has the head, back, hind and fore neck a dull indigo-blue, the forehead and chin hyacinth-blue; wings and tail brown, edged with blue; the underparts pale bluish; bases of all but the central tail-feathers white, but they are quite concealed by these latter, which overlie them: an example in the national collection measures 3·1 in the wing. *S. melanops* is a larger bird; examples which I have examined from Darjiling, Murree, and Nepal measure from 3·3 to 3·45 in the wing.

Distribution.—This Flycatcher is entirely a hill-bird, inhabiting both the Kandyan and the southern mountains down to an elevation of somewhat under 2000 feet. It is not common at the Horton plains,

according to my observation ; but it is abundant slightly lower down, at Nuwara ELLIYA, and throughout the main range. It is numerous in jungles throughout all the coffee-districts, particularly in the Knuckles and in Uva. Lower down it is less frequent, except in the secluded woods through which the affluents of the Mahawelliganga flow. It is found in the Singha-Rajah and other forests bordering the Kukkul Korale, and at a similarly low elevation on the south-eastern slopes of the Uva ranges.

Habits.—This is a quiet bird, of less active movements than most Flycatchers, and is usually found frequenting the outskirts of forest, the edges of clearings, the borders of mountain-streams, or the sides of roads and paths, in preference to the depths of the jungle. On a few occasions I have observed it in small flocks of half a dozen or more on the banks of broad, sunny torrents ; but this is not usual. The male has a sweet little warble, which it patiently whistles all day long, particularly in the breeding-season, seated near its mate ; and the note is so low and clear that it seems to come from a distance, whereas the bird is actually sitting close at hand.

It frequently perches on fallen trees and low stumps, on which it will sit in perfect silence until disturbed, when it does not take the trouble to fly far, but simply flits to the nearest inviting twig. It evinces little or no fear of man. Mr. Bligh, who has had much opportunity of observing its habits during a long residence in the coffee-districts, informs me that it is not sociably inclined, that the males are very pugnacious, and that when two meet they utter their song in a high key and in "a passionate hurried manner." He further writes:—"Its sweet plaintive notes are heard during many months of the year ; it affects low perches from which to pour forth its contentment in song, such as the stump of a tree, a log or rock in the coffee, or an exposed branch by the jungle-side. Its song has a certain charm, possessing no small resemblance to the plaintive whistling of the Blackbird. It is a very silent bird except when singing ; indeed I have never heard it utter a call-note beyond a scarcely audible 'sip' when it is near its nest."

Nidification.—From the pen of the same observant naturalist, Mr. Bligh, I gather the following information concerning the nesting of this interesting little bird. He says, "The nest is generally concealed in various suitable places, such as a shallow hole in a rotten stump or in the trunk of a forest tree ; and I once found it in a felled tree, well protected by a thick branch of a coffee-bush which grew over it ; it is composed of moss, lichens, and grasses lined with fine fibrous materials, and is like a Blackbird's in miniature. The eggs are dull white, thickly sprinkled and blotched with dark reddish."

The breeding-season would appear to be in April and May ; for I have shot the young in mixed nestling and blue plumage in the month of August, both in the Peak and Kukkul-Korale forests.

The lower figure in the Plate accompanying my article on *Alseonax muttui* represents a male of the present species, shot at Debedde Gap in Uva.

Genus SIPHIA.

Bill not so wide as in *Stoparola*, compressed towards the tip ; rectal bristles not so long ; 1st primary very short, 2nd slightly exceeding the 8th ; the 4th and 5th the longest, considerably exceeding the 3rd. Tail shorter than the wings. Tarsus shorter than in the last genus, but exceeding the middle toe without its claw.

SIPHIA TICKELLIÆ

(THE BLUE REDBREAST.)

Muscicapa hyacintha, Tickell, J. A. S. B. 1833, ii. p. 574.

Cyornis banyumas (*nec* Horsf.), Blyth, J. A. S. B. 1843, xii. p. 941; id. Cat. B. Mus. A. S. B. p. 173 (1849); Jerdon, B. of Ind. i. p. 446 (1862).

Cyornis tickelliæ, Blyth, J. A. S. B. 1843, xii. p. 941; Jerdon, B. of Ind. i. p. 467; Hayes Lloyd, Ibis, 1872, p. 197; Hume, Str. Feath. 1873, p. 436; Ball, *ibid.* 1874, p. 405; Butler & Hume, *ibid.* 1875, p. 468.

Cyornis jerdoni, Gray, Hand-l. B. i. p. 325 (1869); Jerdon, Ibis, 1872, p. 125; Holdsw. P. Z. S. 1872, p. 442; Legge, Ibis, 1874, p. 18.

Siphia tickelliæ, Sharpe, Cat. B. iv. p. 447 (1879).

Marawa, Sinhalese.

Adult male and female. Length 5·6 to 5·9 inches; wing 2·7 to 2·95; tail 2·3 to 2·6; tarsus 0·65 to 0·7; mid toe and claw 0·65; bill to gape 0·7 to 0·77.

Male. Iris brown; bill blackish; legs and feet bluish brown, dusky bluish, or bluish grey.

Head and entire upper surface (including the sides of the neck), wings, and tail dull blue, brightening at the forehead, above the eye, and on the point of wing into shining cerulean blue; inner webs of the rectrices and quills and the outer primaries wholly blackish brown; lores, face, and along the base of the under mandible to the chin bluish black; throat (commencing at a point between the dark blue sides), neck, and chest fine fulvous rufescent, paling off on the sides of the breast and flanks to light fulvous, and leaving the centre of breast and abdomen with the under tail-coverts white.

Obs. In the damp southern forests are to be found dark rufous-chested examples of this species with a broad maxillary stripe exceeding that of specimens from other parts of the island by 0·1 inch, and with the abdomen and under tail-coverts very faintly washed with rufous, forming, in fact, a link between the present species and the Javan bird (*C. banyumas*). I possess such a specimen from the timber-jungles of Opaté.

Female. Bill less black; legs and feet bluish, paler than in the male.

Above a lighter or faded blue, with a less brilliant frontal stripe and shoulder-patch; *lores fulvous grey*; cheeks bluish, without the chin-stripe; chin whitish, deepening to light rufescent fulvous on the chest, and paling on the flanks as in the male.

Young male. Legs and feet light bluish. Head and hind neck brown, with fulvous-yellow mesial lines; back brown, suffused with fulvescent, and each feather with a terminal spot of the same; wing-coverts with deep tips of a brighter hue than the markings of the back; quills and tail as in the adult; beneath, the throat and chest fulvescent, with a faint indication of a stripe along the edge of the lower mandible, and the feathers of the chest edged dusky. The clothing-feathers are doffed at a very early age, and the blue of the back, together with the rufous hues of the underparts, soon assumed.

Young female. Legs and feet fleshy; upper parts duller brown than the male, with central stripes and terminal spots of fulvous; chest pale buff-white, darkly edged.

Obs. This is the species styled by Jerdon in his 'Birds of India' *Cyornis banyumas*, and afterwards named *C. jerdoni* by Gray in his 'Hand-list.' Blyth, however, had (*loc. cit.*) previously named a pale-chested Blue Redbreast *C. tickelliæ*; and this was afterwards found by Major Hayes Lloyd to be nothing but the female of Jerdon's bird. In 'The Ibis' for 1872, p. 197, he gives the history of this discovery in an interesting letter dated from Kattiawar; and subsequently, as Blyth's name had priority over Gray's, the species has been, as a matter of course, styled *C. tickelliæ*. Ceylon specimens do not differ from examples from various parts of India, although some individuals I have

examined from the latter present slight points of dissimilarity. Two males from Kattiawar (wings 2·8 and 2·9 inches), and another labelled "India" (wing 2·8), in the British Museum, have the breasts somewhat deeper rufous. An example from Yunnan has the lower parts tinged faintly with rufous, like my Opaté bird; and another, a female from the peninsula of India, is paler than insular females on the back, and has the abdomen and vent faintly tinged with rufous-huff. These instances tend to show that the Indian and Javan birds almost run into one another. In regard to the latter, *C. banyumas*, with which our species was formerly confounded, its only distinctive character lies in the belly and under tail-coverts being more or less washed with the rufous hue of the breast, instead of being white. I say, *more or less*, because some examples are much paler in this respect than others. A male from Bintulu, W. Borneo (wing 2·75), has the belly and under tail-coverts quite rufous; while two others from Labuan have these parts only slightly tinged with it, being very little deeper-coloured than the above-mentioned Southern-Ceylon example.

Distribution.—This Flycatcher is widely dispersed through the whole island, being an inhabitant of all forest and tracts of jungle, and is very numerous, being equally at home in the vast jungles of the north and east, and in the tall timber-forests of Saffragam and the south-western hill-district. In the Central Province it ranges up to 4000 feet, commonly in Uva, and more rarely in the western portions of Dimbulla, Maskeliya, &c. In the great forest-districts of the island its favourite habitat are the borders of rivers and tanks; but it is so common there, that it may be met with in any part of the jungle, and was in the Trincomalie district even an inhabitant of the isolated Ostenburgh woods between the harbour and the sea. In the south-west it is more abundant in the timber-forests on the banks of the Gindurah than elsewhere; but in parts of the Western Province (at Kaduwella and other places between Colombo and Saffragam, for instance) I have found it occupying the compounds and gardens of the natives, as well as the jungles surrounding the villages.

It is singular that a bird so common was not noticed by Layard during his travels through the island.

On the mainland this species extends from South India to the north-west of the peninsula, where it is found in the hilly tracts of Kattiawar, but nowhere else, according to Mr. Hume, in the circumjacent region, except at Mount Aboo, where Captain Butler procured it. Mr. Hume records it from Kumaon; and it doubtless occurs further east along the base of the Himalayas, as it has been got near Calcutta. It is not mentioned in 'Stray Feathers' as inhabiting Burmah or Tenasserim, although the late Marquis of Tweeddale says that it was obtained by Lieutenant Ramsay in Karennee. I am also unable to separate the example above cited, in Dr. Anderson's "Yunnan" collection, from Indian examples of the species. In Central India it is not uncommon; Mr. Ball procured it in the Satpura hills, and remarks that it is rare in Chota Nagpur. Mr. Fairbank writes that it is found everywhere in the Khandala district in suitable localities; and Messrs. Davidson and Wender record it from Sholapoor, in the Deccan. Jerdon writes that it inhabits the Carnatic and the Malabar coast, and Mr. Fairbank procured it in the Palani hills.

Habits.—This pretty bird frequents a variety of situations in jungle and forest, avoiding, however, the thorny scrubs in the dry coast-districts; it is very partial to tall underwood beneath the gigantic trees which line and overhang the river-banks in the Northern and Eastern Provinces, or rear their majestic heads in the shade of the lofty precipices which scarp the rocky ranges of the Park country. In such spots, which foster the life of myriads of tropical insects, these little birds ply their busy vocation, the male constantly piping out its sweet quick little whistle, resembling somewhat the syllables *tée-titi-wit-titu-weee*, which is answered by the female with a monosyllabic "chit" note. In the dusk of the evening it is a most restless bird, the male resorting to some overshadowed thicket, and flying from branch to branch, repeatedly uttering its whistle, which is continued long after the dense surrounding forest has shut out the last rays of departing daylight. It is at these times very difficult to catch sight of, its dark blue plumage assimilating with the gloomy aspect of the jungle. It is unsociable towards its fellows, the males strictly keeping at a distance from one another, even when there are several in the same glen or grove. During most part of the day it does not display any great activity, but rests, after the morning meal, on slender horizontal branches, now and then making a sally at a passing insect.

Nidification.—In the Western Province I have shot the young in nestling-plumage at the end of June,

and in the Northern Province in the middle of July, so that the breeding-season of this Flycatcher may be said to be May and June throughout the island. I obtained no information concerning its nest and eggs while in Ceylon; but on reference to 'Nests and Eggs of Indian Birds,' I find that it nests in a niche in a wall or in a hole between branches of a tree at no great height from the ground. A nest taken by Miss Cockburn is recorded by Mr. Hume as being made of "moss and moss-roots, the latter forming the lining, a good many dead leaves being incorporated in the exterior surface; it was between 3 and 4 inches in diameter externally, and the egg-cavity was very shallow." In shape the eggs are said to be moderately long ovals, somewhat obtuse at the small end; the ground-colour is dingy greyish white, very finely freckled and mottled with dingy reddish brown, the markings being everywhere indistinct and feeble, but concentrated and nearly confluent towards the large end, forming a zone or irregularly defined cap. In some specimens the markings are very closely set, so that the eggs appear to be of a pale brownish-rufous colour. The average dimensions of five eggs are 0.76 inch in length by 0.56 inch in breadth; they have, as a rule, a faint gloss.

SIPHIA RUBECULOIDES.
(THE BLUE-THROATED REDBREAST.)

Phoenicura rubeculoides, Vigors, P. Z. S. 1831, p. 35; Gould, Cent. Him. Birds, pl. 25. fig. 1 (1832).

Muscicapa rubecula, Swains. Monogr. Flyc. p. 221, pl. 27.

Cyornis rubeculoides, Blyth, J. A. S. B. 1843, xii. p. 941; id. Cat. B. Mus. A. S. B. p. 173 (1849); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 125; Horsf. & Moore, Cat. B. Mus. E. I. Co. ii. p. 289 (1854); Jerdon, B. of Ind. i. p. 466 (1862); Holdsw. P. Z. S. 1872, p. 442; Hume, Nests and Eggs, 1873, p. 211; id. Str. Feath. 1875, p. 104; Brooks, t. c. p. 235; Hume, Str. Feath. 1878, p. 227.

Niltava rubeculoides, Gray, Gen. B. i. p. 264.

Siphia rubeculoides, Sharpe, Cat. B. iv. p. 445 (1879).

Chatki, Beng.; *Manzhil-pho*, Lepchas (Jerdon).

Adult male. Length 5·6 to 5·8 inches; wing 2·7 to 2·8; tail 2·0 to 2·2; tarsus 0·7; mid toe and claw 0·6; bill to gape 0·7.

Female. Length 5·3 to 5·5 inches; wing 2·7 to 2·8.

Male. Iris deep brown; bill black; legs and feet dusky bluish, claws dusky.

Head, hind neck, back, and wing-coverts dark shining blue; forehead and point of wing glistening cærulean blue, extending more above the eyes than in the last species; inner webs of the quills and tail-feathers blackish brown, the outer webs margined with blue, much brighter on the tail than the wing; upper tail-coverts brighter blue than the back; the lores, ear-coverts, and the extreme point of the chin black; throat and sides of chest deep obscure indigo-blue, descending further down to the chest in some specimens than in others; chest and upper part of the breast rich rufous, fading into white on the lower breast, abdomen, lower flanks, and under tail-coverts; under wing-coverts white.

The coloration of the throat is variable; in the majority of specimens from Ceylon the dark blue colour ends in a line across the lower part of the throat: but in some it extends considerably upon the sides of the chest, confining the rufous of the chest to a smaller space, while in others the rufous runs up in a point towards the chin, dividing the blue of the throat. This exists in an example in my collection, and Mr. Holdsworth noticed it in specimens from Ceylon in the late Lord Tweeddale's collection.

Female. Bill dark brown; legs and feet greyish blue.

Above uniform brownish olive, with the margins of the quills pale, and the upper tail-coverts and tail suffused with rusty brown; lores pale; orbital fringe rufescent; ear-coverts with pale striæ; throat and chest dull rufous, paling on the flanks; the breast, abdomen, and under tail-coverts pure white; wing-lining yellowish buff.

Young male. Iris light brown; bill blackish, pale at the base; legs and feet bluish.

Above bluish, with fulvous tips to the feathers of the head and neck, and terminal spots of the same on the wing-coverts; chin, throat, and breast rufescent buff, darkest on the chest, and changing into white on the lower parts. The above is the plumage in which I shot a Flycatcher changing from nest-plumage to the blue dress, in January 1875, in the forests near Kanthelai tank. There is an indication of a dark line across the throat, just where the lower border of the blue would be in the adult. It was in company with what appeared to be, as well as I could gather at a momentary glance in the thick jungle, an adult *C. rubeculoides*; and near at hand I obtained a glimpse of what I took for a brown *Cyornis*, which would be the colour of the female parent, provided my identification were correct.

Obs. I observe, on examining a continental series of this bird, the same variation in the marking of the throat

which I have alluded to in the case of Ceylon birds. Mr. Hume especially dwells on this point in connexion with the Tenasserim individuals referred to in his exhaustive treatise on the birds of that province, and says that in twelve out of fifteen adult males the rufous of the chest runs up in a stripe towards the chin, and in one the entire chin and throat are concolorous with the breast. It is difficult to see how this latter specimen can be *C. rubeculoides*; it would appear more likely to be *C. tickelliae*. In three examples from the North-west Himalayas, which have the wings 2.95, 2.8, and 3.0 inches respectively, I find that the blue runs straight across the throat at a distance of 0.7 inch from the chin in two, and in the third the rufous runs up in a point towards the chin. In a Darjiling specimen the blue of the throat is very deep in colour, and descends down upon the sides of the chest; wing 2.7. In a Pegu example the rufous runs up the blue throat to within 0.4 of the chin; wing 2.6: in one from Madras the same is the case; wing 2.8. In no specimen in the British Museum does the rufous extend higher than within 0.4 of the chin; but I observe that Mr. Hume says it does so in rare instances. A presumed female in the national collection from the Bhootan Doars is much paler rufous on the chest than a Ceylon example; and I notice that Mr. Blanford observes this character (Str. Feath. 1877, p. 484) in a series procured in the same district by Mr. Mandelli, in which also the throat is always whitish. A doubt is expressed whether all the specimens referred to were really females, as they were not sexed; it is possible, therefore, that these birds may represent a distinct species.

Cyornis elegans, from Malacca, Borneo, and Sumatra, is described as having the throat bright cobalt-blue, as well as the forehead and shoulders of the wing, and must be regarded as a brighter-coloured ally of the present species.

Distribution.—I take this Flycatcher to be migratory to Ceylon. I have met with it in various parts of the northern forests, but only between the months of October and April. Layard was of the same opinion, and writes as follows:—"I obtained a few specimens of this elegant little Flycatcher during their migration from the mainland. I first shot them on the 14th of October 1851, and a few subsequently at Pt. Pedro; they then disappeared, and I saw no more of them." I never met with it in the western, southern, or eastern districts

SIPHIA NIGRORUFA.

(THE BLACK-AND-ORANGE FLYCATCHER.)

Saxicola nigrorufa, Jerdon, Cat. B. S. India, Madr. Journ. 1839, x. p. 266.

Ochromela nigrorufa, Blyth, J. A. S. B. 1847, xvi. p. 129; id. Cat. B. Mus. A. S. B. p. 173 (1849); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 126; Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 289 (1854); Jerdon, B. of Ind. i. p. 462 (1862); Holdsw. P. Z. S. 1872, p. 441; Hume, Nests and Eggs, i. p. 207 (1873); Bourdillon, Str. Feath. 1876, p. 396; Fairbank, *ibid.* 1877, p. 401.

Siphia nigrorufa, Sharpe, Cat. B. iv. p. 455 (1879).

Orange Robin, Jerdon.

Adult male and female. Length about 5.0 inches (Jerdon); wing 2.3; tail 1.9 to 2.0; tarsus 0.7; middle toe and claw 0.6; bill to gape 0.55. The above measurements, with the exception of the length, are from a series of four skins in the British Museum.

"Iris hazel-brown; bill black; legs and feet dirty reddish" (Jerdon).

Male. Head, face, ear-coverts, hind neck, and a line along the under mandible to the chin blackish brown, tinged with an olive hue; wings very dark brown, the coverts blacker than the quills; rest of the plumage orange-rufous, darkest on the back and sides of the neck, and paling into rufescent fulvous on the abdomen.

Female. Head, face, and hind neck olive-brown, the frontal feathers with rufous centres; ear-coverts striated with whitish; remainder of the plumage as in the male, but with the abdomen white; orbital fringe rufous.

Distribution.—The evidence on which this curiously-coloured Flycatcher has hitherto been included in our lists rests on a drawing of a bird, asserted by Layard to represent it, made by Mr. E. L. Mitford, of the Ceylon Civil Service.

of the island, although I shot many examples of the foregoing on the chance of their proving to be the present species. It is evidently a rare bird. Mr. Holdsworth mentions having seen examples in Lord Tweeddale's collection which were collected, I believe, by Mr. Chapman; but besides these, Layard's and my own specimens are in all probability the only ones procured in the island. If I am right in my identification of the young of this bird alluded to in the above "description," it is a remarkable fact that it should breed as a visitor to Ceylon, and at such a time of the year.

Its chief home appears to be the sub-Himalayan region, whence it migrates to the plains of India in the cool season. In Burmah, however, and likewise in Tenasserim (if the bird inhabiting the latter province really be this species) it appears to be resident. Mr. Oates says, as regards Pegu, "this species is common all over the hills, and I have lately received it from Arracan." Blyth remarks that it is not rare in the vicinity of Calcutta during the cold weather. Mr. Brooks says it is common in the lower parts of the valley of the Bhagirati river above Mussoori in May; and Captain Hutton writes, in the 'Journal of the Asiatic Society of Bengal' for 1848, that it arrives there in April to breed, from which it appears that it is not resident in all

This gentleman was devoted to the study of natural history, and collected many birds, particularly in the Ratnapura district, in which he is said to have procured the present species. It is not improbable that the drawing was a faithful one, and that Layard rightly identified the species which it was intended to represent; but, on the whole, I do not consider the testimony quite sufficient to warrant my giving it a well-established position in the Ceylonese avifauna, and I therefore include it as a doubtful species in my list. Mr. Mitford asserts that it was migratory, *appearing in June*: in this he doubtless was mistaken, as no South-Indian species migrates to Ceylon at that season of the year; and were it merely a local migrant to that district from other parts, it would have been observed elsewhere in the island. No evidence, however, other than the above is forthcoming of this Flycatcher ever having been procured or seen in Ceylon; and it is a bird which it would be impossible to overlook, on account of its remarkable colouring.

The haunts of this species are the ranges of mountains in the south of the peninsula. Jerdon, who named and discovered it, writes of it, "This prettily-plumaged bird I have only met with on the summit of the Nilghiris, in the dense woods of which it may occasionally be seen;" he also states that it has been found on the highest mountains of Ceylon. This is a reference to Mr. Mitford's supposed discovery; but the Ratnapura district lies at the foot of Adam's Peak. Recently Mr. Bourdillon observed it in the Travancore hills, remarking that it frequents "dense wood-thickets, from 2500 feet elevation upwards;" and Dr. Fairbank likewise met with it "in groves at the top of the Palanis, as well as at Shemiganur, 5500 feet elevation."

Habits.—Jerdon writes concerning this Flycatcher, "It frequents the dense woods, preferring the most retired shady and damp swampy spots. Here it may be seen seated motionless on the low branch of a tree or a fallen stump, or some thick tangled dead branches, every now and then making a short swoop at an insect in the air, or descending to the ground for a second to pick one up. It is a very silent bird, and I never heard its note." Dr. Fairbank, who found it affecting similar situations, says, "It is difficult to see this little bird in the dense thickets it inhabits at a distance sufficient to shoot it without tearing it to bits." With regard to its habits in Ceylon, I am only able to quote Layard's notes, in which he says that Mr. Mitford found it feeding much on spiders, which is a singular practice for a Flycatcher.

Nidification.—In the Nilghiris this Flycatcher breeds at elevations of 5000 to 7000 feet, and lays from March until May. The nest is an extraordinary structure, being of a large globular form, made of dry sedge-flags and very coarse marsh-grass on a foundation of dead leaves. It is usually built at a height of 1 to 3 feet from the ground, and sometimes actually on the ground, as recorded by Mr. Darling in Hume's 'Nests and Eggs.' This gentleman writes:—"The nest is globular, higher than it is wide, with a small entrance-hole at one side, below which the nest is a little drawn in, and above which the dome projects somewhat. The foundation of the nest is almost always composed of dry leaves or fern, and the rest of it is woven of reed-leaves and flags; there is no lining, the eggs resting on the soft reed-leaves; it is exteriorly about 6 or 7 inches high and 4 broad, and the diameter of the central spherical cavity is about 3 inches." The experience of Mr. Davison is similar; a nest he found was made of the dry leaves of a kind of reed common on the Nilghiris. The eggs are two or three in number, of a pale brownish salmon-colour, indistinctly mottled with a darker colour, the markings coalescing to form a zone or cap at the larger end; some are pale greyish white, thickly and very finely speckled all over with very faint brownish red, forming a pale brownish-red cap. They measure 0.7 by 0.53 inch.

parts of its Himalayan habitat. It does not appear to have been procured in the south of India by Messrs. Bourdillon and Fairbank; but Jerdon obtained it both on the eastern and western coasts of that part.

Habits.—This species is exceedingly active and restless; it delights in dense low jungle growing beneath lofty trees, and appears to remain much in the same spot throughout the day. I have more than once found it in the low tangled wood which always grows on the upper or yearly inundated side of village tanks in the Northern Province. It perches on low branches, and darts very quickly on its prey, constantly changing its position. It has a very lively whistle, more varied and continued longer than that of the last species; and I have seen it flying in an excited manner backwards and forwards in a thicket, repeatedly uttering its song. Mr. Brooks styles its note "sweet and Robin-like;" and Hutton remarks that the male has a "very pleasing song, which it warbles forth from the midst of some thick bush, seldom exposing himself to view." I have found small caterpillars, as well as flies and minute insects, in its stomach.

Nidification.—From what has been said above, it will be seen that this Flycatcher may perhaps occasionally breed in Ceylon during the north-east monsoon; but it cannot be its habit to nest at that season. In the Himalayan districts it was observed by Capt. Hutton to breed in June, while Hodgson affirms that it begins to nest in April. It builds in a cavity in the trunk of a decayed tree or in the side of a rock, constructing its nest of moss, moss-roots, grass, and dry leaves, and lines it with black, fibrous moss-roots or hair-like lichens. The eggs are said to be dull pale olive-green, faintly or indistinctly clouded with dull rufous or clay-colour. Mr. Hume says the average size of the eggs he has seen is 0.73 by 0.62 inch.

Genus MUSCICAPA.

Bill small, not very wide at the base, and compressed towards the tip, which is scarcely decurved. Nostrils concealed by their plumes. Wings with the 1st primary shorter than in *Siphia*, the 2nd equal to the 7th, and the 4th the longest, slightly exceeding the 3rd. Tail rather broad, emarginate or even at the tip. Tarsus moderately long, exceeding the middle toe with its claw.

MUSCICAPA HYPERYTHRA.

(NIETNER'S ROBIN FLYCATCHER.)

Siphia hyperythra, Cabanis, Journ. für Orn. 1866, p. 391; Walden, Ibis, 1872, p. 472.

Menetica hyperythra, Cabanis, Journ. für Orn. 1866, p. 401.

Niltava hyperythra, Gray, Hand-l. B. i. p. 326. no. 4901 (1869).

Erythrosterina hyperythra, Holdsw. P. Z. S. 1872, p. 442, pl. 17; Hume, Nests and Eggs, p. 217 (1873); Brooks, Str. Feath. 1875, p. 236.

Muscicapa hyperythra, Sharpe, Cat. B. iv. p. 163 (1879).

The Robin, Planters in Ceylon.

Adult male. Length 4·6 to 5·1 inches; wing 2·6 to 2·7; tail 2·0; tarsus 0·7 to 0·8; mid toe and claw 0·6 to 0·65; bill to gape 0·6.

Female. Slightly smaller; wing 2·5 to 2·6 inches.

Iris hazel-brown; bill above brown, pale next the forehead; gape and lower mandible fleshy yellow, with the tip dusky; inside of mouth yellow; legs and feet deep brown; soles yellowish.

Male. Head and upper surface dusky cinereous brown, changing to ashen on the face and sides of neck; wings brown, edged with cinereous, the margins of the greater coverts being slightly ochraceous; upper tail-coverts, four centre tail-feathers, and terminal portion of the rest with all but the base of the outer web of the lateral feather black; these latter, the two next pairs, and the outer web of the adjacent are white for two thirds of the length from the base; lores ashen; orbital fringe dusky grey; chin, throat, breast, and sides of belly rich rufous, changing to white on the belly and vent, and bounded on the fore neck by a bold *black border* from the gape to the upper flanks; under tail-coverts yellowish buff and concolorous with the lower flanks; under wing-coverts the same.

Female. Upper surface with a more earthy tint than the male; the black of the tail not quite so intense; lores pale, orbital fringe greyish; ear-coverts pale-shafted; chin, throat, and upper breast less bright than in the male, and not divided from the hue of the hind neck by a black border.

Young. Bill paler than in the adult; legs and feet plumbeous brown.

Males in first plumage have the chin, throat, and lower breast white, with a rufous wash across the chest; this afterwards deepens and spreads up the throat, in which stage the black border begins to appear, and *distinguishes it from the young female*; from this to the adult stage all gradations of rufous colouring in the chest exist.

Females in nestling plumage are paler brown above than adults; the lores, cheeks, and orbits the same; chin and chest greyish, with a slight ochraceous tint on the latter; flanks and under tail-coverts faintly tinged with fulvous.

Obs. This Robin Flycatcher is the Indian representative of the European species *M. parva*, to which it is closely allied, differing from it in the presence of the black border which separates the rufous throat from the ashen sides of the neck. A male example of *M. parva* from Etawah measures 2·7 inches in the wing, and has the throat and fore neck, but not the chest, paler rufous-orange than in *M. hyperythra*; and the back is of a more earthy hue than that of the latter species; the three outer pairs of tail-feathers are marked similarly, but the fourth has some white on the inner web, as well as the outer.

Distribution.—Interesting as are the movements of migratory birds, there are one or two of our Ceylonese visitants which, for the ornithologist, possess a more than ordinary amount of attraction, inasmuch as they mysteriously appear in the island from well-known distant summer quarters without having left any trace of their presence in the regions through which they would naturally be disposed to pass, thereby rendering their line of migration a matter of conjecture. Of these the present species forms one of the most remarkable instances in our list. It is migratory to Ceylon, and yet was *first discovered* there so recently as 1860 by

Mr. Nietner, a German gentleman residing in the Pundooloya coffee-district; it appears, moreover, to be more plentiful in the island than in any other part of the mainland in which it has been observed. Previous to its being discovered it must therefore have been passed over by naturalists working in the Central Province; it is every season more or less common in that part, and now that its existence in the island has been made known it is frequently shot in the Nuwara-Elliya and surrounding districts. Mr. Holdsworth, however, was the second naturalist to procure it in Ceylon, obtaining specimens near Nuwara Elliya in 1870; and on the publication of his catalogue in the 'Proceedings of the Zoological Society' for 1872 he added the species to the Ceylonese avifauna. It arrives in October, and does not even appear to have been noticed in the northern province during transit; it is in the upper hills that it is first observed, and it takes up its quarters in no locality that I am aware of under an elevation of 2500 feet. It inhabits the Horton Plains, the whole of the main range, the Haputale and other Uva ranges, the upper parts of the Peak forest, and all the surrounding coffee-districts above the altitude I have named. Its appearance in the coffee-districts is, notwithstanding, somewhat irregular, being plentiful during one season in certain places, from which, in the following year, it may be totally absent. Mr. Bligh has noticed this fact in the Kotmalie and Haputale districts, and I myself found it common on the Rambodde pass in 1876-77, a locality where it has rarely been previously observed. It was described by Cabanis (*loc. cit.*) from the specimen sent to him by Mr. Nietner.

On the continent it has only been observed in the sub-Himalayan region. The first specimen sent home from India was, Mr. Holdsworth writes, obtained at Goona, in Cashmere; Mr. Brooks records, in 'Stray Feathers,' 1875, the procuring of an example near Mussoori in the beginning of May, and adds that "it is not an alpine bird." If this be the case it is difficult to conjecture where it breeds, as it has not been observed in Bengal. The same writer, however, makes a subsequent contrary statement, and says (Str. Feath. 1877, p. 471), "*Erythrostera hyperythra* appears to be a resident hill-species." The singular fact of its not having been seen in any of the hill-districts of Southern India can only be accounted for on the supposition that it follows the line of the east coast of the peninsula in migrating to Ceylon; but how it contrives to reach that island unobserved throughout its long route of migration is indeed a mystery!

Habits.—This little bird frequents forest, more particularly its edges, and also trees at the sides of paths cut through the jungle; it is likewise to be found about the rhododendrons and other stunted trees lining the streams which flow through the patnas and "plains" in the main range. It betrays its presence by a monosyllabic whistle, followed by a sharp little trill, recalling somewhat the note of the Wheatear. It is a restless species and active in its movements, quickly darting on its prey, on seizing which it will often glide to a prominent perch, such as a branch overhanging the road, or a stump in the coffee close to the pathway, and there giving out its lively whistle, will again dart off to another post of observation. Adult males are usually found alone, but not far from each other; and I have noticed that the young birds, of which numbers visit us, pass a solitary existence entirely away from the companionship of their fellows.

PASSERES.

Fam. SAXICOLIDÆ*.

Bill straight, compressed towards the tip. Nostrils oval or rounded and somewhat exposed; rictal bristles generally small, in some well developed. Wings variable—in some pointed, with the 1st quill much reduced; in others moderately rounded, with the 1st quill rather lengthened. Tail of twelve feathers. Tarsus lengthened, in some smooth, in others scutellated.

Of small size. Nesting on the ground or in holes or niches, and of *gesticulating habit with the wings and tail*.

Genus PRATINCOLA.

Bill wide at the base, the culmen moderately curved; gape beset with well-developed rictal bristles. Nostrils protected by a few impending bristles. Wings rather rounded, the secondaries long; 1st quill slightly less than the innermost secondary, the 3rd to the 6th nearly equal, the 4th being the longest. Tarsus smooth, exceeding the middle toe with its claw; lateral toes short.

PRATINCOLA BICOLOR†.

(THE HILL BUSH-CHAT.)

Pratincola bicolor, Sykes, P. Z. S. 1832, p. 92; Hume, Str. Feath. 1873, p. 183; id. Nests and Eggs (Rough Draft), ii. p. 314 (1874); Fairbank, Str. Feath. 1876, p. 406.

Pratincola atrata (Kelaart), Blyth, J. A. S. B. 1837, xx. p. 177; Kelaart, Prodrum, p. 101, et Cat. B. p. 121 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 266; Jerdon, B. of Ind. ii. p. 124 (1863); Holdsworth, P. Z. S. 1872, p. 454.

Pratincola caprata, in pt. (Linn.), Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 284 (1854); Sharpe, Cat. B. iv. p. 195 (1879).

The Nilgherry Black Robin, Jerdon; *The Nuwara-Elliya Robin*, Europeans in Ceylon.

Adult male. Length 5·9 to 6·2 inches; wing 3·0 to 3·25; tail 2·25 to 2·4; tarsus 0·9; middle toe, with its claw, 0·85 to 0·9; bill to gape 0·8 to 0·82.

Iris hazel-brown; bill, legs, and feet black.

* In this *family* I have placed together the Ceylouese members of that large and interesting group of birds which are normally of small size, and possess that peculiar spasmodic habit of the wings and tail which is highly characteristic of their typical representatives, the true Chats, and which, combined with their non-sylvan habits, tend to form a bond of unity, in spite of perplexing external differences, such as a smooth and a scaled tarsus, or a bare and a bristled gape. Many of them possess Muscipine affinities, and not a few Turdine; and it therefore appears to me that the family forms a well-marked connecting-link between the Flycatchers and the true Thrushes.

The *Saxicolinæ* are placed by Jerdon among the Sylviidæ; but I shall reserve for this family Warblers which possess certain well-marked characters of structure and economy, which have been lately pointed out by Mr. Seebohm.

† The North-Indian race *P. caprata* is said by Layard to have been procured at Ambegamoa, a hill-district; it is, however, a resident species in northern parts, and does not migrate southwards, so that, probably, specimens of the present species were mistaken for it.

Above and beneath coal-black, slightly brownish on the lower part of the breast; tips of the rump-feathers, and all but the terminal portions of the tail-coverts, the median and innermost feathers of the greater wing-coverts, together with the centre of the abdomen and the under tail-coverts, white. Not unfrequently one or two white feathers about the nape exist, and the amount of this colour on the rump and lower parts varies somewhat.

Female. Length 5·6 to 5·9 inches; wing 2·9 to 3·05; bill, legs, and feet not so black as in the male.

Above, with the throat and neck dusky brown, the feathers edged brownish fulvous; wing-coverts with broad margins of the same; rump and upper tail-coverts pale rufous, the under coverts slightly lighter, and the lower breast and abdomen brownish fulvous, slightly albescent about the centre of the abdominal region.

Young. The nestling male is blackish brown above, with mesial fulvous spots to the clothing-feathers and broad margins to the wing-coverts and quills; throat and fore neck fulvous, with black edgings, and the lower breast and abdomen pale fulvescent; rump, upper and under tail-coverts faded rufous.

When the black plumage is assumed it is edged with brown; the quills are blackish brown, and the white of the abdomen extends up to the lower breast; the white rump is also tinged with rufous-buff.

Obs. This singular form, in the matter of its spotted immature plumage and the bristles which arm the gape, makes a connecting-link between the Flycatchers and the Chats. Mr. Sharpe places it, along with the rest of the "Chats," among his Muscicapidæ, which comprise, in his 4th volume of the 'Catalogue of Birds,' an immense number of species having strong rictal bristles and exceedingly diverse habits. In this species the rictal bristles do not project beyond the nasal membrane; and I therefore deem it more expedient, in a local work like this, to keep it in its original position, reserving as Flycatchers only those species which, by reason of their habits, are entitled to the name. As an inhabitant of the hills of Ceylon and South India, and of constantly larger size than its widely-spread North-Indian, Malayan, and Philippine representative, *P. caprata*, it appears to be worthy of being considered a good subspecies or local race of the latter; were it a smaller bird than *P. caprata*, thus following the rule observable in nearly all species inhabiting both Ceylon and the mainland, the question of size would not entitle it to subspecific rank; but in its case this rule is exactly reversed, and we find it an inhabitant only of elevated regions, with larger proportions than are anywhere displayed by its northern *lowland* representative.

I have examined a large series of *P. caprata* in the British Museum with a view of ascertaining whether it ever attained to the size of the Ceylonese and Nilghiri race, and I find that males from Nepal, Behar, N.W. Himalayas, Saugor, Burmah, Macassar, Timor, Philippines, E. Java, Celebes, and Lombock vary in the wing from 2·6 to 2·9 inches, and females from 2·4 to 2·7; throughout the whole series examined the smallness of the bills was particularly noticeable, the average length, from tip to gape, being 0·62, and in only one specimen did it reach 0·7. The black of the upper surface and breast is more glossy and intense than in *P. bicolor*, and there is generally, more especially in Malayan specimens, more white on the rump.

Mr. Hume remarks that examples of *P. bicolor* from the Western Ghâts, the Nilghiris, Palanis, and other Southern-Indian ranges are absolutely identical with others from the hilly portions of Ceylon. He considers that Sykes's name was given to a Mahabaleshwar (Western Ghâts) specimen, in which case it would apply to our bird, which was subsequently described from Ceylon by Blyth under Kelaart's MS. name *atrata*. It is highly probable that Sykes's bird belonged to the larger race, as his measurements (P. Z. S. 1832, p. 92) are "longitudo corporis 5·8 unc., caudæ 2·4;" and these correspond with those of our race. Mr. Hume says that the Nilghiri birds "average in length 5·5 to 5·7; wing 3; tail from vent 2·0 to 2·2." I have examined several in the national collection, and though they equal Ceylonese examples in the wing, they are not so large in the bill.

Distribution.—The Hill-Chat is only an inhabitant of the upper mountains, and even there its limit is markedly defined. Commencing with the Horton Plains, to the lonely solitudes of which its sprightly little form lends a charm, it radiates over the Nuwara-Elliya plateau, being very numerous at the sanatorium itself, and extends through Kandapolla down to the Elephant Plains and the upper parts of Udu Pusselawa, where its numbers at once decrease, its occurrence even in Matnrata being not at all frequent. On the Uva side it ranges through the patna-basin to Haputale, on the southern slopes of which, as well as on those of the adjacent high ridges above Haldamulla and Bilhuloya, it is found as low as 3500 feet. Beyond Badulla it is rare; and in the upper parts of the Knuckles I am not aware that it is located at all.

In Dimbulla and Dickoya it is almost replaced by the Black Robin (*Thamnobiu fulicata*). I did not observe it at all in the former region, and I understand that it is not very common in either.

In the south of India it is found commonly on the Nilghiris and the adjacent high ranges. Dr. Fairbank procured it at Kodoikanal, at the top of the Palanis. From the Nilghiris northwards it extends along the Western Ghâts to their termination, I conclude, as it appears to be found at Mahabaleshwar, which is at an elevation of 4700 feet above the sea.

Habits.—The “Nuwara-Elliya Robin” frequents the “plains” or open downs of the main range, gardens round the sanatorium, patnas in Uva, and bare or rocky localities in the districts above mentioned. It is usually found in pairs, and is a sprightly bird in its actions, with all the habits, flight, and note of a true Chat. It is constantly flitting from bush to bush or rock to rock, or perching on stakes, fences, and such like; and while thus seated, raises and depresses its tail and darts out its wings in precisely the same manner as the Stonechat, and when so doing utters a quick Chat-like note. It is far from shy, flying only from bush to bush when pursued. In the early morning it is abroad almost before any other bird; and the male, perched on the top of a low bush, sends forth a sweet little warble, which, sounding out from the thick mists which at daybreak often envelop these lonely upland plains, falls on the ear of the traveller with an effect, perhaps, more pleasing than that produced by any other bird-sound which he hears in such elevated regions. In the evenings, shortly before sunset, these Chats display much restless activity, perching on elevated stones and rocks, and darting from one to another with much chirping and jerking of the tail and wings; and I have even noticed them sitting on the telegraph-wires between “Wilson’s Bungalow” and Nuwara Elliya. Their food consists of insects and larvæ of various kinds, which they take chiefly on the ground, flying down suddenly at them from their perch, and after devouring them realighting on adjacent bushes. The small rhododendrons growing about Nuwara Elliya and on all the surrounding plains form a favourite perch for this bird.

Nidification.—The breeding-season of this species is during April, May, and June. I have not found the nest myself; but it is said to be placed in holes of banks or old walls, and mention is made, in ‘Nests and Eggs,’ of a pair that built in an old up-turned basket. The structure is described by Mr. Hume as “a large loose saucer-shaped pad, composed of grass and vegetable fibre;” this is mixed with “dead leaves, a little wool, or a piece or two of rag;” it appears to have little or no lining, and sometimes the egg-cavity is very slight. The number of eggs varies from three to five. In shape they are broad ovals, slightly pointed towards the small end; the ground-colour is delicate bluish green, thickly freckled, speckled, and streaked with brownish red; these markings sometimes form an ill-defined mottled cap at the large end, and a faint purple mottling often underlies the cap or zone. Dimensions from 0·72 to 0·82 by 0·53 to 0·63 inch.

The young leave the nest almost before they can fly; and I have found them hiding in the long grass on the Elephant Plains.

Genus COPSYCHUS.

Bill rather long, somewhat straight; culmen decurved from the middle, tip notched and well bent. Nostrils exposed, basal, oval, the membrane bordered by the nasal tufts; a few bristles at the edge of the lores. Wings with the 1st quill rather short, and the 2nd considerably shorter than the 3rd; the 4th and 5th the longest. Tail rather long, graduated and round. Tarsus smooth, longer than the middle toe and claw.

COPSYCHUS SAULARIS.

(THE MAGPIE ROBIN.)

Gracula saularis, Linn. Syst. Nat. i. p. 165 (1766).

Copsychus saularis, Blyth, Cat. B. Mus. A. S. B. p. 166 (1849); Kelaart, Prodromus, Cat. p. 120 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 263; Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 275 (1854); Jerdon, B. of Ind. ii. p. 114 (1863); Blyth, Ibis, 1867, p. 11; Swinhoe, P. Z. S. 1871, p. 359; Holdsw. P. Z. S. 1872, p. 453; Walden, Ibis, 1873, p. 307; Hume, Nests and Eggs, ii. p. 303 (1874); id. Str. Feath. 1874, p. 230; Ball, *t. c.* p. 412; Hume, *ibid.* 1875, p. 133; Hume & Armstrong, *ibid.* 1876, p. 327; Hume, *t. c.* p. 458; Oates, *ibid.* 1877, p. 157; Butler, *t. c.* p. 322; Fairbank, *t. c.* p. 406.

Turdus saularis, Sykes, P. Z. S. 1832, p. 87.

Copsychus ceylonensis, Selater, P. Z. S. 1861, p. 186; Leggè, J. A. S. (Ceylon Branch) p. 44 (1870-71).

The Dial-bird, Latham; *Dyal-bird* in India; *Dayal* in Bengal; *Dayyur*, Hind. (Jerdon); *Thabeitgyee*, in Arracan; *Pedda nalanchi*, Telugu; *Sa-ka*, Siam.

Pollichcha, Sinhalese; *Pega*, Portuguese in Ceylon; *Karavi-kuruvi*, lit. "Charcoal-bird," Tamuls in Ceylon, also *Manathee* in Jaffna district (Layard).

Adult male. Length 8.0 to 8.5 inches; wing 4.0 to 4.1; tail 3.5; tarsus 1.15 to 1.2; mid toe and claw 1.0; bill to gape 1.15.

Iris dark brown; eyelid neutral brown; bill black; legs and feet plumbeous brown or blackish leaden, claws black.

Head, neck, chest, and upper surface with the scapulars glossy blue-black; quills and tail black; secondary wing-coverts, outer webs of tertials, under surface from the chest, under wing-coverts, three outer tail-feathers entirely and the next pair, except on the inner margin, pure white; thighs white, black posteriorly. The white wing-coverts and outer webs of the tertials form a broad longitudinal band on the wing when closed.

Female. Length 7.8 to 8.2 inches; wing 3.8. Bill not so deep a black, and paling slightly at the base; legs and feet neutral brown.

Above blue-black, but pervaded with a greyish hue about the hind neck, and blending on the sides of the neck into the slate-colour of the throat, fore neck, and chest; the white of the wings, underparts, and external tail-feathers as in the male; posterior part of thighs blackish.

Young male. Bill blackish brown; legs and feet dark plumbeous. Head and back brownish black, the feathers of the rump edged rufous-brown; wings blackish, the feathers edged with rufous; the margins of the outer primaries paler than the rest, least and median wing-coverts with terminal rufescent spots; throat greyish white, the cheek-feathers tipped with fulvous; the lower neck and chest ochraceous, the feathers with dark edges, and those at the lower part next the white breast dark slaty; the white feathers of the breast finely edged with slaty.

This is a description of a single example; but the young vary somewhat in the extent and depth of the fulvous markings; *females* are slaty on the hind neck and back, and they have the chest paler.

Obs. The females of this species in Ceylon have, as a rule, the back of a darker shade than those from North India; hence the separation by Dr. Selater of the Ceylonese from the continental race. Examples from South India, however, correspond in this respect with ours; and I have examined a Kattiawar example quite as pale as any Ceylonese one. The pale back is a character which increases as this species ranges northwards, where it exists also in the male bird. The white of the outer tail-feathers varies with age. In very old birds from Ceylon there is, as far as I have examined them, always a certain amount of black at the inner edge of the fourth feather from the side, but it varies sometimes in the same individual as regards the two sides of the tail; for instance, a specimen before me has this feather on one side with a black inner margin near the base, on the other with a broad

black margin all along and the outer edge as well black. In specimens not fully aged there is a good deal of black on this feather, though not so much apparently as in those from the eastern side of the Bay of Bengal, where this nigrescent character seems to increase. Mr. Hume remarks that Thayetmyo birds have more black "on the fourth feather than is usually seen in typical *saularis*." In the Andamans the black augments still more, although specimens there vary *inter se*. The same writer remarks that "the third pair always have a certain amount of dusky on the inner margin, and the fourth has so much black that the white is reduced to a triangle, whose base is at the tip." Lord Tweeddale speaks of specimens with the fourth pair almost entirely black. This character, therefore, is not one on which any dependence can be placed; and I mention this, as the contrary idea has obtained with some writers. The Andaman bird has, however, the flanks tinged with rufescent, and may, perhaps, be distinct, in which case it stands as *C. andamanensis*, Hume. The Malaccan, Javan, and Sumatran birds belong to a different species, *C. musicus*, Raffles, differing, as Lord Tweeddale shows (*Ibis*, 1876, p. 309), in having the under wing-coverts white, centred with black, and the three pairs of outer tail-feathers only white, the fourth pair being black. A third species is that from the Philippines (*C. mindanensis*), which has the under wing-coverts all black, and the tail the same.

As regards the relative size of Ceylonese and continental birds, I find that a Travancore male example measures 3.8, one from Behar 3.85, and two from Nepal 4.0 inches respectively in the wing; the three outer tail-feathers in all are wholly white, and the fourth has a black inner edge as in insular specimens.

Distribution.—The Magpie Robin is universally distributed throughout the whole island up to an altitude of 5500 feet; there is no spot in the low country, save the solitudes of the damp southern and western forests, where it may not from time to time be observed; for it is as much at home in the unfrequented groves of the Park country, or along the lonely tracks through the eastern jungles, as it is in the gardens of Colombo. I found it scarcer in the scrubs of the south-east than in any other part of the low country; for, though it is very common between Batticaloa and Madulsima, and also in barren country from that part to Trineomalie, it does not seem to accommodate itself to the similar climate and vegetation of the Kattregama plains. In Dumbura and in other coffee-districts of medium altitude on the Kandy side it is a common bird, and throughout Uva, including the Elephant Plains and upper parts of Udu Pusselawa, it is not unfrequent; but it does not, I believe, range so high on the western side of the Nuwara-Elliya plateau. It is likewise a scarce bird in the higher parts of Morowak Korale, which district has a colder and damper climate than the same altitude in the Kandy country. It is very common in the Jaffna peninsula.

The Dayal is spread throughout India, becoming scarcer towards the north-west, but not diminishing in numbers in the north-east sub-Himalayan region, Cachar, Burmah, and Tenasserim. In the Andamans it is likewise common. Mr. Davison remarks that it is abundant all about Port Blair. Eastward of the kingdom of Burmah it extends into Siam and China. Of its range in the latter country Swinhoe says, "Southern China, westwards to Szechuen, and in Hainan." Returning to India to take a more complete view of its localization, we find it to be very common in the lowlands of the Madras Presidency, occurring, of course, in the intermediate island of Ramisserum. In the Palanis it is found from the base up to about 5000 feet, a similar condition to that in Ceylon; but it is not noticed by Mr. Bourdillon in the more western hills of Travancore; here, however, it has most likely been overlooked. In the Deccan it is said to be rare (Fairbank, *Str. Feath.* 1876, p. 259), but common along the hills. It occurs throughout Chota Nagpur, and is common northwards from that to the base of the Himalayas. At Murree it breeds, says Capt. Marshall; and between Mussoori and Gangaotri it is seen at moderate elevations (*Brooks*). Further west, Mr. Hume remarks that the climate is too arid for it in the regions bordering Sindh; it is not common about Mount Aboo and on the adjacent plains, and the same is true of the Sambhur district; it is, however, found in Kattiawar; and Captain Butler has noticed it near Kurrahee in Sindh. From all this district, however, it departs, according to the latter writer, in April, some few pairs, perhaps, remaining to breed.

Habits.—This handsome showy bird is a universal favourite in Ceylon, frequenting alike the gardens and compounds of the poor, and the grounds and lawns of the rich, in both of which its attractive black and white plumage and its lively interesting habits combine to render it a pleasing ornament to the verdant face of tropical nature. It does not, however, restrict itself to the society of man, for it is found in all open cultivated lands, as well as sparsely-timbered forest, in the scrubby wastes of the northern and eastern parts, and the grassy wilds of the "Park" country. Its chief attraction lies in its lively actions, and the great amount of

animation displayed by the males; these consort together when not breeding, and meet continually towards evening in little troops, which perform a sort of tournament on the grassy swards; this consists in a series of prodigious hops towards and away from each other, accompanied by a jerking completely over the back of the tail, and a corresponding spasmodic down-strutting of the wings, which movements are enlivened with loud, cheerful whistles; at a given signal the meeting suddenly disperses, and darting off in opposite directions, all will alight on adjacent branches or roofs, except, perhaps, one, who appears, by common consent, to be left master of the field. These displays are said to be for the entertainment of some coveted female. I have at times observed one looking on, but just as often not; and I believe the habit to be merely an inherent one in all males. During the breeding-season, the cocks are very pugnacious, furiously assaulting any rival that may approach their nests.

The Dayal is very fond of locality, taking up its abode in particular spots, and there remaining throughout life, breeding and rearing its young. Its song in Ceylon is considered, and justly so, one of the finest of any bird in the island; its notes are most varied and very sweet, and are all the more attractive from the late and early hours which this pretty songster keeps. Its clear voice is heard the first thing in the morning and the last at night, sometimes from the green lawn in front of the bungalow verandah, and as often from the top of a *Casuarina* or cotton-tree overshadowing the roof; its powers of imitation are considerable, tempting it to mock the voice of fowls and other birds in the vicinity of its domicile. In the breeding-season so continued is its song that it will mount to the top of a tree and warble forth its love-notes in a pour of rain. Layard relates the following anecdote, which serves to illustrate its elocutionary powers:—"On the top of a towering cotton-tree, opposite my last residence in Colombo, a Magpie Robin daily for some weeks charmed me with his song, whilst his mate sat brooding her eggs or callow nestlings in the roof of a native hut beneath him. One morning, after the young had left their cradle and betaken themselves to the neighbouring compounds, I was attracted by cries of distress from various birds and squirrels, and above all I heard the seemingly plaintive mewling of a cat. I had no *living* specimen of the last in my museum, so wondering what could be the matter, went into the garden to see. I found the mewling proceeded from my friends the Robins, who were furiously attacking something in a bush, whilst the birds and squirrels screamed in concert. There I found one of the young robins caught, as I thought, in the tendrils of a creeper. I put out my hand to release it, when, to my surprise, I saw the glittering eyes of the green whip-snake (*Trimesurus viridis*), in whose fangs the bird was struggling. I seized the reptile by the neck and rescued the bird, but too late; it lay panting in my hand for a few moments, then fluttered and died. On skinning it I found no wound, except on the outer joint of the wing by which it had been seized, and am confident that fear alone deprived it of life."

In India its pugnacious disposition assists the bird-catchers in capturing it. Hodgson, in writing on this subject, says that the professional bird-keeper, availing himself of the propensity the male birds have of calling each other in the breeding-season, "takes out his tame male on his fist, and proceeds to the nearest grove or garden; the bird at his bidding presently challenges, and a desperate contest ensues between the two, during which the fowler readily secures the wild bird with the tame one's assistance; for the latter will deliberately aid his owner's purpose, seizing the wild bird at the critical moment with both claws and bill, and retaining it until his master comes up, in case it has not been so exhausted by the previous contest as to be disabled from flying away at the man's approach. Fighting the tame birds is a favourite amusement of the rich; nor can any race of game-cocks contend with more energy and resolution than do these birds."

The diet of this Robin consists of insects of all sorts; but when tame it will come into verandahs of bungalows and pick up crumbs or any thing that may be thrown out to it.

Nidification.—In the west and south of Ceylon this Robin breeds between the months of February and July, having apparently more than one brood in the season. In the north it nests as early as November, and continues breeding throughout the north-east monsoon. In towns and about houses the nest is placed in holes in walls, under roofs, in decaying cocoanut- or jack-trees, and in the jungle in stumps and hollow trees, &c. The nest is usually an ample, shallow, loosely made cup of grass, dry roots, and fine twigs, measuring about 3 inches in diameter; sometimes, however, when placed in a niche in an old wall, it is a flat, pad-shaped structure, and is often lined with hair, pieces of rag, cotton, or other substance gathered about human habitations. A nest I found, built in the ordinary plaited cocoanut-leaf basket, used by the natives to protect their

ripening plaintains, was a shapeless structure of grass and dried weeds. The eggs are from two to four in number, and are broad short ovals in shape, of a pale bluish-green or very light greenish ground-colour, profusely speckled and blotched throughout, but most thickly at the large end, with bluish grey and two shades of umber-brown, with a few blackish blots and occasionally short streaks of deep sepia at the latter part. Some eggs are freckled uniformly all over with light brown, and others are very sparingly spotted. They measure from 0.91 to 0.96 inch in length, and from 0.65 to 0.75 in breadth. In Burmah, Mr. Oates writes, "This bird almost invariably selects a large hollow bamboo, many of which are generally to be found lying about the verandahs and cucumber-framings of the native houses, and places its nest about 2 feet inside the entrance."

Genus OITTQCINCLA.

Bill slenderer and more compressed than in *Copsychus*. Tail with the central feathers elongated and the laterals much graduated. Legs and feet somewhat slenderer than in *Copsychus*.

CITTOCINCLA MACRURA.

(THE LONG-TAILED ROBIN.)

Turdus macrourus, Gm. Syst. Nat. i. p. 820 (1788).

Kittacincla macroura, Gould, P. Z. S. 1836, p. 7; Blyth, Cat. B. Mus. A. S. B. p. 165 (1849); Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 279 (1854); Jerdon, B. of Ind. ii. p. 116 (1863); Holdsw. P. Z. S. 1872, p. 453; Legge, Ibis, 1874, p. 21.

Copsychus macrourus, Hodgson, Cat. B. Nepal, p. 67 (1844); Kelaart, Prodromus, Cat. p. 121 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 264.

Cercotrichas macrourus, Hume, Nests and Eggs, ii. p. 306 (1874); Ball, Str. Feath. 1874, p. 412; Hume, ibid. 1875, p. 134; Ball, *t. c.* p. 293; Oates, ibid. 1877, p. 157; Hume & Davison, B. of Tenass., Str. Feath. 1878, p. 333.

Cittocincla macrura, Legge, Ibis, 1875, p. 396.

The Long-tailed Thrush, Latham; *The Indian Nightingale*, Jerdon; *The Sháma* (from its native name), Europeans generally in India and Ceylon; *Burmese Nightingale*, Davison; *Sháma*, in Bengal; *Abbeka*, Hind.; *Murabuta*, Malay; *Changehooi*, Sumatra.

Wal-pollichcha, Sinhalese.

Adult male. Length 10·5 to 11·3 inches (the centre tail-feathers varying much); wing 3·7 to 3·85; tail 6·5 to 7·0, centre tail-feathers exceeding the next pair by 1·75 to 2·2; tarsus 1·0 to 1·1; mid toe and claw 0·85 to 0·9; bill to gape 0·95 to 1·0.

The measurements of the tail-feathers are those of perfectly-plumaged birds.

Female. Wing 3·5 inches; centre tail-feathers shorter than in the male.

Iris brown; bill black; legs and feet fleshy, with a brownish wash on the toes; claws blackish.

Head, neck, back, wing-coverts, throat, and chest glossy blue-black; tail coal-black; wings brownish black; rump, upper tail-coverts, and terminal $1\frac{1}{2}$ inch of the four outer tail-feathers on each side white; beneath, from the chest, including under tail-coverts, light ferruginous; under wing-coverts paler than the breast; thighs white above, changing to black at the knee.

In some examples the 5th tail-feather from the exterior has some white at the tip.

Young. Iris brown; bill blackish, pale at the base beneath; legs and feet fleshy. The nestling has the head, back, sides of neck, and wing-coverts dark brown, with fulvous centres to the feathers of the body, and rounded terminal spots of the same on the wing-coverts; rump white, crossed by a brownish band; upper tail-coverts mixed black and fulvous; quills edged yellowish fulvous; throat and upper breast fulvous tawny, the upper parts with blackish-brown edgings.

Obs. As will be observed, the tail-feathers in Ceylonese examples of this species vary considerably in length, old or fully matured birds having them, no doubt, the longest. This same variation occurs in Indian specimens. Mr. Oates gives the dimensions of males from Thayetmyo as—length 10·35 to 10·8, wing 3·7, tail from vent 5·9 to 6·2; and of females—length 9·25, wing 3·65, tail from vent 5·0. These measurements are somewhat smaller than those of our birds. In Tenasserim its measurements, as recorded by Mr. Hume, are:—Males 11·0 to 11·75, tail from vent 6·5 to 7·2, wing 3·65 to 3·9; females—length 8·12 to 8·5, tail from vent 4·0 to 4·35, wing 3·25 to 3·4. I find a Nepal specimen with the breast very deep chestnut (wing 3·7, tail 6·4); a Travancore example is similar to it, and a Tenasserim and Malaccan (wing 3·5, tail 6·8, and wing 3·75, tail 6·5, respectively) very pale in that part. Two skins from Travancore are very long in the tail, measuring 7·3 and 7·5, and have a good deal of black at the base of the three lateral feathers.

C. suavis, Sclater, from Borneo is a very closely allied Malaccan race of this species, differing in the coloration of the outer tail-feathers, which want the black bases. In one or two specimens, however, which I have examined there is a

trace of the black, which demonstrates that this is merely a local race, and somewhat uncertain in its distinctive character.

Distribution.—In the west of the island the Sháma is very common from the Maha and Deduru oyas northward, and throughout the whole of the low country to the east and south-east of the hill-zone. Its charming notes are everywhere to be heard in the forests round Trincomalee, and it is nowhere more plentiful than on the Fort-Ostenburgh hills. In the jungles of the south-west it is much less common; but is, notwithstanding, found close to Galle; the same may be said of the Western Province generally, in which part it is chiefly located in the ranges stretching from the Three and Four Korales northward to Kurunegala; but here it frequents the densest underwood in the forests and impenetrable bamboo-jungle, and thus almost entirely escapes notice. From the low country it ranges through the sub-alpine forests to an altitude of about 3500 feet, being tolerably common in Dumbura, Hewahette, Maturata, and Uva generally, affecting chiefly the patna-woods which line the many streams and rivulets flowing into the tributaries of the Mahawelliganga. In the latter district and in Haputale it is found up to 4000 feet elevation. Layard first met with it in Lady Horton's walk at Kandy.

Of the distribution of the "Nightingale" in India, Jerdon writes:—"It is common in all Malabar, especially in the upland districts, as in the Wynad, more rare in the Eastern Gháts, and not unfrequent in all the jungles of Central India to Midnapore and Cuttock. It also frequents all the sub-Himalayan forests, and extends to the hill-tracts of Assam, Sylhet, Burmah, and Malacca." Mr. Hume more clearly defines its northern range when he says it is a permanent resident of the warm and well-watered jungles of the "sub-Himalayan region as far west as the Ganges, Southern and Eastern Bengal, Assam, Cachar, and Burmah." In all these regions it is evidently local, occupying those districts only which are well covered with jungle. Referring to the observations of late writers in 'Stray Feathers,' we find that in the Palanis it is recorded from the eastern base of the range, and from the Travancore hills is not mentioned at all by Mr. Bourdillon; in Khandala it is said to inhabit the thick woods along the hills. From the jungles of Central India it extends through Chota Nagpur to Eastern Bengal and the base of the Himalayas; but Mr. Ball observes that it is extremely rare in the first-named locality, and occurs sparingly in the Rajmehal hills. It appears to be resident in this part of India, for Capt. Beavan records that it breeds in Manbhum. To the east of the Bay of Bengal it is more common than in the district last under consideration; in Cachar it appears, however, to be only a winter visitor. In Pegu it is, says Mr. Oates, very common on the hills, but in the more southern province of Tenasserim, though found throughout its wooded portions, does not ascend the hills; beyond this limit it extends through Malacca to the islands of Java and Sumatra. Its range, however, is continued equally far towards the east, for it is an inhabitant of China, Swinhoe (P. Z. S. 1871, p. 359) recording it from Hainan.

Habits.—This showy bird is perhaps the best songster in Ceylon, its fine notes acquiring for it, with those who have made its acquaintance in the forests, a reputation equal to that which it has obtained in India. It frequents thick jungle, underwood in forest, and bamboo-scrub in portions of the island where this tree grows; it passes its time near the ground, seldom mounting to any height, but perching on some low branch or stick, and there warbling forth its song. There is no doubt that in such localities as these the notes of the Sháma, swelling forth from the impenetrable thickets, while the bird is hidden from view, naturally tend to inspire the listener with a stronger idea of their perfection than they perhaps really deserve. Far be it from me to wish to detract from its merits as a songster; for though the power of its notes may perhaps be exaggerated, nevertheless their absence from the wilds of Ceylon would be much missed, by the naturalist at any rate. Among those who have delected on its melodious voice, none, perhaps, have paid the Sháma a greater tribute of praise than Tieckell. He writes, in the 'Journal of the Asiatic Society':—"In the mornings and evenings the notes are heard through the valleys, ceasing with twilight. The strains sweep with a gush of sweetness through the enchanting solitudes which this bird makes its favourite resort, at times when other birds are silent in rest; and in unison with the surrounding scenery, in which nature seems to have lavished every fantastic invention of beauty, the effect produced on the mind and ear can alone be appreciated by those who have witnessed the magnificence of a tropical forest." Besides the notes which make up its song, described again by Jerdon as "a most gushing melody, of great power," this bird has others of a most varied character, among them being

one resembling a low *churr*, followed by a spitting sound, generally uttered when it is disturbed in its sylvan haunts. It is very shy, flying away at the least sound of a cracking twig; but its retreat is but short, and on realighting it commences to sing immediately. It has a habit of uttering a singular clicking sound, jerking up its tail at the same time; and this is usually performed when it is disturbed or hears any sound in the forest to which it is not accustomed. Mr. Davison speaks of the male performing a similar sound, as he supposes, with its wings, while flying across any open space at sunset; it may be that this is similar to that which I refer to.

In India it is, of course, highly prized as a songster; but in Ceylon it is scarcely ever met with as a caged bird, as the natives are very indifferent bird-nesters, and seldom or never find its young. Concerning its habits when in confinement, Blyth writes, "It has a considerable propensity to imitation; and one in my own possession learned to give the crow of a cock to perfection, also the notes of the Koel, the chatter of a troop of Saat Bhyes (*Malacocercus canorus*), &c. Many thousands of these elegant birds are kept in Calcutta; and the universal absurd practice is to darken their cages by wrapping them with several folds of cloth, enough to stifle the luckless captives in this climate, though it must be confessed that they sing most vigorously while thus circumstanced, but certainly not more so than mine, which were exposed to the light and air. It is a practice of the rich natives to employ servants to carry about their Shámas and other birds; and the number which are thus borne about the streets of Calcutta is astonishing; the poor birds are shut out from all light and air, like Mahomedan ladies enjoying (!) their evening drive; but they (the birds) nevertheless sing forth most lustily and melodiously." I have found the diet of those shot in Ceylon to be entirely insectivorous, consisting of small beetles, ants, flies, &c. It lives in pairs, the female usually keeping at some little distance from her companion; and, from what I have observed, it appears to attach itself to one particular spot, for in the northern parts of Ceylon it may often be found frequenting the scorched-up wood bordering newly-burnt clearings, as if it were loath to be driven from the haunt which the flames had devastated; it is possible, however, that it may find an abundance of food in these localities, uninviting as they may seem to human eyes. In his notes relative to the discovery of this bird in the woods near Kandy, Layard graphically describes the magnificent aspect presented by the beautiful vale of Dumbara, as at early dawn the dense fog which had mantled it during the night was lifted by the gentle breeze, suddenly unfolding all the beauties of the rocky Mahawelliganga and its wooded banks.

Nidification.—I have never received any information concerning this bird's nesting in Ceylon; in the north the young are about in August and September, proving that it lays in June and July. Mr. Davison found its nest in Tenasserim. One situated on the road to Meeta Myo, at 4000 feet above the sea, was obtained in April; it was built in a hole in an old stump growing on the side of a mountain-torrent, and was made of dry leaves and twigs, the egg-cavity being lined with finer twigs. Another was situated in a deep hole in a stump, the cavity having been filled up by the bird for more than 12 inches; the materials were the same. Both these nests had contained three eggs. Mr. Hume describes them as "being moderately broad ovals, a good deal compressed towards the small end." They have a slight gloss, and are "dull greenish stone-colour, everywhere densely freckled with a rich almost raw-sienna brown, in amongst which dull purplish markings are, when the egg is closely looked into, found to be thickly intermingled." They vary from 0·87 to 0·9 inch in length, and from 0·6 to 0·62 in breadth.

Genus THAMNOBIA.

Bill moderate, slender, curved throughout, wide at the base, compressed towards the tip, which is not notched. Nostrils oval, apert; rictal bristles wanting. Wings rounded; the 1st quill short, the 2nd equal to the 8th, and the 4th and 5th the longest. Tail broad and rounded. Tarsus long, exceeding the middle toe and claw, and covered in front by well-defined but smooth scutæ; toes strong, with the claws moderately straight.

THAMNOBIA FULICATA.

(THE BLACK ROBIN.)

Motacilla fulicata, Linn. Syst. Nat. i. p. 336 (1766).

Sylvia fulicata, Lath. Hist. vii. pp. 111 (♂), 112 (♀) (1821).

Ixos fulicatus, Sykes, P. Z. S. 1832, p. 89.

Thamnobia fulicata, Jerdon, Cat. B. S. India, Madr. Journ. 1839, x. p. 264; Blyth, Cat. B. Mus. A. S. B. p. 165 (1849); Kelaart, Prodromus, Cat. p. 121 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 256; Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 281 (1854); Jerdon, B. of Ind. ii. p. 121 (1863); Holdsw. P. Z. S. 1872, p. 454; Hume, Nests and Eggs, ii. p. 307 (1874); Legge, Ibis, 1874, p. 21, et 1875, p. 396; Davidson & Wender, Str. Feath. 1877, p. 83.

Rusty-vented Thrush and *Sooty Warbler*, Latham; *Sooty Warbler*, Kelaart; *Indian Robin*, Jerdon.

Kalchuri, Hind.; *Nalanchi*, Telugu; *Wannati-kuravi*, Tamul, lit. "Washerman's bird" (Jerdon).

Kalu-pollichcha, Sinhalese; *Kari-kuruvi*, Tamil, lit. "Blackbird."

Adult male. Length 6.2 to 6.4 inches; wing 3.0; tail 2.5; tarsus 1.0; mid toe and claw 0.8; bill to gape 0.7.

Iris brown; bill, legs, and feet black.

Entire body, except the abdomen, glossy blue-black, this, with the under tail-coverts, is fine chestnut; wings and tail coal-black; a large patch on the wing, formed by the lesser and median coverts, white.

Female. Length 6.2 inches; wing 2.8.

Bill and legs not so black as those of the male.

Above blackish brown, with a brownish hue caused by the palish margins of the feathers; quills slightly paler than back; secondary coverts edged with greyish; upper tail-coverts and tail black; beneath slaty black, under tail-coverts and tips of the abdominal feathers dark chestnut.

Young. Blackish brown; upper tail-coverts and tail black; beneath dark brown, with a dusky fulvous stripe down the throat, the feathers of the head and fore neck faintly tipped with rufescent greyish; ear-coverts striped with fulvous; under tail-coverts rufous.

Obs. This singular form is a difficult bird to deal with; its peculiar shaped bill and wings, its smooth gape and scutellated tarsus show it to possess Timaline affinities; and yet it has not in any way the habits of a Babbler, but is thoroughly Saxicoline in its economy.

Ceylonese specimens correspond in size with those from South India: males in the British Museum and in my own collection measure from 2.8 to 2.95 inches in the wing; a female is somewhat browner above, with a more sandy

hue on the head, throat, and chest than in most insular specimens of this sex. It is replaced in North India by the "Brown-backed Robin;" and between the two forms there are in Sindh, Guzerat, and Kattiawar, according to Mr. Hume, intermediate birds; he writes, "the backs of the males are much too dark for the one and not dark enough for the other." He further remarks that between the two types every possible intermediate link is to be found, and that it appears advisable to include both as local races of one species. Typical specimens of both forms, however, are very distinct from one another; and each appears to me to be a good *race* in itself. notwithstanding that the two extremes have a tendency, in particular districts, to unite. The females of *T. cambaiensis* are very distinct; they have the under surface uniform brownish grey, presenting the opposite character to that of the male; specimens of this sex from Nepal measure 2·6 to 2·7 inches in the wing.

Distribution.—The Black Robin is very numerous in the dry parts of Ceylon, and affects, by choice, the maritime districts of them, viz. from Chilaw northward to Jaffna and the adjacent islands, and thence down the whole east coast round to Tangalla on the south. In the Western Province and south-western districts it is less common, but is nevertheless in these parts a familiar bird, as it locates itself, to a great extent, in the vicinity of human habitations. As regards the latter part, I noted, in the 'Ibis,' 1874, that it was more numerous in the Galle district than "in the Western Province, appearing as if it increased gradually towards the south-east coast, where it is extremely abundant;" this seems, on further experience, to be the case. It inhabits the southern ranges and the lower hills of the Kandyan Province, and is found in coffee-districts of considerable altitude on the north and west of the main range, being not uncommon as high up as Maturata on one side and Lindula on the other. In the former neighbourhood its limit is abruptly defined by the high spur which culminates in the mountain of Mahacoudagalla, to the south of which it does not seem to pass, being immediately replaced on the Elephant Plains by the Hill Stonechat, *Pratincola bicolor*. It again reappears in Uva, extending from Badulla eastwards to Madulsima, and thence into the low country, in the interior of which, as well as to the south of Haputale, it is common. On the Dimbulla side I have seen it as high up as the Agra patnas, and about Lindula it is not uncommon.

In India this species is found, according to Jerdon, as far north as Taptee on the west and the Godavari on the east, and is tolerably common in the south. It does not appear to frequent regions of any elevation, as it is not recorded from Travancore, and in the Palanis only from the eastern base. Dr. Fairbank says that it is found in the villages of the Deccan, as well as on the sides of all the hills. Messrs. Davidson and Wender likewise say that it is common in this region. To the north of this region it is replaced immediately by the species already noticed in the "observation." It inhabits the island of Ramisserum and the adjacent coast. I have lately acquired a specimen of *T. cambaiensis* from Mr. Whitely's collection, labelled Malabar; but I am of opinion that there has been a mistake in the locality.

Habits.—This familiar little bird is a general household favourite in Ceylon, frequenting the vicinity of human dwellings, perching on walls and roofs, and resorting even to the verandahs of bungalows. It seems to covet the companionship of man, taking up its abode in the very towns, and, as Layard remarks, frequents alike the Governor's palace and the native hut. I remember that a pair established themselves in an unused portable engine at the Colombo Breakwater Works, and dwelt fearlessly among the busy throng of workmen; in the evening, when the labours of the day were ended, they would roam about among the huge "beeton" blocks and warble out their cheerful little notes, their tiny black forms contrasting strangely with the enormous white masses inanimately waiting their turn to be lowered into the deep. In the northern and eastern parts, where it is abundant, and likewise in many portions of the interior, it is by no means restricted, as Layard supposed, to the neighbourhood of houses, but is found in all open rocky places, in newly burnt clearings, and in cultivated chencas; and in the Central Province it affects stony patnas and bare hill-sides. It is particularly fond of the low jungle, interspersed with "wood-apple" and other trees, which is characteristic of the east coast; and I have often enjoyed its companionship when sitting in the verandahs of huts and outhouses in that part and resting after the labours of the morning's collecting; it would come into the verandah and perhaps fly on to the arm of the long lounging-chair, or take up its position on the railing at the other end of the building, and give out its animated little call-note to its shyer partner, who flitted from bush to bush in the adjacent compound. It is most animated in its movements, carrying its tail erect and jerking it up with a corresponding strutting down of its wings when giving out its pretty warble. It passes

much of its time on the ground, darting about after flies and insects, and moving hither and thither with a short jerky flight. It consorts in pairs; but the young brood remain a long time with their parents, thus forming after the breeding-season a little troop of three or four.

Jerdon writes as follows concerning this sprightly little bird :—" Its familiar habits well entitle it to the name of Indian Robin. It is usually found about villages, pagodas, old buildings, and mud walls, often perching on the roofs of houses and tops of walls, and feeding in verandahs, or occasionally even entering houses. It is, however, not confined to the vicinity of houses or villages, but is very common on rocky and stony hills, and in groves of palmyra or date-palms. It is generally seen singly or in pairs, and feeds on the ground, on which it hops with great agility, frequently pursuing and capturing several insects before it reseats itself on its perch either on a house or on a neighbouring tree or bush."

Nidification.—The "Black Robin" breeds during the months of March, April, May, and June in the Central, Western, and Southern Provinces, the majority of nests being built at the end of April. In the coffee-districts it often chooses the bank of one of the "zigzags," and builds in a niche in these exposed situations, heedless of the numbers of passers by. A hollow in the ground under the shelter of a rock or stone is another favourite spot; and not unfrequently the nest is constructed on the top of a low outhouse wall, or in the side or against the beam of a roof. It is loosely constructed, and varies in size according to the locality; those which are built in niches or holes are made so as to fill the cavity, and are constructed of dry roots and grass-stalks of various sizes, being lined with finer materials of the same sort. One which I found placed against the "wall plate" of the roof of an outhouse in the Southern Province had a foundation made of portions of a cooley's blanket, which the bird had literally made wool of, completely pulling it to pieces and placing it in layers beneath the other materials of the nest, which consisted of moss, hair, roots, and grass. Two is the normal number of eggs, but sometimes three are laid; the ground-colour is greenish white, and at the obtuse end they are spotted thickly with bluish and grey, mixed with several shades of brown, which sparsely extend over the whole surface; these markings are often confluent and form a zone or cap at the large end; but this feature is entirely wanting in other specimens. They vary in length from 0·82 to 0·87 inch, and in breadth from 0·6 to 0·62 inch. After preservation they fade to a white colour.

In the north Layard has found the nest in December. In India the principal months are March, April, and May. The same miscellaneous materials are sometimes found in Indian nests as in Ceylonese. Mr. Aitken mentions having found one in a thatched roof; but such an elevated position is unusual, and he rightly states that the bird does not build so high as the Magpie Robin.

Genus CYANECULA.

Bill straight, much compressed towards the tip, which is slightly notched. Nostrils exposed; rectal bristles few and small. Wings somewhat pointed; 1st quill slightly exceeding the primary-coverts; 3rd and 4th the longest; 2nd equal to the 6th. Tail shorter than the wings and even at the tip. Tarsus long and smooth. Toes rather short and weak.

CYANECULA SUECICA.

(THE RED-SPOTTED BLUETHROAT.)

Motacilla suecica, Linn. Syst. Nat. i. p. 336 (1766).

Cyanecula succica (L.), Brehm, Vög. Deutschl. p. 350 (1831); Blyth, Cat. B. Mus. A. S. B. p. 167 (1849); Layard & Kelaart, Cat. B. Prodromus, App. p. 57 (1853); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 267; Horsf. & Moore, Cat. B. Mus. E. I. Co. ii. p. 311 (1854); Jerdon, B. of Ind. ii. p. 152 (1863); Blyth, Ibis, 1867, p. 17; Holdsw. P. Z. S. 1872, p. 454; Shelley, B. of Egypt, p. 85 (1872); Dresser, B. of Europe, pt. 26 (1874); Seebohm & Harvie Brown, Ibis, 1876, p. 125; Scully, Str. Feath. 1876, p. 145.

Cyanecula caerulecula (Pall.), Hume, Str. Feath. 1873, p. 190.

The Bluethroat, *Blue-throated Warbler* of some; *The Blue-necked Warbler*, Lath.; *The Swedish Nightingale*, in Sweden. *Hussenipidda*, Hind.; *Gunpigera* and *Gurpedra*, Beng.; *Dumbak*, Sindh; *Chaghchi*, Turki (Scully).

Adult male. Length (from skin) 5·4 inches; wing 2·9 to 3·1; tail 2·5 to 2·6; tarsus 0·95 to 1·05; middle toe and claw 0·8; bill to gape 0·65.

"Iris dark brown; bill black, interior of mouth yellow; legs and feet black and brownish black; claws black" (Scully). Above, with the wings earth-brown, pervaded slightly with greyish on the hind neck, and inclining to ochraceous brown on the rump; primaries edged pale; the longer upper tail-coverts darker brown than the back; the central tail-feathers and the terminal third of the rest blackish brown; the remaining portion of them and the middle tail-coverts rufous.

A broad buff supercilium, extending from the nostril to the ear-coverts; lores blackish; ear-coverts tawny; chin, upper part of throat, its sides, and the lower part of the fore neck glistening lazuline blue, in the centre of which is a large rufous patch; beneath the blue of the fore neck is a black band, succeeded by another and a broader one of rufous; remainder of under surface dull white; under wing-coverts pale rufescent.

The depth of the rufous colour and the extent of the black and rufous pectoral bands depend on age. Specimens which show signs of immaturity in the presence of rufescent tippings to the wing-coverts have the throat-spot and the rufous pectoral band much paler than fully-matured birds.

Female. Wing 2·9 inches; tarsus 0·9.

Bill pale at the base; legs pale brown, feet blackish brown.

Above similar to the male, but with the forehead and crown darker, the centres of the feathers being blackish brown; a broad supercilium and almost the entire loreal space whitish; throat and fore neck white, like the lower parts; the sides of the fore neck and a zone connected with them across the chest blackish, on each side of which the feathers are often tinged with rufescent and mingled with a few blue ones.

In this species the females, probably those which are barren, occasionally assume the plumage of the male. Such an example, in course of change, obtained in Heligoland by my friend Mr. Seebohm, has a white throat-patch, with the lower part of it rufous, on each side of it is a black patch; there is a blue zone across the chest, which shades gradually into the blackish band.

Young (Yenesay, Siberia, August, in Mus. Seebohm). Head, back, wing-coverts, throat, and chest blackish brown; the feathers on the upper parts, sides of the throat, and chest with broad fulvous striæ; the chin and down the centre of the throat fulvous; wings blackish brown, the primaries and secondaries edged with rufescent; tail the same, upper tail-coverts dusky rufous; tail with the black terminal portions slightly deeper than in the adult, the rufous bases the same in colour; belly dusky whitish, the feathers tipped with blackish, which gradually increases up to the chest; under tail-coverts pale rufescent.

After the autumn moult the nestling acquires a certain amount of blue on the throat. A Heligoland example killed in May, which would be about ten or eleven months old, has a blue gorge, mingled with buff spottings, a small rufous spot on the throat, immediately succeeded by the black zone, the feathers of which are tipped with white; at the next moult the blue colour spreads, and the rufous, as already mentioned, deepens and becomes pure.

Obs. The White-spotted Bluethroat (*C. leucocyanea*), which is generally admitted now to be a distinct race, has, as its name implies, the spot of the throat satiny white. The present species, however, exhibits a tendency to assume the white throat in some localities, although in other parts, such as Scandinavia, it never does; while there are likewise certain regions (Holland and N. Germany) in the habitat of the other race where it is known always to possess the white throat. Captain Shelley, writing in his 'Birds of Egypt' of *C. suecica*, says they differ considerably in the colour of the throat-spot, "which may be met with in all stages from pure white to rufous." Dr. Altum relates an instance, in 'Naumannia' for 1855, of a young bird, which turned out to be a true *C. leucocyanea*, assuming a red throat-spot for a few days during the time that this was turning from greyish white to pure white; from which combined testimony we gather that each race occasionally assumes in the throat-spot the colour of the other, but that they put on their true dress in the breeding-season in the localities to which they resort to rear their young. Mr. Hume remarks that the white-spotted race is *rarely* found in India. Specimens so identified may have been perhaps *C. suecica*. A third race exists in Germany, Holland, and Spain, in which the throat is unspotted blue. It is rare, and is the *C. wolffi* of Brehm.

Distribution.—The interesting fact that at certain periods of their existence birds are possessed of the instinct of migration to a greater degree than at others, and consequently are induced at times to overstep the ordinary limits of their annual journeys, is demonstrated in more than one instance in the history of Ceylon ornithology.

The case of the present species is one of the most interesting which I have to deal with in this work. It takes its place in our lists as a *migratory* straggler on the evidence of Layard, who procured "a few specimens in the month of March at Ambegamoa;" one of these is still extant in the Poole collection, and is the only example I have ever seen from Ceylon. I am under the impression that a bird I met with in a thicket, while traversing some jungle on the slopes of the Dolookanda mountain in the Seven Korales, was this species; but I was unable to verify my identification, either by shooting it or sufficiently observing it as it darted into the underwood in the shade of the thick jungle. On some future occasion it will doubtless be procured again in Ceylon; for its visits are, perhaps, of more frequent occurrence than has been supposed.

It is a cool-weather visitant to India, spreading more or less throughout the country; but it does not appear to be often found in the extreme south, neither Dr. Fairbank nor Mr. Bourdillon having procured it. Jerdon remarks that it is found in "suitable localities," from which I gather that there are many districts in which it is not usually met with. It extends as far east as Burmah, having been procured by Wardlaw Ramsay on the Pegu plain, and to the Andamans it is a regular annual visitor. It leaves the country for the north in March and April, and arrives in Turkestan, according to Dr. Scully, at the end of March, and leaves again in September. Its migration, however, is continued much further north than Turkestan; for Mr. Seebohm procured it in the valley of the Yenesay, and found it breeding as far up as latitude $66\frac{1}{2}^{\circ}$ N. Dr. Finsch found it in July 1876 on the Chinese Altai and on the Irtisch, as also at Semipalatinsk; and Von Middendorff observed it breeding as far north as 70° N. It extends to the eastern parts of Siberia, and is found, according to Swinhoe, throughout China. From Western Asia and North-eastern Africa it migrates to Northern Russia and Scandinavia, breeding there in great numbers; and it occurs on passage in the spring in Heligoland. In Palestine it is, according to Canon Tristram, a winter visitant. Captain Shelley remarks that it is an extremely abundant species in the delta of the Nile, and that it is very generally distributed throughout Egypt. It does not arrive in Northern Russia until late in the spring, as Messrs. Seebohm and Harvie Brown did not observe the first migrants to the Lower-Petchora district until the 23rd May.

Habits.—This handsome Warbler, which is gifted with such fine notes that it is styled, in some countries, the Nightingale, frequents gardens and open country in India, and is, according to Jerdon, particularly partial to reeds and corn-fields. Its habits are in the highest degree interesting. I subjoin the following account of its vocal powers from Messrs. Seebohm and Harvie Brown's paper on the Birds of the Lower Petchora:—"Often were we puzzled by the mimicry of this fine songster. On one occasion, after listening for some time to the well-known musical cry of the Terek Sandpiper, blended with the songs of scores of other birds, on approaching we saw our little friend perched high in a willow-bush, with throat distended, bill rapidly vibrating, and uttering the *tirr-r-r-whai* with perfect distinctness. We have heard the Blue-throated Warbler also imitate, amongst other bird-voices, the trilling first notes of the Wood-Sandpiper, or the full rich song of the Redwing.

Sometimes he runs these together in such a way as to form a perfect medley of bird-music, defying one who is not watching to say whether or not the whole bird-population of that part of the forest are equally engaged in the concert at the same time." In this district it frequents underwood in the pine- and juniper-forests clothing the sides of the valleys and also the birch- and willow-thickets along the river-banks. Captain Shelley remarks that, "although it frequents reedy marshes and mustard-fields, or wherever the vegetation is luxuriant, it rarely alights upon the plants, but almost invariably keeps to the ground, where it runs with tail upraised, stopping every now and then to pick up an insect or to watch the intruder from the edge of its retreat." Its disinclination to perch, and normal terrestrial habit, which show its affinity to the rest of the Saxicolinæ, are likewise noted by Dr. Seully, who observed it in Yarkand, and who remarks that "it did not seem to perch, but moved about pretty rapidly on the ground, picking up insects, and every now and then spreading out its tail widely." The same writer says that its Turki name is given it on account of a sound which it is said to make, resembling the noise of the spinning-wheels used by the women of Yarkand. It feeds on insects, and while doing so, says Jerdon, sometimes jerks up its tail, but does not quiver it like the Redstarts.

Nidification.—In the neighbourhood of Yarkand, the Bluethroat breeds in May, the nest being, says Dr. Seully, placed usually in long grass. The eggs are described as "moderate ovals, compressed at one end, and with a very slight gloss; the ground-colour is pale greyish green, abundantly blotched and spotted with light greyish brown, the whole surface of the egg having these markings pretty widely distributed over it."

PASSERES.

Fam. TURDIDÆ.

Bill straight, compressed towards the tip, the culmen gently curved, and the tip more or less notched. Rictal bristles generally small. Wings with the 1st quill *markedly reduced*. Tail, shorter than the wings, of 12 feathers, except in one genus, in which the number varies from 12 to 14. Tarsus *smooth*, longer than the middle toe.

With a single annual moult.

Genus LARVIVORA.

Bill straight, compressed; culmen slanting from the base and curved at the tip only, which is obsoletely notched. Rictal bristles short and scanty. Nostrils exposed. Wing with the 1st quill much reduced, slightly exceeding the primary-coverts; the 4th longest, and the 2nd equal to the 6th. Tail short, about two thirds the length of the wing. Tarsus long and slender, smooth in front. Feet delicate; the middle toe much exceeding the lateral ones.

Of small size.

LARVIVORA BRUNNEA.

(THE INDIAN WOODCHAT.)

Larvivora brunnea, Hodgson, J. A. S. B. 1837, vi. p. 102 (female).

Larvivora cyana, Hodgson, t. c. p. 102 (male); Jerdon, B. of Ind. ii. p. 145 (1863); Holdsworth, P. Z. S. 1872, p. 454; Hume, Nests and Eggs, ii. p. 324 (1874).

Calliope cyana (Hodgs.), Blyth, Cat. B. Mus. A. S. B. p. 169 (1849); Layard & Kelaart, Prodromus, Cat. B. App. p. 57 (1853); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 266.

Phœnicura superciliaris, Jerdon, Cat. B. S. India, Madr. Journ. 1844, xiii. p. 170.

Larvivora superciliaris (Jerdon), Blyth, Ibis, 1867, p. 16; Brooks, Str. Feath. 1875, p. 240; Fairbank, ibid. 1876, p. 259.

White-browed Redstart; *The Blue Larvivora*, Hodgson; *The Blue Wood-Chat* (Jerdon). *Manzhil-pho*, Lepchas. *Robin* of Planters in Ceylon.

Adult male and female. Length 5·3 to 5·6 inches; wing 2·9 to 3·1; tail 1·9 to 2·1; tarsus 1·0 to 1·1; mid toe and claw 0·8; bill to gape 0·75.

Male. Iris brown; bill blackish brown above, under mandible brown, pale at base and at gape; legs and feet delicate fleshy, claws concolorous.

Above, with the wing-coverts and tail dull blue; lores, cheeks, beneath the gape, and ear-coverts black, blending on the sides of the neck into the blue; a conspicuous white supercilium, and in some the chin and a thin bordering line below the cheeks white; wings blackish brown, the outer webs of the quills bluish, the margins of the outer primaries the palest; throat, chest, breast, and flanks fine orange-rufous; the under tail-coverts, vent, and abdomen white, blending into the surrounding colour; thighs bluish brown externally.

Female. Iris brown; bill not so dark as in male; legs and feet dusky fleshy.

Head, upper surface, and wing-coverts dark olivaceous brown, greenest on the back, and changing into a rusty colour on the upper tail-coverts; quills brown, the outer webs of the primaries, secondaries, and primary-coverts rusty brown, the longer primary somewhat pale at the edge; tail rusty olive-brown; an orbital fringe of fulvous; tips of the loreal feathers dark, the bases being fulvous; ear-coverts concolorous with the head, but striped with fulvous; throat, chest, breast, and flanks rusty fulvous, paling to buff on the gorge and chin, and with the feathers of the fore neck more or less tipped with dusky; cheek-feathers tipped with olivaceous; abdomen, vent, and under tail-coverts pure white; under wing-coverts fulvescent.

Very old bird? Head, hind neck, and back a darker or less olivaceous brown than the above, with a bluish cast on the crown; the wing-coverts and the tips of the lower back-feathers, as well as the upper tail-coverts, dull bluish; quills and greater wing-coverts brown, edged with rusty; tail rusty brown; lores and orbital fringe as in the above; the under surface a much brighter rufous than in the mature female; some of the throat-feathers tipped with dusky.

This is a description of a presumed female (carbolized) which I received from Mr. Thwaites of Hakgala. I have little doubt as to its being a female, on account of the absence of the black lores and supercilium.

Young. Males in the first year are dull bluish above, with the *lores only* black surmounted by a *short white stripe* or spot; throat whitish; chest and breast as in female. With age the black extends over the cheeks and ear-coverts. Females are olivaceous above, brownest on the head, and changing into rusty on the upper tail-coverts; wings and tail brown, more or less edged with rusty; lores pale, orbital fringe whitish; ear-coverts pale-shafted; chin and gorge whitish, tinged with the hue of the chest and flanks, which is olivaceous fulvous; lower parts as in the adult. Scarcely any two examples are alike; the younger the bird is the more olivaceous are the upper tints, and the more dusky the chest and sides of breast. In some there is a brownish wash across the chest, and the forehead is rusty.

Obs. This interesting genus appears to form a link between the Saxicoline birds and the true Thrushes. It only differs from *Turdus* in its small size, *slightly* straighter and less notched bill, and shorter tail. Its habits are essentially those of a forest-loving Thrush, resembling such in its mode of feeding and progression, its flight, and its style of song.

At the time that Hodgson named this bird *L. cyana*, he perhaps did not know that Pallas had already applied a term of *similar meaning* (*cyane*) to the Siberian and Chinese species, or he would not surely have employed a title which sounded so much like a previously bestowed one. It has been in vogue up to the present by Indian writers; but I propose here to discard it, as it is, in my opinion, inexpedient to use a specific name of similar sense to, and only differing in its terminal letter from, an already existing one; and I will take the opportunity of mentioning that Mr. Sharpe approves of my decision. The specific name, it is true, is not very applicable to the male bird of the present species; but there are, I think, precedents for such a departure from strictly applicable nomenclature. Mr. Swinhoe procured the true *L. cyane* in China, and named it *L. gracilis* ('*Ibis*,' 1861, p. 262), as Mr. Blyth, to whom he sent his specimen, pronounced it to be distinct from Hodgson's bird; and it was not until four years later that he recognized in Pallas's figure of *Lusciola cyane* (pl. x. '*Travels in Eastern Siberia*') his Chinese bird.

The male of *Larvivora cyane* has the upper surface dark blue, the forehead and above the eye brighter than the head; wings and tail brown, edged with dull blue; chin, fore neck, and under surface pure white, separated from the blue of the head and hind neck by a broad black border, which starts from the lores, covering the cheeks, face, and ear-coverts, and descending the sides of the neck to the flanks. Length 4.6 inches, wing (in seven examples) varying from 2.8 to 3.0. An immature male (September) has the head and hind neck brown; back and rump dull blue; beneath whitish, washed with rufous-buff on the sides of the throat and chest; the cheeks barred with dusky grey: a female (May) is olive-brown; under surface whitish, washed with buff; the feathers of the sides of the throat and across the chest tipped with dusky grey; wing 2.75. These examples are in the "*Swinhoe collection*," forming part of Mr. Seeborn's museum. It is found in Tenasserim, as well as in China and Eastern Siberia.

Distribution.—This handsome Chat is a migrant to our hills, arriving in the island about the middle of October and departing again in April. Being a bird of weak flight its migration to the Kandyan Province takes place by a gradual movement through the jungle from the extreme north, where it first appears. There Layard procured specimens in October 1851, and in the same month in 1873 I obtained a male example in the jungles surrounding Trincomalee. It is chiefly located in the upper hills or main range, being very common in the Horton Plains and throughout all the Nuwara-Elliya district; lower down it is found in all the surrounding coffee-districts, including the Knuckles or trans-Kandyan hills as low as 3000 feet. In the eastern parts of Uva it is not common, the great expanse of patnas below the plateau and the deep valley of Badulla probably proving a barrier to its progress. In the southern hills I never met with it; but it was probably overlooked by me, as there is no reason to suppose that some individuals do not cross the Saffragam valley to the Morowak and Kolonna Korales. It is worthy of remark that it comes to us largely in the young stage; and I have likewise observed that females predominate.

Concerning its distribution in India, Jerdon remarks that it is found in the Himalayas from Cashmere to Sikkim, and in the cold weather extends in small numbers to the plains, for it is procured near Calcutta. It is also an inhabitant of the Nilghiris. He met with it in a mango-grove at Nellore in the month of March, at which time, as he suggests, it must have been migrating northwards. It appears to be resident in the Nilghiris, as it breeds there. Dr. Fairbank mentions it as being found in Mahabaleshwar, which has an altitude above the sea of 4700 feet, and on the Goa frontier; but he does not say at what season of the year he met with it.

Habits.—This retiring little bird is almost wholly terrestrial in its habits, dwelling in nilloo and other dense undergrowth of the hill-forests, and now and then coming out into hedges and thick cover in gardens which are in proximity to the jungle; it even then covets the shelter which its life in the forest normally affords it, only showing itself for a moment or two, and then retreating. It is often seen at the edge of a forest-path searching for insects; but it quickly disappears into the adjacent thickets on the least alarm. The Hakgala Gardens are suitable to its habits; here it finds a welcome shelter beneath the choice conifers and handsome shrubs with which the enclosure abounds, and searches for its food in the well-kept soil. It proceeds along the ground or over prostrate dead wood with quick hops, and darts actively about, alighting on low sticks

or branches when disturbed. It feeds after the manner of a Thrush, pecking quickly at insects on the ground or on rotten moss-covered timber; and such a great variety does it devour, that Hodgson applied to it its generic name of *Larvivora*. From pecking in the soil its bill is frequently coated with earth like that of a Thrush. It is usually of silent habit; but the male has a lively little song, composed of a few sibilant notes, which it suddenly warbles out from beneath the dense underwood in the forest. Hodgson remarks correctly that it perches freely, but is usually on the ground; and Jerdon states that it has a low chuckling note like that of certain Stonechats.

Nidification.—Little is known of the nesting of this Chat. Its home is probably in Cashmere and the Himalayas; but some remain in the south of India during the breeding-season, and rear their young in the Nilghiris. Mr. Davison, in writing to the author of 'Nests and Eggs,' alludes to two nests found in March and May respectively, the first of which was in a "hole in the trunk of a small tree about 5 feet from the ground, and was composed of moss mixed with dry leaves and twigs." This nest contained three young birds. An egg found in the latter nest was an elongated, slightly pyriform oval, with but little gloss, and the ground-colour of a pale greyish green, thickly mottled throughout and chiefly at the large end, where the markings were almost confluent, with pale brownish red. Dimensions 0.98 by 0.67 inch.

Genus TURDUS.

Bill moderately long and straight, compressed towards the tip. Rictal bristles feeble. Wings with the 1st or bastard primary equal to the primary-coverts, or slightly exceeding them; the 4th or 5th the longest, and the 2nd longer than the secondaries. Tail and tarsus typical in their characters.

TURDUS KINNISI.
(THE CEYLONESE BLACKBIRD.)

Merula kinnisi (Kelaart), Blyth, J. A. S. B. 1851, xx. p. 177; Kelaart, Prodrumus, Cat. p. 122 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 270; Blyth, Ibis, 1867, p. 304; Holdsworth, P. Z. S. 1872, p. 446; Hume, Str. Feath. 1878, p. 35.
The Nuwara-Elliya Blackbird, Residents in Ceylon.

Adult male and female. Length 9·0 to 9·7 inches; wing 4·3 to 4·6; tail 3·5 to 3·8; tarsus 1·25 to 1·3; middle toe and claw 1·2 to 1·25; bill to gape 1·17 to 1·25. Females average smaller than males.

Obs. In this species the wing is slightly rounder, and the 1st primary is often more lengthened than in typical *Turdus*. I say "often," for it is a singular fact that this feather varies in length in this bird. In some examples, especially young ones, it considerably exceeds the primary-coverts, although it generally equals them only, and in several specimens that I have examined it is longer in one wing than in the other of the same bird! In view of the irregularity in the length of this feather I have not removed it from the genus *Turdus*.

Male. Iris pale brown; eyelid and bill orange-yellow; legs and feet paler yellow than the bill; claws yellowish horny. Above slaty bluish black, darkest on the face and head, the feathers of the upper surface having bluish-grey margins everywhere but on those parts; quills and wing-coverts broadly margined with dark bluish slaty; tail black, more indistinctly edged with the same; beneath dingy black, the feathers edged paler than those of the back, and with a greyish hue slightly pervading the abdomen.

Female. Bill yellowish orange; eyelid yellow; legs and feet pale yellow. Above dark bluish slate, pervaded with brownish on the head, the margins of all the feathers black; outer webs of primaries and secondaries washed with brownish slaty; tail blackish brown, beneath slaty washed with earthy brown; the feathers of the abdomen sometimes with light shaft-streaks; under wing-coverts edged with earthy brown.

Young. In the nestling the iris is brown; bill black, tinged near the gape and at the base of the lower mandible with yellow, which colour gradually spreads with age; legs and feet brownish yellow. A young bird in Mr. Holdsworth's collection has the head and neck brownish, the ear-coverts and lores darker; the back has a more bluish tinge than in the adult; the wings and tail blackish brown, with dull slaty edgings; throat and chest fulvous, the feathers with dark tips, the breast slightly paler, without the dark tippings.

An immature female in the plumage of the latter end of the first year, which I shot in January 1877 on the Horton Plains, has the throat, fore neck, and breast, together with the sides of the neck, as also the forehead and a space above the eye, earthy brown; but the lores and face are coal-black; on the head and hind neck there is a fulvescent tinge, and the wing-coverts and flanks have the feathers tipped with a still more ochraceous hue. This plumage is mingled on the back and wings with the nigrescent feathers of the adult stage. The last remnant of the immature attire is usually found in the pale tippings of the wing-coverts.

Obs. This Blackbird, which is a representative of the Nilghiri species *Turdus simillima*, has, until quite recently, been considered to be peculiar to Ceylon. Mr. Hume, however, has received specimens from Mr. Bourdillon, shot in Travancore, which he ('Stray Feathers,' 1878, p. 35) unites with the Ceylonese form, owing to the fact of their being as dark as Nuwara-Elliya examples. He remarks, notwithstanding, that they are slightly larger, measuring 4·7 inches in the wing, whereas our birds never exceed 4·6. As the distinctive character in plumage of the Nilghiri bird is its paler colour, and as it is considerably larger than *T. kinnisi*, measuring 5·0 inches in the wing, it seems not unreasonable to unite the Travancore species with the latter; and I must therefore, though somewhat reluctantly, consent to our fine Blackbird being disrated from its rank as a peculiar island species! I wish, however, that more had been said about the coloration of these newly discovered Travancore birds, namely as to whether they exhibited the peculiar slaty edgings to the upper-surface feathers which are characteristic of *T. kinnisi* from Ceylon.

Blyth in describing the species, *loc. cit.*, incorrectly called the male "jet-black," and laid stress on the proportion of the primary feathers; but these vary with age.

Distribution.—The Blackbird of Ceylon, which bears a great resemblance to our home favourite, is an inhabitant of the entire hill portion of the Kandyan Province, from the loftiest regions down to an elevation of between 2500 and 3000 feet; it is, I am given to understand, likewise found on the uppermost parts of the Morowak and Kolonna Korals, but I have not seen specimens myself from that district. It is very numerous at the Horton Plains, in the wilderness of the Peak, the Nuwara-Elliya district, and in all the forests of the main range. In Haputale, on Namooni-kuli hills, the Knuckles, and all other ranges where any considerable amount of forest has escaped the woodman's axe it is common. On isolated hills, such as the Allegalla peak, I have found it; but it is rare in such localities. In many of the coffee-districts intersected with wooded patnas, which furnish it with a stronghold, it is a familiar bird and in the north-east monsoon season appears about the residences of the planters.

Habits.—The presence of this songster at Nuwara Elliya is not without interest to the English colonist; its lively though somewhat subdued matutinal song recalls home recollections and memories of the lovely spring time in England when all nature seems awakened after the slumbers of winter. It frequents a variety of situations, passing, however, most of its existence in thick undergrowth, particularly the nilloo and elephant-grass scrub. It strays out of the forest into detached groves, copses, umbrageous coffee, and about Nuwara Elliya resorts even to the gardens and plantations surrounding the villas of the residents. It is a very shy bird, feeding entirely in the thick cover of the jungle until evening, when the departing sun illumines the borders of the forest; it then sallies out, mounting high into trees and pouring out its song, which is neither so loud nor so full in tone as that of its English congener; it then proceeds by short flights from tree to tree, uttering its call-note of *cluck-onk* until it finds its way back to its accustomed roosting-place. At the break of day it is again abroad, singing before sunrise, and shortly after it retires into neighbouring thickets for the entire day. While searching for its food it gives vent to a very low chirp, which one would imagine came from the throat of the smallest bird; and when alarmed by the sound of an approaching footstep takes refuge into the depths of the scrub with quick hoppings along the ground or short flights from branch to branch. It is very partial to some fruits in the forest, collecting in considerable flocks in the loftiest trees; and while some greedily pluck the berries from the top branches, others remain in the underwood beneath and reap a harvest on those that fall. In spite of its fruit-eating propensities, however, it is highly insectivorous in diet; and I have seen it scratching in manure at the edge of forest-paths. Layard writes that Mr. Mitford, of the Ceylon Civil Service, shot one of these birds (the only animal life he saw there) at the very summit of Adam's Peak, feeding on the crumbs of rice thrown out by the pilgrims as an offering to Buddha. Mr. Forbes Laurie writes me that it has the power of diminishing the tone of its voice until its notes have the effect of coming from a distance.

Nidification.—The Blackbird breeds from April until June, building in a niche of a trunk, on a stump, or in the forked branch of a low tree; its nest is composed of grass, moss, and roots, strengthened with a few twigs, and is somewhat massive in structure, the interior being a deep cup lined with fine roots, most probably underlaid by a foundation of mud, as in the nests of other species. The eggs are four in number, of a pale green ground-colour, blotched evenly all over with faded reddish brown and light umber, overlying smaller reddish-grey spots. Dimensions 1.05 by 0.82 inch.

In the matter of situation it has, however, a variety of choice, sometimes nesting, according to Mr. Holdsworth, in out-buildings at Nuwara Elliya, and occasionally choosing the side of a rock, as will be seen from the following experience of Mr. Bligh. He writes me:—"I have often found this charming bird's nest; on one occasion it proved to be a strange structure, composed of *seven distinct nests*, which were fixed among the roots of a bush which grew out of a perpendicular rock above the "Swallows' Cave" at Dambetenne; it contained three young ones. The situation no doubt proving very safe and suitable, induced perhaps the same pair to build successively on the old nests, all of which still presented a fresh green appearance, from the moss not readily drying in such a moist climate. Usually the nest is very like the English Blackbird's, but smaller; and the same may be said of the eggs, except that they are rather rounder. These birds nest regularly near the Catton bungalow; and directly this important business is over they retire to the higher jungle, assembling in more or less numerous parties. I have seen as many as forty or fifty at the same time in what might be termed scattered company; but this is a rare habit, and only to be accounted for by the abundance of favourite food in a particular locality."



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OREOCINCLA IMBRICATA.
TURDUS SPILOPTERA.

TURDUS SPILOPTERA.

(THE SPOTTED THRUSH.)

(Peculiar to Ceylon.)

Oreocincla spiloptera, Blyth, J. A. S. B. 1847, xvi. p. 142; id. Cat. B. Mus. A. S. B. p. 160 (1849); Kelaart, Prodrum, Cat. p. 122 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 270; Blyth, Ibis, 1867, p. 303; Holdsw. P. Z. S. 1872, p. 446; Legge, Ibis, 1874, p. 18; id. Str. Feath. 1875, p. 367.

The Thrush, Europeans in Central Province.

Val-avitchia, lit. "Wild Ant-thrush," Sinhalese.

♂ *ad.* suprâ olivascenti-brunneus, vix rufescens, uropygio tamen et supracaudalibus magis rufescentibus: tectricibus alarum minimis dorso concoloribus, medianis nigris conspicuè albo terminaliter maculatis, majoribus inferioribus dorso concoloribus, exterioribus nigris dorsi colore extûs lavatis et albo terminatis: secundariis dorso concoloribus, primariis nigricanti-brunneis, extûs dorsi colore lavatis: rectricibus mediis olivascenti-brunneis, reliquis saturatè brunneis extûs olivascenti-brunneis: loris albidis: annulo ophthalmico purè albo: facie laterali albidâ, plumis nigro terminatis, maculâ infraoculari nigrâ: supercilio albido, supra regionem paroticam indistincto: corpore subtûs albo, præpectore maculis nigris friquetris magnis ornato: pectore quoque maculato, maculis tamen minoribus et magis ovalibus: gulâ, abdomine toto, subcaudalibus et corporis lateribus grisescenti-brunneo lavatis: subalaribus albis, majoribus basaliter nigris: axillaribus albis nigro terminatis: remigibus infrâ brunneis, secundariis ad apicem pogonii interni albis: rostro nigricanti-brunneo: pedibus corueo-plumbescentibus, unguibus pallidè brunneis: iride clarè brunneâ.

Adult male and female. Length 8·0 to 8·7 (average 8·4) inches; wing 3·8 to 4·1; tail 3·0 to 3·2; tarsus 1·3 to 1·5; mid toe and claw 1·1 to 1·25; bill to gape 1·05 to 1·2.

Iris brown; eyelid leaden grey; bill blackish, pale at gape; legs and feet dusky bluish grey or greyish fleshy, claws dusky horn.

Above olive-brown, more or less pervaded with a rusty hue, chiefly on the lower back and upper tail-coverts; least wing-coverts concolorous with the back; primaries and secondaries brown, washed with olive on the outer webs; median and greater wing-coverts with a terminal white spot, smallest on the greater series, which have their outer webs concolorous with those of the quills; tail rusty olive-brown, crossed with faint dark rays towards the end, and with the inner webs dusky; lores and a narrow imperfect supercilium whitish; beneath the eye and the ear-coverts black, the latter crossed obliquely by a white patch; on the lower part of the cheek the feathers are tipped blackish; chin, throat, and under surface white, the feathers on the lower fore neck, chest, and breast with oval bar-like terminal blackish spots; flanks and sides of ventral region smoky olivaceous grey; thighs olivaceous on the exterior side; under wing-coverts white, with a blackish bar formed by the tips of the median row and the bases of the succeeding one.

Females. Have the upper surface, as a rule, more rusty than males, and sometimes a buff hue on the throat and parts of the under surface.

Examples of both sexes vary in the extent of the spottings on the chest and sides of breast.

Young. The nestling, when leaving the nest, has the bill brown, with the base and the tip yellowish; legs and feet bluish fleshy. Upper surface ferruginous brown, generally darker on the head and most rufous on the rump and upper tail-coverts; the hind neck, back, and scapulars with fulvous mesial lines, and the tips of the coverts the same; the markings of the face, ear-coverts, and sides of neck buff instead of white; prevailing hue of the under surface the same; the chin and abdomen whitish; chest and sides of breast with blackish edgings; the cheek-patch and spot on the upper eyelid blacker than in the adult.

During the first few months the bill becomes black, and the ferruginous and buff livery is doffed, the white, black-spotted feathers of the chest and under surface first appearing.

Obs. This Thrush varies, according to climate, in the hue of its upper surface. As might be expected, in the dry forests of the north and east this is ferruginous, while up-country and Saffragam birds are quite olivaceous in their coloration.

Obs. Blyth placed this bird in the subgenus *Oreocinclu* of Gould, the characteristic of which is that the back and breast are marked with crescentic edgings of dark brown. Inasmuch, however, as it has a plain upper surface, it cannot well belong to *Oreocinclu*, and, in fact, it is a true *Turdus*. The wing is slightly more rounded than in typical species of this genus, the 5th quill usually proving the longest, and the 2nd is considerably shorter than the 3rd; but were variations in the wing-formula of such birds as the Thrushes to be taken as sufficient basis for the establishment of genera, we should have a useless multiplication of them.

The nearest Indian ally of our Spotted Thrush is *T. mollissima* from the sub-Himalayan region. This species is brownish olive above, some examples having a rusty tinge; the greater and median wing-coverts have fulvous-white tips; beneath white, tinged with buff on the throat and chest, and spotted with black on those parts; the feathers of the breast and flanks with slightly crescentic-shaped tips of black, and in this last feature it differs from our bird. Wing 5.4 to 5.6 inches.

Distribution.—The Spotted Thrush, which is the Ceylon representative of the Indian Plain-backed Thrush, was discovered by the late Dr. Templeton. It is an inhabitant of the central hill-region, from about 4000 feet downwards, being not at all uncommon in Uva and in the less elevated district of Dumbura. From the base of the hills, where it is more frequent, it spreads outwards, particularly in the forest-districts, and in the western and southern parts of the island is found within a few miles of the sea. In Saffragam, and on the well-wooded tract lying between Ratnapura and Dambulla, along the base of the western ranges, as also in the Pasdun, Raygam, and Hewagam Korales, it is more often heard and seen than in other parts of the low country; and I and others have procured it within a few miles of Colombo. In the low-hill jungles of the south-west it is scarcely less frequent. In the forests of the Wauni and those of the Friars-Hood group I have procured it; but it is rarer in those parts than in the bamboo-jungles of the Western Province.

Habits.—A shy, retiring bird, this species frequents damp jungle, undergrowth in forests, and bamboo-thickets, not often mounting to any height on trees, but passing its time near the ground, about which it hops quietly, picking up pupæ, Coleoptera, and other insects; and when alarmed it runs very quickly through underwood, uttering a weak chirping note. The male has a very pretty whistle, ending in a human-like note, which it utters, seated on a low branch, for a considerable time at intervals throughout the day, but chiefly in the morning and evening. Both sexes have a weak, almost inaudible “tzsee,” which they utter, as the Black-bird does, while searching for food. It does not often come into the open; but at sunset I have now and then seen it in little copses of guava and other small trees which are to be found in the meadows on the banks of some of the western streams; and I once shot one whistling in a clump of the tall bamboo (*Bambusa thourarsi*). The young bird quickly acquires its vocal powers, and whistles as sweetly in the soft-gape stage as an adult.

A singular theory obtains among the Sinhalese with reference to this species and the Pitta or Ground-Thrush. They have a tradition that Buddha, in former times, changed some of the spotted Thrushes into Pittas, a bird which they likewise style “*Avitchia*,” and they believe that these beautiful birds are the progeny of the Spotted Thrush, asserting, however, that the young of both species are to be found in the nest of this latter bird. The fact of the Pitta being a migratory bird, and appearing in the island suddenly, no doubt is the cause of this imaginative mode of accounting for its arrival.

Nidification.—I have found this bird nesting in the northern forests near Trincomalee in January, and I obtained a young nestling in Uva in September. Mr. MacVicar has taken its eggs at Kæsbawa, near Colombo, in May; the breeding-season, therefore, extends over the first half of the year. The nest is placed in the fork of a sappling a few feet from the ground, or among the roots of a tree on a bank or little eminence, and is a loose-looking, though compactly put together structure of small twigs, roots, moss, and grass, lined with finer materials of the same, the egg-cavity being a deep cup, tolerably neatly finished off. The eggs are two or three in number, of a pale bluish-green ground, freckled throughout with light reddish brown, or light red and reddish grey, over a few lilac spots at the obtuse end, the markings in some being confluent at that portion; they are regular ovals in shape, measuring from 1.06 to 1.17 in length, by 0.74 to 0.77 in breadth.

The figure on the Plate accompanying this article is that of a male shot on the Sittawak ganga, a large affluent of the Kelani ganga.

TURDUS WARDI.

(WARD'S PIED BLACKBIRD.)

Turdus wardii, Jerdon, J. A. S. B. 1842, xi. p. 882; id. Ill. Ind. Orn. pl. 8 (1847); G. R. Gray, Gen. Birds, i. p. 219 (1845); Brooks, Str. Feath. 1875, p. 237.
Merula wardii, Blyth, J. A. S. B. 1847, p. 146; id. Cat. B. Mus. A. S. B. p. 163 (1849); Kelaart, Prodrumus, Cat. p. 122 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 270; Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 402 (1854).
Turdulus wardii, Jerdon, B. of Ind. i. p. 520 (1862); Holdsw. P. Z. S. 1872, p. 445.
Cichloselys wardii, Hume, Nests and Eggs, p. 231 (1873).
Oreocincla pectoralis, Legge, Str. Feath. 1876, p. 244 (young male); Hume, ibid. 1877, p. 202.
Ward's Thrush, Kelaart; *Pied Blackbird* in India.

Adult male and female. Length 8·0 to 9·0 inches; wing 4·3 to 4·8; tail 2·9 to 3·3; tarsus 0·95 to 1·1; mid toe and claw 1·0 to 1·1; bill to gape 1·1 to 1·15.

Male. Iris brown; bill yellow, dusky at base of culmen; legs and feet amber-yellow; claws yellow. Whole head, neck, chest, upper surface, wings, and tail black; a broad supercilium from the bill to the nape, terminal portion of wing-coverts (forming a patch on the lesser row), tips of all but the outer quills and their inner edges at the base, a portion of the outer margins of the longer primaries, tips of the rump, and upper tail-covert feathers, together with the under parts from the chest downwards, white; two outer pairs of rectrices wholly white, except a portion of the outer webs; remaining rectrices successively less white towards the centre, the colour chiefly confined to the inner webs; flank- and thigh-coverts black, with deep white tips.

Female. Iris as in the male; bill brown, pale at the base; legs and feet brownish yellow. Head, upper surface, wings, and tail olive-brown; lores dark brown, a fulvous streak from the nostril over the eye; wing-coverts with a large terminal fulvous spot; primaries with a pale edge, most conspicuous on the three long outer ones; basal portion of both primaries and secondaries buff-white; upper tail-coverts tipped with whitish; two outer tail-feathers with a terminal white patch running up the centre; throat and fore neck buff-white, the feathers with a dark brown terminal band, and the concealed portion with lateral indentations of the same; centre of the throat unmarked; breast, lower parts, and flanks white, with terminal bars of blackish brown, except on the centre of the breast, abdomen, and under tail-coverts; lower flanks well covered with brown, owing to the depth of the dark tips; under wing-coverts white, crossed with a brown bar.

Young. The male of the year is coloured similarly to the female, but the upper surface is of a darker or richer brown, the ear-coverts are darker, the secondaries and tertials are more or less tipped with buff-white, and the tipplings of the upper tail-coverts whiter than in the female; tail tipped similarly to the female; supercilium similar; centre of the throat and lower part of the face buff, the latter with the feathers tipped brown; sides of the gorge blackish brown, and the feathers of the chest olive at the tips and sides, within which is a blackish rim enclosing an oblong patch of white; the olive coloration imparts the appearance of a *band across the chest*; breast and lower parts purer white than in the female, with deep terminal blackish bands, except down the centre; under tail-coverts edged laterally with dark brown. This plumage is probably doffed at the second autumn moult, and the pied dress forthwith assumed.

Obs. The above is a description of the plumage in which I described the young male of this species as *Oreocincla pectoralis*. Not being acquainted with the young male at the time, and finding that the specimens I acquired from Mr. Thwaites differed from the female (an example of which in my collection had been shot by Mr. Forbes Laurie) in the olive pectoral band, I was erroneously led to consider it new. Mr. Hume remarks (Str. Feath. 1877) that this Thrush is such a common and well-known species, that it could not well be described as new. This is, however, not the case as regards collections in England, in which young males and females are very rare; there is no specimen of either in the British Museum; and the late Lord Tweeddale was the only naturalist in whose collection I have

seen the immature male. *Turdus sibiricus*, regarding which Mr. Hume himself was led into error, is, perhaps, a commoner bird in English collections.

This species is usually placed in the subgenus *Turdulus*, on account of its pointed wing (the 3rd quill being the longest, and the 2nd not much shorter than it) and the sexes differing in coloration; the tarsus is somewhat shorter than in the typical Blackbirds. I prefer, however, to simplify matters by keeping it in *Turdus*, and pointing out here its characters as a *subgenus*.

Distribution.—The Pied Blackbird is a cool-weather migrant to the hills of Ceylon, arriving late, during the month of November, and leaving again at the latter end of March or early part of April. It does not appear to locate itself in the same localities every year, or else its numbers vary considerably, for in some seasons it is almost wanting in districts in which it has commonly been observed. It is found in most of the upper regions of the Kandyan Province, from the altitude of Nuwara ELLIYA down to about 2800 feet; but it is most common between 3000 and 4000 feet in the Knuckles ranges, Kotmalie, Dickoya, Uda Pusselawa, Uva, and Haputale. In some years it occurs in considerable numbers between the Elephant Plains and Kanda-polla, Mr. Watson informing me that he has seen it in flocks in the patna-woods near Ragalla. In November and December it has been several times seen in Hakgala Gardens, to which it is attracted, with many other species, in search of the insectivorous food harboured in the bare soil beneath the conifers and other choice trees with which this beautiful spot abounds. I have no doubt that it finds its way, in small numbers, into all the forests of the main range.

Jerdon writes of this Blackbird's distribution in India as follows:—It is "spread, but very sparingly, through the Himalayas, and during the winter in the plains of India; I first procured it through Mr. Ward at the foot of the Nilghiris, and afterwards obtained two specimens from Nellore in the Carnatic; Hodgson procured it at Nepal, and it has also been obtained in the North-west Himalayas, where it is far from uncommon." He further says, "Whether those birds met with near the Nilghiris also migrate northwards or are permanent residents there or on other mountain-ranges cannot now be decided." I observe that neither Mr. Fairbank nor Mr. Bourdillon procured it in the Travancore and Palani hills, where it should be found if it were a resident in the Southern ranges of India; and the inference therefore is that it does migrate to the south from its headquarters in the Himalayas. Mr. Brooks remarks that it is common at Mussoori.

Habits.—This species frequents the outskirts of forest, patna-jungle, detached woods, and frequently visits therefrom the gardens of the planters, in which its frugivorous habits cause it to do a considerable amount of mischief. It is very partial to mulberries, and, in fact, does not seem to turn aside from any fruit grown in the hills of Ceylon. Mr. Bligh, who has seen it frequently in Kotmalie and Haputale, tells me that it collects in scattered flocks to feed on the fruit of the guava and wild fig, uttering a chirping note while so doing. Young males, which Mr. Thwaites observed in the Hakgala Gardens, were very shy, flying up from the ground, when flushed by him, into low trees, and then escaping into the surrounding jungle; they frequented the manure-heaps near his bungalow, and had a low cry like that of a young Blackbird. Its song, heard at Mussoori by Mr. Brooks, and which, I conclude, is only uttered during the breeding-season, is described by him as "a strange one of two notes, and quite unmusical."

Nidification.—As regards the breeding of this Blackbird in India, the testimony of Messrs. Marshall, Hutton, and Hodgson, as quoted by Mr. Hume in his 'Nests and Eggs,' proves that, on arriving from the south in the Himalayas in May and June, it commences to nest, building either in the fork of a branch of a tall tree, or placing its habitation in a low situation, such as on a stump. The nest is a "compact, cup-shaped structure, built of moss and dead leaves, cemented together with a little mud and lined with roots;" the interior has a diameter of about 3 and a depth of 2 inches. The eggs are four in number, and are, according to Mr. Hodgson, pale verditer, spotted with sanguine brown; and one specimen, in the possession of Mr. Hume, is described by him as of a "pale sea-green ground, blotched, spotted, and streaked, most densely at the larger end (where also a number of small pale purple clouds seem to underlie the primary markings), with a moderately bright, somewhat brownish red." Dimensions from 1.01 to 1.06 inch in length by 0.74 to 0.76 in breadth.

Genus OREOCINCLA.

Bill stout and longer than in *Turdus*. Tail variable, consisting, in some members of the group, of 14 feathers.

Plumage above and beneath with dark scale-like tippings.

OREOCINCLA IMBRICATA.

(THE BUFF-BREASTED THRUSH.)

(Peculiar to Ceylon.)

Zoothera imbricata, Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 212; Jerdon, B. of India, i. p. 509 (1863).

Oreocincla nilghiriensis, Jerdon, Ibis, 1872, p. 139; Holdsw. P. Z. S. 1872, p. 456.

Oreocincla imbricata (Lay.), Hume, Str. Feath. 1873, p. 437.

Oreocincla gregoriana (Nevill), id. tom. cit.

Ad. suprâ ochrascenti-brunneus, plumis omnibus conspicuè nigro marginatis, quasi lunulatis, uropygii et supracaudalium marginibus angustioribus: pilei plumis subterminaliter clariùs ochrascentibus: tectricibus alarum nigris ad apicem olivaceo-brunneo maculatis et aureo-brunneo terminatis: tectricibus primariorum nigris extûs versûs basin latè aureis: remigibus nigricanti-brunneis, extûs dorsi colore lavatis et aureo-brunneo marginatis: rectricibus duabus medianis olivascenti-brunneis, reliquis nigricanti-brunneis, exterioribus pallidioribus: loris albicantibus: regione paroticâ aureo-fulvâ, plumis nigro terminatis et medialiter albido striolatis: genis aurco-fulvis nigro maculatim terminatis: gulâ aureo-fulvâ immaculatâ: corpore reliquo subtûs aureo-fulvo, plumis nigro fasciatim terminatis: hypochondriis paullò latius nigro ad apicem fasciatis: abdomine et subcaudalibus aureo-fulvis immaculatis: rostro brunneo, mandibulâ pallidiore: pedibus brunneis.

Adult male. Length 9·3 to 9·6 inches; wing 4·8 to 5·05; tail 2·9 to 3·0; tarsus 1·1 to 1·15; middle toe and claw 1·15 to 1·2; bill to gape 1·38 to 1·53, average length 1·4.

Adult female. Wing 4·65 to 4·8.

These measurements are taken from a series of 14 examples in my own collection and those of the late Lord Tweeddale, Messrs. Bligh, Holdsworth, and Thwaites.

Iris brown; bill blackish brown, paling at the base of the lower mandible; legs and feet fleshy brown, some with a bluish tinge; claws brownish at the tips.

Head and upper surface brownish olive, paling slightly on the rump and upper tail-coverts, each feather with a broad black, crescentic-shaped tip, imparting a scale-like appearance to the upper plumage; wings dark brown, the secondary-coverts tipped and externally margined with dusky buff, the tips of the median series being the palest; the primary-coverts, with the tips and inner webs, black, and a rufous-buff wash on the outer portions of the feathers; quills margined with yellowish brown, spreading over the outer webs of the innermost secondaries: tail brownish olive, the three feathers next the outermost on each side blackish with pale tips.

Face and under surface rich buff, paling on the chin and abdomen into whitish buff, and darkening on the sides of the chest and flanks into olivaceous, each feather, except those of the gorge and abdomen, with a bold black crescentic tip; ear-coverts with pale shafts and (as also the face) tipped less blackly than the under surface, the dark tips taking the form of a stripe on each side of the throat; under wing-coverts black, with the terminal half of the feathers white; under tail-coverts unmarked.

Females are coloured exactly like the males.

Obs. The subgenus *Oreocincla*, founded by Gould for the reception of some Thrushes with the peculiar type of marking above noticed, may, I think, be allowed to stand, not on account of this character, but because its

members differ from true *Turdus* in the bill and vary in the number of their tail-feathers. Their wings are those of a typical Thrush and so are their habits. The present species is a typical example of this group.

It was united by Jerdon ('Ibis,' 1872) with the above-named Nilghiri species, inasmuch as he states, in his supplementary notes to the 'Birds of India,' that the "*Zoothera imbricata* of Layard turns out to be *Oreocincla nilghiriensis*." On what evidence this statement was made I am not aware, but it is certain that *O. nilghiriensis* is a very distinct species. Mr. Hume avers this, *loc. cit.*, and gives the testimony of Mr. Davison, who is acquainted with the bird in all its stages, concerning the *white under surface* which is characteristic of it. It is very rare in European collections; but the magnificent collection of that distinguished ornithologist the late lamented Lord Tweeddale contains a fine example which I have lately had the opportunity of examining. Its measurements are:—wing 5·4 inches; tail 3·7; tarsus 1·2; middle toe and claw 1·2; bill to gape 1·42. It is paler than *O. imbricata* on the upper surface, particularly as regards the lower back and rump, and the feathers have their dark tips pervaded by a pale fulvous ray or patch, which is particularly noticeable on the head, hind neck, and rump; the pale tips of the median and greater wing-coverts are lighter than in our bird and much larger; the under surface, together with the throat and fore neck, is *white*, slightly tinted with buff on the sides of the throat and on the lower part of the fore neck; but the breast and lower parts are pure white; the terminal markings of the feathers of the chest, upper breast, and flanks are very bold and deep, and the belly is almost unmarked.

With regard to the specific name of this Thrush, it is evident, from Layard's description of his specimen, that it was no other than the present species; he writes:—"On the breast the colours are pale rufous-yellow, darkening into deep rufous with very dark brown edge; vent and under tail-coverts rufous." A specimen was sent some years ago by Mr. H. Nevill, of the Ceylon Civil Service, to Mr. Hume, and the name *O. gregoriana* (after Sir Wm. Gregory, late Governor of Ceylon) proposed for it, from which I conclude that the fact of its having been already named by Layard was overlooked.

Distribution.—This fine Thrush was first noticed and described by Layard, *loc. cit.*, from a specimen that he discriminated in the collection of Mr. Thwaites, who was, therefore, its discoverer. Where this gentleman procured it Layard does not mention, but, as a matter of fact, it is found throughout the main range and in the uncleared portions of most of the coffee-districts; it is decidedly an uncommon bird, and, being very shy and retiring, almost entirely escapes observation. It is most frequently met with in the high land round Nuwara ELLIYA and in the wilderness of the Peak; but I have seen it in Maturata, and procured it in a small wood on Allegalla mountain, where it is not unfrequent, and where Mr. Farr likewise has obtained several examples. Mr. Thwaites informs me that it makes its appearance at the beginning of every year from the surrounding jungle in the Hakgala Gardens, in which the open though secluded ground and the ample shelter of shady conifers afford it a favourite feeding-place. I do not think it descends below an altitude of 3000 feet, at which I procured it at Allegalla, and also observed it in the forest on the Peak above Gillymally.

Habits.—The Buff-breasted Thrush dwells almost exclusively on the ground, from which it rises, when startled, with a loud flutter, and taking a short irregular flight, suddenly drops again. I have always observed it alone, and have met with it in openly timbered forest and in thick willow-serub. It appears to feed on insects, which it procures beneath fallen leaves; and Mr. Thwaites informs me that it scratches much in rubbish thrown out at the borders of his plantation, and when flushed betakes itself to a low branch and then disappears into the adjacent forest.

I can give no particulars as to its nidification.

The figure in the Plate accompanying my article on *Turdus spiloptera* is that of a female shot in jungle at the summit of Allegalla peak.

Subgenus GEOCICHLA.

Bill somewhat short; a naked space at the posterior corner of the eye; otherwise as in *Turdus*.

GEOCICHLA CITRINA.
(THE ORANGE-HEADED THRUSH.)

Turdus citrinus, Lath. Ind. Orn. i. p. 350 (1790).

Geocichla citrina, Blyth, J. A. S. B. 1847, xvi. p. 145; id. Cat. B. Mus. A. S. B. p. 163 (1849); Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 189 (1854); Jerdon, B. of Ind. i. p. 517 (1862); Hume, Nests and Eggs, i. p. 229 (1873); Ball, Str. Feath. 1874, p. 407; Hume, ibid. 1875, p. 114; Oates, ibid. 1877, p. 151; Hume & Davison, B. of Tenass., Str. Feath. 1878, p. 250.

Geocichla layardi, Walden, Ann. & Mag. Nat. Hist. 1870, v. p. 416; Holdsw. P. Z. S. 1872, p. 445, et 1877, p. 160.

The Orange-headed Ground-Thrush (Jerdon); *The Rusty-throated Bush-Thrush* (Hume).

Adult male (Darjiling). Length (from skin) about 8·5 inches; wing 4·5; tail 2·9; tarsus 1·25; mid toe 0·8, claw (straight) 0·25; bill to gape 1·0.

Adult (Nepal). Wing 4·5 inches; tail 3·0; bill to gape 1·1.

“Bill blackish brown; gape and base of lower mandible fleshy; eyelids greenish plumbeous; iris dark hazel; legs, feet, and claws fleshy pink” (*Oates*, Pegu).

Adult male (Ceylon, *G. layardi*). Length (from skin) 8·5 inches; wing 4·5; tail 2·7; tarsus 1·2; mid toe 1·05, claw 0·25; bill to gape 1·0.

Iris brown (?); bill dark brown, pale at the base, the gape yellowish; legs and feet fleshy yellow; claws yellowish brown.

Forehead, top of the head, back and sides of neck rich aureous chestnut, paling on the throat, fore neck, entire breast, and flanks into a more fulvous hue, the lores, chin, and gorge being lighter than the fore neck; lower part of hind neck, back, scapulars, wing- and upper tail-coverts glistening bluish grey, each feather with a broad paler grey margin; terminal part of median wing-coverts, belly, thighs, and under tail-coverts white, tips of the greater secondary coverts whitish; quills brown, the outer webs of a paler grey than the edgings of the upper surface; tail bluish grey, brown on the inner webs of all but the central feathers, and the whole crossed by dark rays, almost obsolete on the latter.

Female. Length 8·0 inches; wing 4·4; tail 2·5; tarsus 2·15; mid toe 0·75; bill to gape 0·95.

Chin and throat more albescent than in the male; entire abdomen and sides, vent, and under tail-coverts white; interscapular region, scapulars, and lesser wing-coverts washed with olivaceous greenish, the central parts of the feathers being slaty; upper tail-coverts tinged with olivaceous in a less degree.

The above are descriptions of the only male example I have seen from Ceylon (which is the type of Lord Tweeddale's *G. layardi*) and of a female procured at Jaffna, and now in Mr. Holdsworth's collection.

The following is a comparison of the two Indian specimens of which the dimensions have been given above:—

Darjiling. Somewhat paler in its rufous colour than the above; distribution of the white on the abdomen and lower flank-plumes exactly the same; wing-bar similar.

Nepal. As dark as, if not darker than, the Ceylonese specimen in its rufous coloration; less white on the abdomen.

Obs. The Ceylonese Orange-headed Thrush was separated from the North-Indian form by the late Lord Tweeddale, and named by him *G. layardi*. It was stated, *loc. cit.*, “to be readily distinguished by the much deeper orange of

the head and nape, these parts being of the same dark shade of orange-brown characteristic of *G. rebecca*, Gould. ex Java. On the under surface the orange tints are brighter and richer than in *G. citrina*, yet not nearly so dark as in *G. rubecula*; the blue-grey portion of the plumage is likewise darker than in *G. citrina*, but not so dark as in *G. rubecula*." I have, however, examined a considerable series and find that the species is most variable. As regards the depth of the orange-rufous colour of those I have examined, I have given two examples to show the variation in this respect. There is less white on the lower parts of some specimens from North India than in the type of *G. layardi*; but Mr. Hume, in his paper on the birds of Tenasserim, shows this to be a variable characteristic also. There is no difference in the size of wing or tail, and, in fact, if the type of *G. layardi* be laid by the side of a series of *G. citrina* it is not possible to separate the two.

G. rubecula, from Java, is smaller than the present and has no wing-spot; the head is dusky orange-rufous, the back and wings as in *G. citrina*, and the under surface very dark chestnut, but scarcely any darker than some specimens of the last-mentioned species, which it quite resembles in the colour of its back and wings. Wing 4.0 inches; tail 2.8; tarsus 1.15. *G. cyanotus* is a specialized form inhabiting the jungles of Southern India, and differs notably from the two foregoing in the coloration of the face and throat; the chin and throat are white; cheeks and ear-coverts black, with a white bar across them; the under surface yellower than in *G. citrina*.

Distribution.—This handsome Thrush has only been, as yet, procured three times in the island; and as the dates of its occurrence fall within the duration of the cool season, the hypothesis is that it is migratory, coming from Northern India, as is evidently the case with several other birds, *vid* the east coast of the peninsula, and thus avoiding the jungles of the southern ranges, in which it has never been noticed. The first specimen obtained in Ceylon, and already referred to above, was shot by Mr. Spencer Chapman at a place called Kondawathawan, near Ambaré, in the Eastern Province, and sent by that gentleman to Lord Tweeddale. A second example was shot by Mr. F. Gordon, of the Oriental Bank, in open country near Jaffna, in the beginning of 1876, proving, since the species is by habit a forest bird, that it had recently arrived in the island. A third was killed in March 1877 on the banks of the Kirinde ganga, in the Hambantota district, by one of the collectors of the Colombo Museum, in which it is now preserved. It will be observed that the localities in which it has occurred are very far apart; and it is evidently a species which is extremely rare in Ceylon. For five years I was constantly on the look out for it in forests in all parts of the island (indeed there was no species the possession of which I so much desired), but I never saw a sign of it anywhere.

In India this species is found chiefly in the sub-Himalayan region, extending as far westward as Mussoorie. It is not uncommon in Nepal and about Darjiling, and appears to move about in Sikhim, depending on circumstances connected with the vegetation of various districts in that province. Mr. Gammie writes of it:—"*G. citrina* is another bird that has become common in the shady cinchona-plantations. Until a year ago I never saw it except near the bottom of our warmest valleys and in the Terai, where it is abundant; but this year (1877) we have it in large numbers up to 4000 feet." Further south, in Bengal, it has been obtained by Captain Beavan at Manbhoom and by Col. Tickell in Singbhum; in the Rajmehal hills and in the neighbourhood of Calcutta it is not uncommon (*Ball*). Jerdon says that it has been found in the forests of Central India, extending rarely as far south as 10°; he met with it in the jungles of the Eastern Ghâts. Further east it is recorded by Mr. Inglis from Cachar, and thence it extends into Pegu and southwards into Tenasserim. Mr. Oates remarks:—"Though not often *seen*, this is really a common bird from Thayetmyo to Tonghoo;" and as regards Tenasserim, Mr. Hume writes that it is "apparently confined to the southern half of the Province, and there to the neighbourhood of the coast, reappearing in the extreme north." Lieut. Wardlaw Ramsay procured it at Karennee.

Habits.—This handsome bird is a denizen of forest, heavy jungle, and shady groves. The specimen mentioned above as shot in the Hambantota district was met with in forest on the river-bank, and the country in which Mr. Chapman's bird was procured is covered with heavy jungle. Mr. Davison writes of it as keeping to "forest, but to the more open portions along the beds of streams, near the forest-paths, &c. It feeds usually on the ground, turning over the dead leaves, hunting for insects, which chiefly constitute its food." The writings of Jerdon afford the same testimony as to its habit of turning over leaves, and he says, also, that it keeps to woods and shady gardens, preferring bamboo-jungle; it often has "its bill clogged with mud, from feeding in damp spots. It is shy and silent in general, but during the breeding-season the male

has a pretty song." Captain Hutton likewise writes that it is a true forest bird, "building in trees and taking its food upon the ground, finding it in berries and insects among the withered leaves, which they expertly turn over with their beaks; and hence the reason why the bill is almost invariably clothed with mud or other dirt."

Nidification.—This species breeds in the Himalayas and in Pegu from April until June. Its nest has been found by Messrs. Hutton, Marshall, Thompson, and Oates, and appears to be built sometimes in the fork of the branch of a low tree and at others constructed in a similar situation at a considerable height from the ground. Captain Hutton says that it is composed of coarse dry grasses, somewhat neatly interwoven on the sides, but hanging down in long straggling ends from the bottom. Within this is a layer of green moss and another of fine dry woody stalks of small plants, and a scanty lining at the bottom of fine roots. Another, found by Mr. Oates in a ravine near Pegu, was situated about four feet from the ground, made of roots and strips of soft bark, the ends of some of the latter hanging down a foot or more; the interior lined with moss and fern-roots; the interior diameter about 4 inches and the inside depth about 2 inches. The eggs are usually three or four in number, sometimes five. The ground-colour is described by Mr. Hume as "dull greyish or greenish white, with a conspicuously mottled and speckled red-brown cap at the large end; they vary from 0·82 to 1·1 inch in length, and in breadth from 0·7 to 0·82 inch."

Genus MONTICOLA.

Bill straight, rather wide at the base; the culmen only curved at the tip, which is suddenly bent down. Nostrils oval and exposed. Wings long in proportion to the tail; the 1st quill equal to the primary-coverts; the 3rd the longest, 2nd subequal to the 5th. Tail rather short, even at the tip. Tarsus with an inclination to be scutellated and rather short.

MONTICOLA CYANA.

(THE BLUE ROCK-THRUSH.)

Turdus cyanus, Linn. Syst. Nat. i. p. 291 (1776).

Monticola cyanus (L.), Boie, Isis, 1822, p. 552; Shelley, B. of Egypt, p. 70 (1872).

Petrocosyphus cyanus (L.), Boie, Isis, 1828, p. 319; Jerd. B. of Ind. i. p. 511 (1862); Sharpe & Dresser, B. of Eur. pt. 8 (1871); Hume, Str. Feath. 1873, p. 179; Howard Irby, B. of Gibraltar, p. 74 (1875); Legge, Str. Feath. 1876, p. 249 (first record from Ceylon); Whyte, ibid. 1877, p. 203.

Petrocincla pandoo, Sykes, P. Z. S. 1832, p. 87.

Petrocincla cyanus (L.), Jerdon, Ill. Ind. Orn. pl. 20 (1847); Blyth, Cat. B. Mus. A. S. B. p. 164 (1849).

Cyanocincla cyanus (L.), Hume, Nests and Eggs, 1873, p. 226.

Cyanocincla cyana (L.), Ball, Str. Feath. 1874, p. 407; Butler, ibid. 1875, p. 470; Bourdillon, ibid. 1876, p. 398; Hume & Davison, ibid. 1878, p. 247.

Blaumerle, German; *Solitario*, Portuguese. *Shāma*, Hind. South of India; *Pandu* (male), *Maal* (female), Mahrattas; *Podda kachi-pitta*, Tel. (Jerdon); *Tchau-tchau zerak*, Moorish (Howard Irby).

Adult male and female. Length 6·3 to 9·0 inches; wing 4·5 to 4·8; tail 3·25 to 3·8; tarsus 1·1; bill to gape 1·2 to 1·3.

These measurements are from a series of specimens from widely spread localities.

Iris brown; bill, legs, and feet black.

Adult male (spring plumage, Mns. Seebohm). Upper and under surface dull blue, brightening into silvery blue on the forehead and crown; the face and throat the same, but less bright; lores and a fringe round the eye black; wings dark brown, the outer webs of the primaries and secondaries edged with dull blue; the primary-coverts and outer feathers of the median series with fine light edgings; quills faintly tipped light; tail slightly darker than the wings, the feathers margined with blue; breast and belly a duller blue than the breast, and with a few light tippings to the abdominal feathers.

In winter the adult male has the feathers edged with brown, and the blue is not so bright.

Adult female (normal dress). Above greyish brown, the feathers of the head with faintly indicated pale edgings, and the same on the rump; lores fulvous-grey; throat and fore neck fulvous, each feather with a dark brown edging; on the chest the feathers change into greyish brown, with the fulvous hue gradually reduced, and the dark edgings change into terminal bars on each feather, preceded by a fulvous patch; the under tail-coverts are generally of a richer hue than the rest—that is, rufescent fulvous, boldly barred with blackish. Messrs. Sharpe and Dresser contend, in their long and able review of the plumage of this species, that the female eventually assumes the blue dress of the male, in support of which theory they examined correctly identified specimens from various parts of Europe. It would appear, however, that the majority of female birds are shot in the brown dress—Mr. Hume having acquired a very large series from all parts of India, out of which only three were in the blue livery, which is, perhaps, merely the result of advanced age or barrenness, in which latter stage not a few species put on the plumage of the male.

Young. The nestlings of both sexes are alike, being brown, with dusky bars and light spottings; this dress is doffed by the male at his first autumn moult. Messrs. Sharpe and Dresser instance an example, shot in Macedonia in August, which was in a "state of change," moulting from the downy mottled white feathers to the blue immature dress, in which the upper feathers have white tips preceded by a black line; most of the feathers were shaded with brownish, as in the winter plumage of the adult.

An immature male in my collection, shot in March in Ceylon, appears to be in the next stage to the adult dress. The blue plumage of the upper surface is intermingled with brown pale-tipped feathers, principally on the head and hind neck; the wing-coverts, shorter tertials, and upper tail-coverts are tipped with white; the primaries and secondaries are tipped pale; under surface pale blue, lightest on throat; the chest-feathers are brown terminally, their extreme tips being fulvous; the feathers of the breast and lower parts are tipped whitish.

After the next moult the white edgings in this bird would disappear, and it would be in the dull blue brown-edged plumage of the adult winter dress.

Obs. The first writer on Indian ornithology who drew attention to the Blue Rock-Thrushes of the country was Col. Sykes, who described the species found in it as distinct, under the title of *P. pandoo*, alleging that it differed from the European bird in its smaller size, slighter form, brighter cærulean tint, want of orange eyelids and white tips to the feathers. As can be seen at a glance, however, these were individual peculiarities; and on further acquaintance with the species in India, Sykes's name relapsed into a synonym for the European bird, as did also, some years later, the *P. longirostris* of Blyth, founded on a Cashmere specimen.

It will not be necessary, in a local work such as this, to investigate the vexed question of the validity or otherwise of the eastern species, *M. solitaria*, a partly rufous form of the present. The subject has been ably treated by Messrs. Sharpe and Dresser in the 'Birds of Europe,' and by Mr. Hume in 'Stray Feathers.' It will suffice to state the case, and refer my readers to the exhaustive researches of these authors, should they wish to judge for themselves in the matter. From Eastern Bengal, through Burmah and Tenasserim, to the easternmost parts of China it is found that the males of the Blue Rock-Thrushes inhabiting that quarter of Asia assume a plumage which, in its perfect state, consists of a deep chestnut-colour from the breast to the under tail-coverts; they pass into this dress from the immature stage of the spring following their first moult, in which the blue feathers of the upper surface are pale-edged, and those of the throat dark-tipped; during the time this plumage is being acquired immature specimens are met with in every degree of advancement to the rufous coloration, while also mature examples, with a uniform blue upper plumage, are to be seen in every degree of diminution from the rufous dress—some having, for instance, only a small portion of the breast or abdomen thus coloured, while others may have no sign of it, except on the under tail-coverts, proving that the bird passes into the rufous stage, and then out of it as it gets fully adult. This character is not found in the females, for Mr. Hume can find no trace of it in a large series collected from Spain to Amoy.

It seems reasonable, I think, to assign the eastern form to the rank of a *local race* or *subspecies*, as in it alone, and not in the western, is found this peculiarity of coloration in the male bird.

Distribution.—The Blue Rock-Thrush is a migratory straggler to the hills of Ceylon, probably coming thus far south only during those years which witness an unusual stream to the Nilghiri hills and other elevated portions of Southern India. I have but to record two examples, both shot by a gentleman of the planting community who interests himself much in the birds of the island—Mr. Thos. Farr, of Maskeliya. The first was obtained in the vicinity of Kadugannawa during November 1872, and the second (one of a pair) on the Galloway-Knowe Estate, Nilambe, in March 1875; both were shot frequenting boulders beneath high precipices. This part of the Central Province, lying as it does to the westward of Kandy, is a district where an occasional migrant from India to our hills would naturally first lodge; but there are still more likely localities in the Kurunegala and Matale hills, where future research may prove that it locates itself during its short stay. That it does not wander far from those spots which are suited to its habits, and in which it first arrives, is evident on the testimony of one or two gentlemen who have described to me a bird, which can be no other than this species, frequenting the rocks in the same estate for a whole season. One of these instances occurred in the Knuckles, and another very close to where the first example above recorded was shot.

This Thrush is found throughout the whole of India in winter, arriving, according to Jerdon, about October, and retiring again in April. Regarding its distribution in the south, he writes that it is common in the Nilghiris in open and rocky ground, more rare in the Carnatic, very common in the Deccan and Central India, and abundant along the northern portion of the west coast, being likewise found in N.W. India, Cashmere, and the N.W. Himalayas. Additional evidence as to its localization in India is afforded by the writings of naturalists in 'Stray Feathers': Mr. Bourdillon says it visits the Travancore hills in small numbers; Mr. Fairbank remarks that it leaves the Deccan in March, and Khandala at the end of April. Mr. Ball writes that it is found near most of the large rivers in Chota Nagpur, and that he procured it in Singhbhum, Sirguja, and Hazaribagh. It is found throughout the Mt.-Aboo and Guzerat districts; and in Sindh, Mr. Hume writes,

it was by no means uncommon in the rocky hills that divide that province from Khelat, being abundant on the rivers flowing through these ranges; he likewise met with it on the Mekran coast and in Muscat.

It is, however, as I have stated, only a migrant to the East-Indian peninsula, and we must travel far to the north-west before finding its more permanent quarters. It is, in point of fact, chiefly found in the country bordering the Mediterranean both north and south, and is spread so entirely throughout Europe, that it occasionally visits Heligoland, and is stated to have been killed in Ireland in 1866. Captain Shelley frequently met with it in Egypt in April; and Von Heuglin considers it to be a visitor only in the spring and autumn months to that country, as also to Abyssinia and Arabia. It is common in Morocco and also in Andalusia on the Spanish side of the Straits, where Col. Irby says it is stationary. It is also found in Portugal. Further east, Mr. Basil Brooke says it is very common in Sardinia; and in Malta Mr. C. A. Wright testifies to the same fact. In South-eastern Europe it is a well-known bird, and spreads thence into Southern Germany, thence extending to the wonderful little bird-island of Heligoland.

Habits.—This species varies in its habits according to the locality it frequents. Its usual custom is, doubtless, as its name implies, to affect rocky places, boulder-strewn hill-sides, wild gorges, the stony banks of rivers, the vicinity of mountain-precipices, and other barren and inhospitable spots; and when thus met with is a shy and wary bird, manifesting a very restless disposition, flitting from rock to rock, and uttering a clear whistle as it takes flight on the approach of danger. Mr. Farr informs me that it displayed all these restless manners on both occasions when he met with it in the Ceylon hills. In parts of India, however (and the same is the case with the eastern variety), it is quite a familiar bird, "perching on housetops, feeding about stables, and frequently even entering verandahs, and sheltering itself during the heat of the day on beams and the eaves of houses." It is, in fact, writes Jerdon, supposed to be the Sparrow of the English version of the scriptures, "which sitteth alone on the house-top." Mr. Oates has a similar experience of it in Pegu; he says that "it is not unfrequently seen singly, more especially in the vicinity of wooden bungalows. At Thayetmyo one occasionally came into my compound for a day or so, and then suddenly disappeared for a month or two. It will flit into the verandah, sit on the post-plate, and remain for a few minutes in perfect silence." Mr. Elliot likewise noticed that it was very tame, often coming into houses and hopping about the verandah. It is usually a solitary bird, and feeds entirely on the ground on ants, Coleoptera, and various insects. Its song is said to be very sweet, and is commenced in India for some time before it leaves the country, not when feeding, but when it happens to have taken shelter during the heat of the day. It is caught in the Deccan and on the Bombay coast by the natives, and is much prized as a songster, being called by them the *Shána*, which name, however, really applies to the Long-tailed Robin (*Cittocincla macrura*). Col. Irby, who publishes some interesting notes on its habits in the 'Birds of Gibraltar,' writes that it frequents daily the same spots, attracting considerable notice, both from its agreeable song and conspicuous habits. He further remarks, "The Blue Thrush very often perches on trees, and at Gibraltar and Tangier is frequently seen on the house-tops, though generally observed on bare rocky ground. It is sometimes found in wooded parts, if there are any high rocks; for instance, a pair nest at the first waterfall at Algeciraz, which is in the midst of a dense forest. It has a habit, in the courting-season, of flying straight out from a rock, and then suddenly dropping with the wings half shut, like a Wood-pigeon in the nesting-time. The Blue Thrush is very fond of ivy-berries and all fruit."

Lord Lilford writes:—"It is very omnivorous; literally, fish, flesh, fowl, and fruit I have seen it devour with apparently equal gusto, to say nothing of almost any insect."

Nidification.—This handsome Thrush breeds, as far as India is concerned, in the Himalayas, nesting in June. Capt. C. H. T. Marshall, who alone has taken the eggs in that country, records that the nest "was in a low stone wall, at no great elevation, and that it contained 4 eggs." Mr. Hume describes one of these, in 'Nests and Eggs,' as having a pale, slightly greenish-blue ground-colour, closely speckled at the larger end with very minute brownish-red spots; a few similar specks are sparsely scattered over the rest of the surface of the egg." It is very small for the size of the bird, measuring 1.0 by 0.73 inch.



RUBIGULA MELANICTERA
MYOPHONUS BLIGHTI. ♂ juv

Genus MYIOPHONUS*.

Bill rather broad at the base, the tip somewhat lengthened and much decurved; rictal bristles much developed. Wings rounded, the 1st quill considerably lengthened, exceeding the shortest secondary; the 2nd, 3rd, and 4th graduated, and the 5th the longest. Tail-feathers lax. Tarsus long. Toes rather short.

MYIOPHONUS BLIGHI.

(BLIGH'S WHISTLING THRUSH.)

(Peculiar to Ceylon.)

Arrenga blighi, Holdsw. P. Z. S. 1872, p. 444, pl. xix.

Ad. sordidè cyanescenti-niger, uropygio et supracaudalibus rufescenti-brunneo lavatis: alis caudâque nigris, pennis omnibus dorsi colore extùs marginatis: tectricibus alarum minimis lætiùs cyaneis, plagam conspicuam exhibentibus: pileo toto, capitis lateribus et gutture toto nigerrimis: corpore reliquo subtùs dorso concolori, crisso et subcaudalibus rufescenti-brunneo lavatis: subalaribus pectori concoloribus: rostro et pedibus nigris: iride brunneâ.

Juv. brunneus, suprâ saturatior brunneus, subtùs rufescentior: frontis, gutturis et pectoris plumis flavescenti-brunneo medialiter notatis: plagâ cyaneâ alari vix indicatâ.

Adult male and female. Length 8·0 to 8·5 inches; wing 4·2 to 4·4; tail 3·1 to 3·5; tarsus 1·4 to 1·5; mid toe and claw 1·25; bill to gape 1·25.

Iris brown; bill, legs, and feet black.

Entire head, throat, and hind neck coal-black (the feathers of the chin with spinous shafts), changing into dark carulean blue on the interscapulars, back, scapulars, wing-coverts, chest, and breast, the basal portion of the feathers of these parts black; least wing-coverts and point of wing bright smalt-blue; wings and tail brownish black; quills obscurely edged with blue; upper tail-coverts and basal portion of rectrices edged chocolate-brownish; belly, lower flanks, and under tail-coverts edged with a lighter shade of the same, the basal portions of the feathers brown.

Female. The only example of this sex which has as yet been obtained was, Mr. Bligh informs me, similar to the male, but had the wing-spot lighter in colour, but at the same time of a brighter tint than in the male.

Young. An immature bird, figured in P. Z. S. 1872, pl. xix. fig. 2, is, writes Mr. Holdsworth, "brown, darker on the upper surface and more rufous below, the feathers of the forehead, throat, and breast centred with yellow-brown, and there is an indication of blue on the carpal joint."

Obs. This interesting Thrush is allied to *M. cyaneus* of Java, and forms one of the most noteworthy instances of the connexion, as regards some families, of the Ceylonese with the Javan avifauna. The South-Indian species (*M. horsfieldi*) has not nearly so much affinity with ours as the Javan bird. Blyth, with his wonted perspicuity, suggested, in his paper on Ceylonese birds (Ibis, 1867, p. 312), that *M. horsfieldi*, or a specialized representative of it, ought some day to be found in the island; and the value of his prophecy has been realized in the discovery of our handsome Whistling Thrush.

M. cyaneus is a larger bird than the present species. An adult male in the British Museum measures 5·8 and a female 5·4 inches in the wing; tail 3·0, tarsus 1·6, bill to gape 1·4.

* This genus, on account of its rounded wing and lengthened 1st primary, almost merits being placed in a separate subfamily. Jerdon, indeed, places it in the *Myiotherinae*, among which, however, he includes the Wrens and the Pittas, the latter not appertaining at all to the Thrushes. It will suffice, therefore, for the purposes of this work to keep *Myiophonus* among the Thrushes, particularly as Mr. Seebohm is now studying this group of birds with a view to giving the world a new classification of them in the 5th volume of the 'Catalogue of Birds.'

General plumage black; the hind neck, back, wing-coverts, and rump washed with hyacinth-blue; the centre portion of the feathers black; point of the wing deep hyacinth-blue; wings and tail black, the outer webs washed with blue; beneath black, washed with a darker blue than that of the back, except at the flanks, belly, and thighs, which are dull blackish; the bases of the feathers of the upper surface from the scapular region downwards, and of the under surface from the chest to the abdomen, are marked with a white lanceolate stripe; this character is not noticeable unless the feathers be raised.

An example of a male *M. horsfieldi* in the British Museum measures in the wing 6.3 inches. The species is very handsome. The lores and a frontal band are intense velvety black, while the head and the entire neck, chest, and interscapular region are jet-black; the outer webs of the wing-feathers are bright greenish blue, those of the tail a darker blue; least wing-coverts glistening smalt-blue; feathers of the breast and underparts with broad crescentic edgings of smalt-blue, of a deeper hue than that of the shoulder.

Distribution.—The present species, which is one of our rarest hill-birds, was discovered in 1868 by Mr. Samuel Bligh. He obtained it at an altitude of about 4200 feet, in forest on the banks of the Lemastota oya, which descends through the magnificent gorge below the Pite-Ratmalie Estate, Haputale, to the town of Lemas. Since that time he has procured one or two examples, and tells me that he has seen it several times, both in the Haputale and Kotmalie districts. In July 1870, Mr. Holdsworth procured a young bird near Nuwara ELLIYA; and in 1875 a male in fine plumage was shot by myself on the Badulla road, just above the Hakgala Gardens; finally, in December 1876 and in January 1877, Mr. Cobbold, of Maskeliya, obtained two male examples on the Maskeliya oya, a tributary of the Kelani, at about 3800 feet. In addition to the record of these few captures, I may mention that Mr. Forbes Laurie met with an individual on his estate at Kabragalla, near Nawalapitiya, at an elevation of about 3000 feet. This altitude is the lowest to which I have heard of it ranging; and I have no doubt it will be found in other forests of similar elevation throughout the coffee-districts; but I apprehend the jungles of the main range form its chief habitat. It is no doubt more common than such isolated captures would lead us to believe; but being a denizen of forest-clad mountain-gorges, which are mostly difficult of access, it has hitherto almost entirely escaped observation.

Habits.—The very shy nature of this handsome bird has doubtless conduced to its non-discovery until so recent a period. Mr. Blyth, in his note above quoted, remarked that a *Myiophonus*, or Whistling Thrush, was not a likely bird to have been overlooked; but, nevertheless, such was the case, for until late years the forests of the upper ranges had only been cursorily explored, and their most interesting novelties consequently remained to be discovered. It affects the vicinity of mountain-streams, and is very wary, keeping almost entirely to the shade of the thick forest, and only now and then showing itself on the rocks of the dashing torrent, where it will rest for a moment, piping out its "long-drawn, plaintive though loud, whistling note," or it will seize some looked-for morsel of food and then dart quickly out of sight. Its discoverer remarks that at such times it is very impatient of observation, and also that it appears to consort in pairs; this condition is, however, doubtless varied by the companionship of the yearling birds with their parents; and a brood of such probably combined to form a little troop of four which I met with at sunset on the occasion above mentioned. At this period of the day it exhibits the restless habits of the Thrush family by coming into the open and giving vent to its vocal powers, combined with a boldness apparently foreign to its nature; for the male which I procured at Hakgala sat whistling for some moments in an exposed tree by the roadside, and allowed me to dismount from my pony and shoot it! During the few minutes to which my observations were confined, the rest of the "family" flew hither and thither across the road, uttering a high sibilant whistle. It would likewise appear to wander occasionally from the shelter of the forest; for my friend Mr. Forbes Laurie tells me of one which he discovered beneath an umbrageous tree at the outskirts of a plantation, and which, when approached, took refuge under a coffee-bush, running in and out beneath the branches, and refused to depart until his coolies endeavoured to capture it by throwing a blanket over the shrub. Its food consists of various insects, Coleoptera, &c.; and in the stomach of my specimen I detected the bones of a frog, probably of the tree-frequenting genus (*Polypedates*). Mr. Holdsworth killed his specimen on the low branch of a tree near a mountain-stream.

It is much to be feared that the extensive felling of the forest for tea-planting, in the upper ranges, will limit within the smallest possible bounds the portion of country in Ceylon alone fit for the habitation of this species, and may possibly conduce to its ultimate extinction.

Nidification.—Nothing of any certainty is known of the nesting of the Whistling Thrush; but I am inclined to the belief that several nests which I have found on the banks of streams belonged to it. They resembled those usually constructed by this family, and were deep ample cups, composed almost entirely of moss and fine roots, fixed in niches, in overhanging trees, or in forks of sapplings at some height from the ground.

The figures in the Plate accompanying this article are those of a male shot by myself near Hakgala, and of a young bird procured by Mr. Holdsworth near Nuwara Eliya.

P A S S E R E S.

Fam. BRACHYPODIDÆ.

Thrush-like birds of *arboreal* habit, mostly frugivorous in diet, with the legs and feet short.

Bill variable, in most Thrush-like. Wings with the 1st quill not less than half the length of the secondaries. Tail of 12 feathers, and shorter than the wing.

Subfam. IRENINÆ*.

Bill very wide, the mandibles inflated; both culmen and commissure curved, the tip slightly hooked and notched. Nostrils round, perforated in a deep indentation, and protected by well-developed bristles. Rictal bristles small. Wings somewhat pointed, the 4th and 5th quills the longest, the 3rd equal to the 7th. Tail even. Legs and feet proportionately very short. Tarsus slightly exceeding the middle toe; the outer toe connected with the middle at the base as far as the 1st joint of the latter.

Nape furnished with long hairs. Sternum narrowed in front and widening considerably towards the posterior edge, which is indented with a wide notch close to the sides.

* I have placed this singular and interesting group of birds first in the family of Brachypodidæ because, as a sub-family possessing some abnormal characteristics, they are better in this position than following the Phyllornithinæ, with which they have nothing in common except the very superficial character of a partial blue coloration. That the *Irenas*, with their arboreal and frugivorous habits, their Brachypodine legs and feet, and wing- and tail-formation, belong to the short-legged Thrushes is the opinion of many able ornithologists. They were placed, through an oversight, in the Dieruridæ by Mr. Sharpe, and he now informs me that he considers them to have affinities with the Bulbuls. Mr. Hume argues, on the evidence afforded by their peculiar eggs, that they are not well placed in this position, and suggests that they will have to be located between the Paradiseidæ, Sturnidæ, and Icteridæ. Their totally different wings would, in my opinion, remove them far from the Starlings, and to the Birds of Paradise they possess only a rostral resemblance.

Genus IRENA.

Characters the same as those of the subfamily, of which it is the only genus.

IRENA PUELLA.

(THE FAIRY BLUEBIRD.)

Coracias puella, Latham, Ind. Orn. i. p. 171 (1790).

Irena puella (L.), M'Clell. P. Z. S. 1839, p. 160; Jerdon, Cat. B. S. India, Madr. Journ. 1839, x. p. 262; Blyth, Cat. B. Mus. A. S. B. p. 214 (1849, in pt.); Layard & Kelaart, Cat. B. Prodromus, App. p. 58 (1853); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 130; Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 273 (1854); Jerdon, B. of Ind. ii. p. 105 (1863); Walden, Ibis, 1871, p. 170; Holdsworth, P. Z. S. 1872, p. 452; Ball, Str. Feath. 1873, p. 71; Hume, Nests and Eggs, ii. p. 298 (1874); id. St. Feath. 1874, p. 226, et 1875, pp. 130, 325; Armstrong, ibid. 1876, p. 326; Sharpe, Cat. B. iii. p. 268 (1877); Fairbank, Str. Feath. 1877, p. 406; Hume & Davison, ibid. 1878, p. 328.

Irena indica, A. Hay, J. A. S. B. 1846, xv. p. 170.

Irena, sp.?, Kelaart, Prodromus, Cat. p. 124 (1852).

The Fairy Roller, Latham. *Nil rajah kurulla*?, Sinhalese.

Adult male and female (Andamans). Wing 5.0 inches; tail 3.85 to 4.2; tarsus 0.7 to 0.75; mid toe 0.6, claw (straight) 0.27; bill to gape 1.15; under tail-coverts falling short of the tip of the tail by 1.5.

Adult male (Ceylon, Poole collection). Wing 5.0 inches; tail 4.0.

Dr. Armstrong gives the measurements of Burmese examples in the flesh as:—Length 9.75 to 10.3 inches; wing 4.8 to 5.2; tail 3.75 to 4.25; tarsus 0.78 to 0.85; bill to gape 1.1 to 1.2.

“Iris light reddish brown, in a female deep red; bill, legs, feet, and claws black” (*Armstrong*).

Male. Top of the head to within one eighth of an inch of the culmen and the eyes, nape, back of neck, entire back, upper and under tail-coverts, sides of the rump, scapulars, lesser wing-coverts, and tips of the greater coverts glistening lazuline blue, mostly pervaded with a purplish hue, except on the head; rest of the plumage deep black, less intense on the wings and tail; the inner webs of the quills brownish black. At each side of the nape there are several lengthened hairs.

Female. Above and beneath a dull greenish or Prussian blue, brightening on the upper and under tail-coverts; the tips of the feathers are brighter than the central portions; the shafts of the feathers blackish; primaries, secondaries, and greater coverts blackish brown, the primaries edged with blue, and the inner secondaries washed with the same; central tail-feathers blue, and the remainder blackish brown, the innermost edged outwardly with blue; lores blackish, the ear-coverts duskier than the surrounding parts.

Obs. Layard's Ceylonese specimen corresponds entirely with an Andaman example in my collection, and the latter is identical with Indian ones. The Malaccan form (*I. cyanea*) differs from the Indian solely in the shorter tail, but equally long upper and under tail-coverts, causing a diminution of the distance between the tips of the coverts and those of the rectrices. *I. cyanea* measures in the tail 3.5 inches, and the upper tail-coverts fall short of its tip by about 0.9 inch, while the lower approach to within less than half an inch of it. The race inhabiting the more southerly region comprised of Labuan, Borneo, and Sumatra has the tail shorter still, about 3.2 inches, and the

under tail-coverts are produced in some examples quite to the tip of the tail. It has been named *I. criniger* by Mr. Sharpe, on account of the nuchal hairs, which are very prominent. Some Malayan examples of *I. cyanea* seem to form a link with this Bornean race, for the late Lord Tweeddale instances one in which the lower tail-coverts only fall short of the tips of the rectrices by $\frac{1}{8}$ inch. The Javan bird has been separated as another species, *I. turcosa*, by the last-named author, on account of the paler or more silvery tint of the blue colour; the under tail-coverts likewise reach to the end of the tail.

Distribution.—The extreme rarity of this species as a Ceylonese bird fosters the belief that it is a visitant to the island from the south of India. It could scarcely be a resident form, as it has very seldom been met with, and during all my wanderings in the timber-forests of the south and west I never saw a sign of it. Layard obtained a specimen near Kandy, which is still extant in the Poole collection, and Kelaart procured a second in the same district. Subsequently it has been met with in Saffragam, where the forest is usually lofty and luxuriant and eminently suited to its nature. For information of its existence in this district I am indebted to Mr. Hart, the taxidermist of the Colombo Museum, who met with a small flock in the neighbourhood of Rakwana in 1868, and still more recently near the same place in November 1877. On the last occasion three or four were observed perched on the summit of a lofty tree, out of which one was procured. I have no data concerning the season of the year in which the other examples were met with, and therefore it is still a matter of uncertainty whether it is migratory or not. On the mainland it is found in the lofty forests of Malabar, Travancore, the Nilghiris, and the Palanis. In the latter district Dr. Fairbank procured it at an elevation of 3500 feet, and observed it from the base of the range up to 4000 feet; he likewise notes it as an inhabitant of the Sawant-Wade woods in the Khandala district. Jerdon says that it is far from uncommon in the lofty jungles of Malabar, and remarks that he met with it in forest near Palghauteherry, Trichoor, the Wynaad, and on the Coonoor Ghât as high as 4000 feet and upwards. It does not seem to have been noticed anywhere between the Khandala district and the sub-Himalayan region. In the latter it is known at Sikhim. Captain Butler speaks of a specimen in the Frere-Hall collection at Kurrachee, stated to have been procured at Schwan in Sindh; but Mr. Hume suggests that, this locality being totally out of the range of the species, the bird must have escaped from captivity. Continuing, however, to trace out its range from Sikhim eastwards, we find it in Cachar, where Mr. Inglis says it is not rare, and further to the south in Burmah it is far from uncommon. Mr. Oates writes that it is extremely abundant in all the evergreen forests on the eastern slopes of the Pegu hills, but that it is never seen on the western slopes or on the plains. Dr. Armstrong states that it occurs sparingly at China-Bakeer, but is extremely abundant “at Syriam, where, in the early mornings, large flocks of these birds may be found feeding amongst the different fig-trees in the neighbourhood.” Extending to the south we find it in Tenasserim, common throughout the evergreen forests, rare in the north, and very abundant in the south of the Province. How far down the peninsula the typical *I. puella* extends does not appear yet to be known; but it is probable that it merges very soon into the Malayan race, for Mr. Hume testifies to the Mergui (South Tenasserim) specimens being already intermediate between the two.

Habits.—The Fairy Bluebird associates in small parties and affects lofty trees in foliage, feeding on their fruit. It is entirely a fruit-eating bird, and in this respect shows its affinity to the rest of the short-legged Thrushes (Brachypodidæ). It is never found, says Mr. Davison, in the deciduous forests of Tenasserim; the tenacious manner in which it confines itself to the evergreen jungle is remarkable, for he writes, “About Pappoon, where the forests are deciduous, I never saw one; but, again, about twenty miles to the north of that place, the bird reappears with evergreen forests.” The constantly recurring supply of food in the latter naturally accounts for the predilection of the Bluebird for them; but it is strange that when deciduous woods are found in their vicinity it does not wander through them during the season of fruition. Mr. Davison writes:—“It is almost always found in flocks, but occasionally in pairs or even singly. It is a very bright and lively bird, always on the move, hopping from branch to branch or flying from tree to tree, uttering its fine note, which resembles exactly the words ‘be quick, be quick.’ They live on fruit, I believe, exclusively, and are especially fond of figs; and where a fig-tree is in fruit great numbers congregate, with Hornbills, Green Pigeons, Fruit-Pigeons, and numbers of other fruit-eating birds. In the middle of the day

they habitually come down to the banks of streams and the smaller rivers to drink and bathe." Jerdon styles its note "a fine mellow warble, which it is constantly repeating, both when feeding and as it flies from one tree to another."

Nidification.—This lovely bird breeds in the forests of Southern India in the early part of the year. Through the researches of Mr. Bourdillon the particulars of its nidification have been made known. He found it nesting some years ago in a sappling about 12 feet from the ground; the nest was a loose sparsely built structure composed of "dead twigs lined with leaves, and was about 4 inches broad." More recently he has found others, concerning which Mr. Hume sends me particulars *in epist.* One was, writes Mr. Bourdillon to Mr. Hume, in "a pollard tree beside a stream among some thick branches about 20 feet from the ground; the nest was neatly but very loosely constructed of fresh green moss, which formed the bulk of it, and was lined with the flower-stalks of a jungle shrub. It was very well concealed, and was about 4 inches broad, with a cavity not more than $1\frac{1}{2}$ inch deep." Another nest was situated about 10 feet from the ground and was composed of twigs without any lining. The number of eggs seems invariably to be two. They are regular or elongated ovals; the shell is fine and close-grained, but not very glossy. The ground-colour is pale green, and they are streaked and blotched with pale dull brown or reddish brown. In one specimen they are "almost entirely confluent over the large end (where they appear to be underlaid with dingy, dimly discernible, greyish blotches), and from the cap thus formed they descend in streaky mottlings towards the small end, growing fewer and further apart as they approach the latter, which is almost devoid of markings." In others, he writes, the markings are pretty thick, even at the small end. The eggs average in size from 1.05 to 1.15 inch in length by 0.71 to 0.81 inch in breadth.

PASSERES.

BRACHYPODIDÆ.

Subfam. PYCNONOTINÆ.

Bill straight; the culmen curved; mandibles compressed towards the tip, which is distinctly notched. Nostrils basal, placed in a capacious membrane; rictal bristles well developed; nape furnished with hairs. Wings somewhat rounded, the secondaries lengthened. Tail shorter than the wings. Legs and feet typical in their shortness.

Genus HYPsipETES.

Bill long, commissure straight for the greater part, culmen but slightly curved. Nostrils long, protected by bristles, and with a tuft of feathers at the base; rictal bristles stout and not very long. Wings with the 1st quill very short, and the 4th the longest or equal to the 5th. Tail long and square at the tip. Legs short. The tarsus shorter than the middle toe and claw. Nuchal hairs lengthened.

HYPSIPETES GANEESA.

(THE BLACK BULBUL.)

Hypsipetes ganeesa, Sykes, P. Z. S. 1832, p. 87; Jard. & Selby, Ill. Orn. 2nd ser. pl. 2; Blyth, Cat. B. Mus. A. S. B. App. p. 339 (1849); Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 255 (1854); Jerdon, B. of Ind. ii. p. 79 (1863, in part); Blyth, Ibis, 1865, p. 42; Holdsw. P. Z. S. 1872, p. 450; Hume, Str. Feath. 1876, p. 400; Fairbank, ibid. 1877, p. 405.

Hypsipetes nilghiriensis, Jerdon, Cat. B. S. India, Madr. Journ. 1839, x. p. 245; Blyth, Cat. B. Mus. A. S. B. p. 207 (1849); Kelaart, Prodrum, Cat. p. 123 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 125; Jerdon, B. of Ind. ii. p. 78 (1863, in pt.); Hume, Nests and Eggs, ii. p. 280 (1874); id. Str. Feath. 1873, p. 438.

The Nilgherry Black Bulbul and *The Ghât Black Bulbul* (Jerdon).

Kele kondiya, Sinhalese.

Male. Length 9·6 to 10·5 inches; wing 4·5 to 4·9; tail 4·3; tarsus 0·8; mid toe and claw 0·85 to 0·9; bill to gape 1·35.

Iris faded red or orange, with a dusky tinge; bill coral-red, the nostril-membrane brown; legs and feet yellowish red, the claws blackish (these latter fade in dried specimens).

Lores, forehead, head, and nape glossy black, with a greenish lustre in freshly moulted birds; hind neck, back, rump, and upper tail-coverts dull bluish slate, the centres of the back-feathers dark; wings and tail dull brown, the wing-coverts, secondaries, innermost primaries, and tail-feathers at their bases edged with bluish ashy, the latter faintly so; cheeks and ear-coverts cinereous brown; chin darkish; throat, chest, and under surface faded slate-grey, paling on the abdomen; under tail-coverts slaty brown, with dark shafts and whitish edges.

Adult female. Length 9·6 inches; wing 4·4; tail 3·6; tarsus 0·7; bill to gape 1·2.

Iris, in some examples I have examined, slightly brownish.

Plumage similar to that of the male.

Young. Birds of the year have the tip of the bill and space round the nostril blackish; iris yellowish brown; legs and feet dusky yellowish.

Throat and under surface lighter than in the adult; wings and tail browner, or of a paler hue than in old birds; the quills deeply margined with pale tawny, and the edges of the tail-feathers slightly coloured with the same.

Obs. This bird has been known under two names—*H. ganeesa* of Sykes and *H. nilghiriensis* of Jerdon. The former author described his type from the Ghâts, and birds from that region were accordingly kept as *ganeesa*; while those from the Nilghiris were separated by Jerdon under the above-mentioned specific name, which he likewise applied to the Ceylonese race. Blyth pointed out (Ibis, 1865) the identity of the two forms; and Mr. Holdsworth accordingly applied Sykes's title to our birds. I cannot do better than subjoin Mr. Hume's note on this subject, written after he had fully satisfied himself that these two supposed species were one and the same. He writes (Str. Feath. 1876, p. 400):—"I have carefully compared seven specimens from Mahabaleshwar with nine from the Nilghiris, three from the Assamboo hills, and four from Ceylon. I find that adults and young birds from the three former localities are precisely similar; in the younger birds the bills are browner and the wings smaller, but there is no difficulty in matching any Mahabaleshwar bird with some Nilghiri one. Birds from Ceylon are, in all respects but one, identical with those from the other localities; but they certainly do appear to have somewhat larger bills. I entertain no doubt that the birds from all these localities should henceforth stand under Sykes's name of *ganeesa*." Blyth noticed a peculiarity in the Ceylon birds in that they were paler than those from South India. I have compared Ceylonese specimens with some from the Bombay district and Madras Presidency, and find scarcely any appreciable difference, except, perhaps, in the throat and flanks, which, in the Indian examples, are somewhat darker than in ours. A bird from Matheran measures 4·4 inches in the wing, and 1·21 in the bill from gape to tip.

The dimensions of an example shot by Mr. Fairbank in the Palanis are:—Length 9·5 inches; wing 4·6, expanse 14·0; tail 4·0; tarsus 0·75; bill to gape 1·1. Iris hazel, dyed with lake-red.

This species is allied to the northern form, *H. psaroides*, which differs in being generally paler, and more particularly as regards the lower parts and outer webs of the wing-feathers; the under tail-coverts are very broadly margined with white, and it is likewise a larger bird. The wings of 7 specimens in the national collection vary from 4·8 to 5·1. It inhabits Bengal and the sub-Himalayan region.

Mr. Hume has lately described an allied species to this latter, which inhabits the Tenasserim hills, as *H. subniger*. It is smaller and everywhere much darker, with the interscapular region black. Males—length 8·5 to 8·9 inches, wing 4·5 to 4·85.

Distribution.—The Black Bulbul is found throughout all the low country of the southern half of the island, wherever there is forest or wild secondary jungle, particularly that growing on the sides of moderately-sized hills. It is especially abundant in the interior of the Western Province, where the hills are well wooded, as in many parts of the Raygam and Hewagam Korales; in Saffragam it is extraordinarily numerous, swarming in the Peak forests and ascending to the highest elevations in it. In the Pasdun Korale and the southwestern hilly districts it is very common, extending into the Morowak and Kolonna Korales. It is also found throughout the Kandyan districts, and in the dry season frequents the upper forests in the main range and on the Nuwara-Elliya plateau. In the higher parts of Uva it is always stationary. As regards the forests of the northern half of the island, it may be said to wander about in them, being found here and there when perhaps little expected. I have seen it near Trineomalie during the north-east monsoon, and also in other localities between that station and Anaradjapura. From this latter place, and also from the forests near Puttalam, it is not recorded by Mr. Parker in the lists furnished to me by him, but it probably occurs in both.

This species does not enjoy a wide distribution on the mainland, though it is very numerous in the southern hilly portions of the peninsula. It abounds, says Jerdon, on the summit of the Nilghiris from 6000 to 8000 feet, and likewise frequents the district of Coorg. It extends along the Western Ghâts to the Mahabaleshwar hills, where Col. Sykes first procured it, the dense woods of that region being given by him as its habitat. Mr. Fairbank remarks that it is rarely found on the Mahabaleshwar plateau, though it is abundant on the Goa frontier; he found it on the tops of the Palanis and on the lower hills, and Mr. Bourdillon speaks of it as being very abundant at higher elevations on the Travancore hills, but less so at their base. It is likewise found on the Assamboo hills.

Habits.—This large Bulbul frequents forest, jungly ravines, steep woods, and most places in which there are large trees. It is a sociable and very restless bird, extremely noisy and lively in its movements, and possessing, for a Bulbul, very varied notes. Out of the breeding-season it congregates in vast flocks to feed on certain fruits, and, dashing about from tree to tree with loud notes, and with apparently no other object than that of chasing its companions for amusement, it fills the forest with a ceaseless din, completely drowning the voices of all other birds. Among its various notes is one frequently uttered when in company, resembling the sound *tchéé*, and another, a call-note, which may be likened to the syllables *zū-kink up*, *zū-kink up*, repeated several times, and nearly always given forth when alone, either on the wing or feeding. Its usual harsh warble, so well known to those who have frequented the forests in the south and west of Ceylon, is uttered from the tip top of a high tree, to which the bird, with some show of good sense, invariably mounts when it desires to make itself heard! Its diet consists of fruits, seeds, and berries; and when many trees are in bearing in the same spot, all the Black Bultuls in the neighbourhood flock to them in great numbers: it, however, also feeds upon insects; and I have observed it dart occasionally at them from its perch, although its usual manner of capturing them is to seize them from the branches of trees, to which it will sometimes cling after the manner of a Tree-creeper.

Concerning its economy in India I find the following observations:—Jerdon writes that it lives in small flocks in the dense woods, feeding on various fruits and berries, usually on the tops of trees; it keeps up a lively and agreeable warbling, which it often continues during its occasional flight from one tree or patch of wood to another. Its flight is undulating, easy, and rapid. Mr. Bourdillon finds that they are gregarious and very noisy, apparently preferring the tops of trees, though they also feed on the berries &c. found in secondary jungle. Mr. Fairbank noticed that they only assembled in flocks during the month of June.

Nidification.—In the western parts of the island this species breeds from January till March, building its nest on a horizontal bough or in the fork of a lateral branch at a considerable height from the ground. It is a compact, though rather untidy-looking structure, made of dead leaves, roots, and moss, and lined with fibres and “bents.” The eggs are normally two in number, of the usual ovate shape characteristic of Bulbuls; ground-colour white, spotted and speckled with reddish brown, somewhat confluent at the obtuse end. Axis 1·0 to 1·05, diameter 0·72 to 0·73 inch.

In India it breeds, according to the experience of several observers, from March until June, laying two eggs. Mr. Davison writes, “The nest is generally placed from 12 to 20 feet from the ground, in some dense clump of leaves; favourite sites are the branches of parasitic plants with which nearly every acacia, and, in fact, nearly every other tree about Ootacamund, is covered. The nest is composed exteriorly of moss, dry leaves, and roots, lined with roots and fibres.” Mr. Wait writes of its nest, as made at Coonoor, that it is neatly and firmly made, composed chiefly outside of green moss, grass-stalks, and fibres; while inside it is lined with fine stalks and hairs; the cavity is from $2\frac{1}{2}$ to 3 inches in diameter, and about half that depth. The ground-colour of the eggs, says Mr. Hume, varies from white to delicate pink. The markings consist of different shades of deep red and pale washed-out purple, which in some eggs are bold, large, and blotchy, and in others minute and speckly, and in both forms there is a tendency to form an irregular zone round the large end; the shell has commonly little or no gloss, and is very fragile. The eggs vary from 1·0 to 1·17 inch in length by 0·7 to 0·8 in breadth.

Genus CRINIGER.

Bill stout, much shorter than in *Hypsipetes*, moderately curved, the tip notched. Nostrils linear, protected by fine bristles; rictal bristles moderate. Wings with the 4th and 5th quills equal and longest. Tail rather long, broad, wider at the tip than at the base. Legs and feet small. Tarsus about equal to the middle toe and claw.

Nuchal hairs more numerous than in the last genus.

CRINIGER ICTERICUS.

(THE FOREST BULBUL.)

Criniger ictericus, Strickland, Ann. & Mag. Nat. Hist. 1844, xiii. p. 411; Kelaart, Prodro-mus, Cat. p. 123 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 124; Jerdon, B. of Ind. ii. p. 82 (1863); Legge, J. A. S. (Ceylon Branch) 1870-71, p. 43; Holdsworth, P. Z. S. 1872, p. 450; Hume, Nests and Eggs, ii. p. 282 (1873); Legge, Ibis, 1874, p. 20, et 1875, p. 396; Bourdillon, Str. Feath. 1876, p. 400.

Pycnonotus ictericus, Blyth, J. A. S. B. 1844, xiv. p. 570.

Hemixos icterica, Blyth, Cat. B. Mus. A. S. B. p. 207 (1849); Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 250 (1854).

The Yellow-browed Bulbul (Jerdon).

Male. Length 8.0 inches; wing 3.7; tail 3.3; tarsns 0.72; mid toe and claw 0.75; bill at front 0.7, to gape (straight) 0.82.

Iris light red, or red; bill black; legs and feet bluish leaden or dusky slatish.

Lores and at the base of nostril, supercilium, face, throat, and entire under surface, under tail- and under wing-coverts, with the basal portion of the inner margins of the quill-feathers and tertials, sulphur-yellow; the face, side of throat, and flanks shaded with the hue of the back; entire upper surface olive-green; inner webs of quills brown, the shafts dark brown; inner margins of all but central rectrices yellowish, the shafts are brown above and yellow beneath.

Female. Length 7.75 inches; wing 3.3 to 3.5; tail 3.1.

The yellow in front of the eye is confined to the lores; the under surface slightly duller, the face duskier than in the male.

Young. Birds of the year have the cheeks faintly barred brownish, and the flanks generally somewhat darker than adults.

Obs. Indian specimens of this bird that I have examined measure as follows:—S. India—wing 3.5 inches, tail 3.3; S. India—wing 3.6, tail 3.4; Coorg—wing 3.6, tail 3.5. Size of bill and plumage identical with Ceylonese examples.

The nearest Indian ally to our bird is the northern form *C. flaveolus*, Gould. An example in the national collection from Nepal has the head dull rusty brown, the feathers elongated; lores, forehead, chin, and throat greyish white; back greenish yellow, with a rusty tinge; wings and tail rusty brown; chest and under surface dull yellowish: wing 4.1. As showing, however, the singular affinity of the Malayan avifanna with that of Ceylon we have a much more closely related species in the *C. simplex*, Kuhl, of the Malay islands. This species has the upper surface almost of the same tint as in our bird; the throat and under surface dull yellow, suffused with olive-greenish on the sides of the chest and flanks; it wants the yellow lores and face, which parts are duskier than the head. Wing 3.5 to 3.7.

Distribution.—This fine Bulbul is widely diffused throughout the island, restricting itself to forests and heavy secondary jungle, in which it is a common bird. It is essentially a denizen of timber-jungle, for though it is not found in the cultivated portions of the Western Province, directly the forests in the Hewagam, Raygam, Thrice and Four Korales are entered it at once forces itself upon the acquaintance of the naturalist. In the Pasdun Korale, throughout Saffragam, in the south-west (beginning as near the sea as Kottowe and Baddegama), and in the Morowak and Kukkul Korales it is a common bird. It is scattered throughout all the northern forests, but does not apparently inhabit the Jaffna peninsula, for the simple reason that there is no heavy jungle on it. In the wilds of the Eastern Province, and in the forest along the rivers flowing through the Park country and the district lying to the south of Haputale, it is also found. As regards the

Kandyan Province, it is a common bird in the forests up to an altitude of 3500 feet, and in the "Knuekles," and on the slopes of the main range and the Peak wilderness, ascends to a greater elevation than this, but does not, as far as I am aware, inhabit the immediate neighbourhood of Nuwara ELLIYA. In Uva it is very numerous, affecting even little patches of jungle on the patna-streams.

Those who have not collected much in the heavy forests of the low country have but little idea how common a bird this Bulbul is in the particular localities which suit its habits. Kelaart wrote that it was a common species in the low country; but Messrs. Layard and Holdsworth have taken exception to this statement, inasmuch as they had not perhaps met with it themselves. Layard infers that Kelaart spoke of *Ixos luteolus*, and it is possible that there may have been such misidentification; but nevertheless, as I have shown, it is a common bird in all the *forests* of the low country; had Kelaart written of it, "common in the low-country *forests*," his statement would have been beyond criticism.

As regards the mainland, this species has only been found in the peninsula, and its range does not appear to extend further north than Bombay. Dr. Fairbank, who records it as common on the Goa frontier and rarely found on the Mahabaleshwar plateau, remarks that it may extend along the strip of country which, with similar conditions of climate and food, reaches as far up the west coast as Surat. Mr. Bourdillon states that it is a common bird in the Travancore hills, and in the Palanis it is said to inhabit an elevation of 4000 feet and upwards. Jerdon writes that it prefers mountainous regions at from 3000 to 5000 feet, being abundant on the slopes of the Nilghiris at that altitude, although it is also occasionally found "at a few hundred feet above the sea-level."

Habits.—No bird that I am acquainted with appears to be more at home in the solitude and shade of the forest than the present. It is often met with associating in a little party far from the proximity of other species, hopping actively about among the boughs of lofty trees or in the luxuriant sappling growth beneath them, in which it finds no lack of insect-food, and, during the time that it is partaking thereof, testifies to a happy existence by frequently flying on to some bare branch, to give out its quiet little warble and then resume its sociable fellowship with its companions. I have always found it in the society of one or two of its fellows, the little troop thus formed exhibiting a most restless character: their sombre-coloured backs and wings and perpetual movement make it difficult to discern them among the foliage, although they may be heard warbling close at hand; and it not unfrequently happens that, when the jungle is at all thick, they disappear without being detected, notwithstanding that the branches around have been diligently scrutinized in the search for them. They do not, as a rule, keep to the tops of trees, but usually hunt for their food in lateral branches or on the upper boughs of sapplings. Their low-toned varying notes are difficult to describe, but, on the whole, form a not unpleasing little warble. Some of them resemble the sounds *clŷ eye, te white up, te whit up*, which three modulations are continuously repeated for no little space of time. I have found its food to be more insectivorous than frugivorous; but in India it is said of it that the latter condition chiefly obtains. Mr. Bourdillon writes that it wanders "about in small flocks, feeding almost entirely on fruits and seeds." Jerdon says of it, in the Madras Journal Lit. and Sei. x. p. 249, "In all specimens I have examined I have found fruit only in its stomach; but, from the strong bristles at the base of the bill, I suppose it may, at certain seasons, partake of insects."

Nidification.—I once found the nest of this bird in the Pasdun-Korale forests in August; little or nothing, however, is known of its breeding habits in Ceylon, so that it most likely commences earlier than that month to rear its brood. My nest was placed in the fork of a thin sappling about 8 feet from the ground. It was of large size for such a bird, the foundation being bulky and composed of small twigs, moss, and dead leaves, supporting a cup of about 2½ inches in diameter, which was constructed of moss, lined with fine roots; the upper edge of the body of the nest was woven round the supporting branches. The eggs were two in number, of a reddish-white ground-colour, rather thickly freckled throughout with sienna, and forming a well-marked zone round the obtuse end. They were broad, rather stumpy ovals, and measured 0.97 inch in length by 0.70 inch in breadth. The situation of this nest was near a stream in the forest; and many other old ones, which, I believe, belonged to this species, were in similar spots. Mr. Hume, in his 'Nests and Eggs,' remarks that some eggs which he received had "only the faintest trace of pale pinkish mottling towards the large end,"

while others were "thickly freckled all over, most densely at the large end, with salmon-pink or pale pinkish brown," showing that they are subject to considerable variation in colour.

Naturalists quoted by Mr. Hume speak of the nest being "suspended by the outer rim to two branches," or "attached to twigs by cobwebs," and never placed in a fork. My experience (and I have no doubt about my identification) tends to show that it does build at times like other Bulbuls. The bottom of the nest was *in the fork*.

Genus IXOS.

Bill stouter, wider at the base, and less compressed at the tip than in *Criniger*. Wings shorter, less pointed, with the 5th and 6th quills subequal and longest. Tail not so broad and less square at the tip. Legs and feet stout. The toes strongly scaled; lateral toes equal; claws rather short. Nuchal hairs lengthened, but scanty.

IXOS LUTEOLUS.
(THE WHITE-EYEBROWED BULBUL.)

Hæmatornis luteolus, Less. Rev. Zool. p. 354 (1840).

Pycnonotus flavirictus, Strickl. Ann. & Mag. Nat. Hist. 1844, xiii. p. 413; Blyth, J. A. S. B. 1845, xiv. p. 567; id. Cat. B. Mus. A. S. B. p. 210 (1849); Kelaart, Prodromus, Cat. p. 123 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 124 (*flavirictus* errore).

Pycnonotus luteolus, Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 243 (1854).

Criniger tickelli, Blyth, J. A. S. B. 1845, xiv. p. 571.

Ixos luteolus, Jerdon, B. of Ind. ii. p. 84 (1863); Holdsw. P. Z. S. 1872, p. 450; Hume, Nests and Eggs, ii. p. 283 (1874); Ball, Str. Feath. 1874, p. 410, et 1876, p. 235; Fairbank, *ibid.* 1877, p. 405.

The Yellow-bellied Bulbul, The White-browed Bush-Bulbul in India; *The Cinnamon-Thrush* (Europeans in Ceylon). *Poda-pigli*, Telugu; *Pastro kondache*, Portuguese in Ceylon. *Guluguluwa*, Sinhalese.

Adult male and female. Length 7·4 inches; wing 3·1 to 3·3; tail 3·0 to 3·2; tarsus 0·8 to 0·95; mid toe and claw 0·8; bill to gape 0·8 to 0·9.

Iris variable, rust-colour, dull red, or blood-red; bill black; legs and feet dusky-lead blue or plumbeous.

Above olivaceous brown, the edges of the feathers obscure greenish; on the head the centres of the feathers are brown, edged with greyish, below the eye and a broad stripe from nostril above it white, with a dark brown dividing line above the lores; quills and wing-coverts edged with greenish; the tail the same but duller, the exterior feathers tipped with yellowish grey; shafts reddish brown; ear-coverts brownish; beneath whitish, washed with brownish on the chest, and becoming yellowish on the lower breast and abdomen; vent, under tail-coverts, and under wing-coverts pale sulphur-yellowish, showing rather conspicuously beneath the carpal joint. Some examples have the feathers of the chest more markedly edged with yellowish than others.

This Bulbul is in a constant state of moult, affecting its plumage chiefly at the back of the neck, which part is often quite bare.

Young. Iris not so bright a red as in the adult. Plumage similar.

Obs. Two examples from South India measure in the wing 3·3 and 3·4 inches respectively: one is identical with Ceylonese specimens, the other is tinged with rusty; the throat and vent are more tinged with yellow than in my examples of our bird.

Another *Ixos* from South India, found on the Eastern Ghâts, is *I. xantholaemus*, Jerdon, the "Yellow-throated Bush-Bulbul." It has the head, face, and occiput dusky yellowish green, the chin and throat yellow; hind neck and back ashy grey; wings and tail hair-brown, the margins of the feathers greenish; under surface pale brownish grey, under tail-coverts yellow. An example in the British Museum measures in the wing 3·15.

A more closely-allied Bulbul to *I. luteolus* is *I. analis* from Java. It has very much the appearance of our bird, but the lores and a ring round the eye are black, the supercilium is very broad and spreads at the back of the eye over the face and ear-coverts; the brown of the upper surface is more ruddy than in *luteolus*, and the tail-feathers not margined with greenish; throat whitish buff; under tail-coverts and vent yellow; the under surface greyish, the centres of the feathers on the chest brown. The wings of examples in the national collection measure from 3·4 to 3·5 inches. I instance this species to show, as in the case of *Criniger simplex*, how nearly allied the avifauna of Java is to that of Ceylon.

Distribution.—This soberly-clad and familiar bird is one of the commonest and best-known species in Ceylon; it is very abundant in most parts of the low country both in the north and south of the island, and is especially so in the maritime districts. In the low jungle-covered tracts round the whole of the north

coast and in the scrubs bordering the south-eastern shores it is as numerous as on the western sea-board. In the interior it is almost everywhere to be met with, whether in the semicultivated country between Colombo and the Kandyan hills, the forests of the northern half of the island, or the similarly interminable jungles of the Eastern Province. In the south-western hill-region it chiefly frequents the open and partially cultivated tracts of country; but it is also found in wooded places, particularly in secondary jungle, where the forest has been, at some time or another, cut down by the natives. In the Kandyan province it is common in Dumbura and the surrounding neighbourhood up to an elevation of about 2500 feet; but in the eastern district of Uva I have observed it much higher, for in that part it frequents the patna-scrubs which clothe the hills between Fort Maedonald and Badulla. I noticed it everywhere in the Jaffna peninsula; and Mr. Holdsworth writes that it is equally common at Aripu and Colombo.

Jerdon writes of this Bulbul that it is plentiful in many parts of South India, that it is not found in the forests of Malabar, but is common in low jungle and on the skirts of the forests occasionally. In the Carnatic it is tolerably common in bushy jungle, and even in gardens in wooded districts, also throughout the Northern Circars to Goomsoor; and in Central India it was found by Tickell. It is not, however, remarks Jerdon, known at Jubbulpore, Saugor, Nagpore, nor Mhow, nor on the bare tableland of the Deccan. Referring to 'Stray Feathers,' we find Dr. Fairbank testifies to its local distribution in his remarks on the Khandala district, and says that it is found in thickets by the Gatprabha river, but not on the Goa frontier; further north it inhabits portions of the country near Bombay. Mr. Ball writes that it is very abundant in Orissa, throughout a broad zone in which the vegetation is characterized by certain species of plants which are not met with further to the west, and which district, he says, extends "westwards as far as Ungul," beyond which it is not found. Colonel Tickell procured it at Midnapur, which, I imagine, is its most northern limit. In the Palani-hill list it is included as common at the east base of the hills.

Habits.—This Bulbul has been named the "Cinnamon-Thrush," on account of its abundance in the plantations of that tree in the Western Province. It is fond of frequenting open bushy land, scrub, woods in cultivated country, thickets at the edge of jungle, and underwood in dry forests; in heavily-timbered country it is not nearly so frequent, although it is more so than the Common Madras Bulbul. Except when feeding on some favourite fruit, it does not usually affect tall trees, but prefers to live in the thick cover afforded by brambles and other dense undergrowth, to none of which is it more partial than to the *Lantana*-scrub so abundant in the Western Province and in Dumbura. It associates usually in pairs, and, concealing itself from view, frequently utters its loud, jerky warble while threading its way through the thickets, or darting actively in and out with a quick irregular flight, and thus gives one the impression of being a most busy bird! In the evening it is particularly restless and noisy, and before going to roost flies to and fro among the bushes, darting into the thickest cover at hand, where it gives out its voluble notes, and then starts out again with a rustle loud enough to be caused by a much larger bird. It is both insectivorous and frugivorous in its diet, but chiefly the latter; and there is nothing to which it is more partial than the seeds or berries of the *Lantana*-plant.

Nidification.—The breeding-season of this bird in the west and south-west of the island lasts from December until June, the months of April and May appearing to be the favourite time. On the eastern side it breeds during the north-east rains. It builds in a low bush, placing the nest in the fork of an upright branch, sometimes 3 or 4 feet from, and at others close to, the ground. It is a rather loosely made cup-shaped structure, built of small twigs, grass-stalks, and fine roots, with occasionally a few dead leaves at the bottom to act as a foundation; the lining is scanty and is of fine grass. The eggs are from two to four in number, ovate in form, but sometimes stumpy at the large end; the ground-colour is reddish white or pale reddish, covered openly throughout with brownish or claret-red over a few markings of lilac-grey; in many specimens the spots are confluent round the obtuse end. They measure from 0.9 to 0.95 inch in length by 0.63 to 0.65 inch in breadth.

At Bombay it is recorded as laying in June and September, building a loose straggling nest in a bush a few feet from the ground; it is there made of fine twigs, lined with grass-stems, and portions of the exterior tied with wool and cobwebs to the surrounding twigs. A correspondent of Mr. Hume's draws attention to a nest which was tied at one place to a twig to prevent its being blown off its insecure site.

Genus RUBIGULA.

Bill short, stout, rather straight; rictal bristles moderate. Wings short and rounded; the 4th and 5th quills equal and longest. Tail nearly even at the tip. Legs and feet small. Tarsus feathered just below the knee, as in the preceding genus; toes short; claws long and acute.

A portion of the back of the neck bare, but overlaid by the occipital feathers. Nuchal hairs short.

RUBIGULA MELANICTERA.

(THE BLACK-HEADED BULBUL.)

(Peculiar to Ceylon.)

Muscicapa melanictera, Gmelin, Syst. Nat. i. p. 941 (1788).

Ægithina atricapilla, Vieill. N. Dict. i. p. 176 (1816).

Iora nigricapilla, Drapiez, Dict. Class. vi. p. 170 (1840).

Rubigula aberrans, Blyth, J. A. S. B. 1846, xv. p. 287.

Pycnonotus atricapillus, Blyth, Cat. B. Mus. A. S. B. p. 211 (1849); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 125.

Pycnonotus nigricapillus, Kelaart, Prodrumus, Cat. p. 123 (1852).

Rubigula gularis, Kelaart, l. c.

Rubigula melanictera, Walden, Ibis, 1866, p. 316; Blyth, ibid. 1867, p. 304; Legge, J. A. S. (Ceylon Br.) 1870-71, p. 44; Holdsworth, P. Z. S. 1872, p. 452; Legge, Ibis, 1874, p. 20; id. Str. Feath. 1875, p. 368; id. Ibis, 1875, p. 396.

Yellow-breasted Flycatcher, Brown, Ill. pl. 32; *Le Cap nègre*, Le Vaill. pl. 140; *Le Gobe-mouche noir et jaune de Ceilan*, St. Croix; *Black-capped Tanager*, Latham.

Ka-kurulla, Sinhalese in Western Province.

♂ *ad.* suprà saturatè flavicanti-viridis, uropygio et supracaudalibus latius flavis: tectricibus alarum dorso concoloribus, majoribus et primariis brunneis lætiore flavo limbatis, secundariis dorsi colore lavatis: rectricibus nigricanti-brunneis, versùs basin olivacentibus et olivaceo lavatis, omnibus (duabus mediis exceptis) albo terminatis, exterioribus latius apicatis: pileo haud cristato nuchâque nitide nigris: loris, facie laterali, genis et regione parotica nigris: corpore subtùs toto lætè flavo, lateribus vix olivacenti lavatis: subalaribus et axillaribus flavis, majoribus basaliter albis: remigibus infrà brunneis, intùs versùs basin albicanti marginatis: rostro nigro: pedibus nigricanti-olivaceis: iride sordidè rubrà.

Adult male and female. Length from 6.3 to 6.5 inches; wing 2.7 to 2.9; tail 2.5 to 2.6; tarsus 0.6; mid toe and claw 0.58; hind toe and claw 0.48; bill to gape 0.75 to 0.8. Females are the smaller of the sexes.

Male. Iris dull red; bill black; legs and feet blackish.

Female. Iris dark brown; legs and feet deep plumbeous or blackish blue.

Head and face, down to the level of the lower mandible, glossy black; lower part of hind neck, back, scapulars, upper tail-coverts, upper surface of tertials, and edges of quills dusky olivaceous green, palest on the rump, and with a brighter or yellowish hue on the outer webs of the primaries; the first primary and the tips and inner webs of all the other quills brown; tail blackish brown, edged, principally near the base, with the hue of the back, and with a terminal white spot to all the feathers but the central pair, which are simply tipped with it; chin, throat, lower part of breast, abdomen, and under tail-coverts saffron-yellow; the chest and flanks washed with olivaceous green; under wing-coverts and flexure of the wing yellow.

Obs. The history of this species has been fully worked out by the late Lord Tweeddale in an article published in the 'Ibis' for 1866, in which is given a comprehensive review of the different names applied to it by various authors, and a satisfactory conclusion arrived at as to which should have the priority. Vieillot's name of *atricapillus*, founded on Le Vaillant's "*Cap nègre*" (a title bestowed by the latter in 1802 upon a bird six specimens of which he received from Ceylon), was thought to be the oldest, and is the one used by Layard in his notes on the ornithology of Ceylon. It is, however, plainly demonstrated, in the article referred to, that the bird was sent from Ceylon many years previous by Governor Loten and figured by Brown in 1776, in his 'Illustrations,' as the Yellow-breasted Flycatcher, upon which plate Gmelin founded, in 1788, his *Muscicapa melanictera*, thus establishing, by fourteen years, the priority of this last-named specific title. Some doubt is maintained as to whether the *Cap nègre* is really a peculiar Ceylonese form after all; for Gould described a species, *said to be* from Travancore, under the name of *Brachypus gularis*, and which the Marquis of Tweeddale (*loc. cit.*) contends, from the description of the skin, was identical with the Ceylon bird. Some years later Jerdon figured another species with a red throat from Malabar, which he considered might be the same as Gould's bird, in the description of which no mention was made of the red throat. He styled it *Brachypus rubineus*, which title, however, he afterwards placed as a synonym of *Brachypus gularis*, in the 'Birds of India;' and the latter name, I observe, is still in vogue with Indian naturalists when writing of the Ruby-throated Bulbul. Now either Gould's bird was from Ceylon and not from Travancore, or else it was from the latter place and he omitted to notice the red throat* in his description; or, failing this, perhaps he had to do with a young bird which had not acquired this distinguishing character. If neither hypothesis holds good, then Gould's bird was actually the same as ours, which, therefore, inhabits the South of India as well as Ceylon, and his name does not apply to Jerdon's Ruby-throated Bulbul. I cannot bring myself to accept this latter theory, as the present species has never since been detected in South India, and I am loath to reduce it from its rank in this work as a *Ceylonese* bird.

It is remarkable that the eye of the male should differ from that of the female. We find the same singular character in the case of two other Ceylon birds, viz. the Red-faced Malkoha and Palliser's Ant-Thrush.

Distribution.—The Black-headed Bulbul occurs throughout all the forest-tracts of the low country, ascending the mountains of the Kandyan and Southern Provinces to an altitude of about 5000 feet in the former, and to the limits of the jungle in the latter. It is plentiful in suitable localities in the Western Province, being found within 4 or 5 miles of Colombo; it is also abundant in all the south-western hill-regions, although almost absent from the arid maritime district between Hambantota and the Park country. It is a common bird in all the forests of the northern half of the island, being numerous round Trincomalee and along the coast to the north of that place. In Uva, Haputale, and the eastern coffee-districts it is found up to the afore-mentioned altitude; but I have not observed it so high on the western side. About Kandy and the circumjacent districts it is very common, preferring to the forests the deep valleys of the Mahawelliganga and its affluents the Maha oya and Billul oya, as well as other similarly openly-wooded localities. Mr. Holdsworth does not record it from Aripu, the country in that immediate district being too open for it; but I have no doubt but that it is found in the adjacent forests of the interior.

Habits.—The "*Cap nègre*" frequents shady luxuriant forest, low jungle, echeena-woods, deserted grounds, the wooded borders of tanks, and so forth. It is very partial to forest, and is one of the commonest denizens of such locality in Ceylon. It is met with either in pairs or three or four together, and at times is socially inclined towards its neighbours of the forest, consorting with the Forest-Bulbul, *Criniger ictericus*; and in less heavily timbered spots may be found in company with the common White-eyebrowed Bulbul, *Ixos luteolus*. It delights in the well-wooded shady ravines, watered by rocky streams, which intersect the patnas throughout the Central Province; and while halting for an instant by these delightful brooks on my journeys from one estate to another, I have generally heard its unpretending little warble, which is much like the syllables *whēe-whēe*, *whēe-whēe*, frequently repeated. It generally affects the lateral branches of large trees, and searches about among the outspreading boughs for its food, which is chiefly insectivorous; small seeds are sometimes devoured by it, and I have found snails of some little size and also minute ammonites in its stomach. I have occasionally seen small parties in the topmost boughs of large trees; but to ascend thither is not its usual habit, and in such cases it is probably enticed from the foliage beneath by the presence of other birds.

* Lord Tweeddale latterly held this idea, which he expressed to me, *in epist.*, shortly before his death.

Towards its own kin it is extremely sociable, generally living in close fellowship, particularly in the nesting-time. It is rarely disturbed without the little call-note *whēē-whēē* being speedily heard, and its companion is seen flying across the jungle-path or other spot in search of it.

Nidification.—This Bulbul breeds in the southern and central portions of the island from April to September, probably rearing two broods. In the Kandyan Province Mr. Bligh has found its eggs in the former and I myself in the latter month. It usually builds in the fork of a low tree or bush near the ground, and sometimes even on a dead stump. I have taken the nest fixed in a horizontal bifurcation of a small branch which overhung a mountain-stream. It was a loosely-constructed fabric, but tolerably substantial notwithstanding, made in a cup-shape of fine roots, grass, bents, and very small twigs, among which were fixed some dead leaves, the interior being lined with fine grasses. The eggs were two in number, and the diameter of the nest inside was $1\frac{3}{4}$ in. by $1\frac{1}{4}$ in. in depth. In other nests brought to my notice there were three eggs; one of these was constructed of grass and creeper-tendrils and placed on a low stump amidst some bushes. In the southern province I have received its eggs in the beginning of April. Mr. Bligh describes to me a nest which he found in Haputale on the top of an isolated bush about 6 feet from the ground. "It was," he writes, "barely daylight when it was discovered, and the old bird was on the nest; this I took; and about half an hour afterwards, on returning to the spot, found the bereaved pair sitting by each other, their sides touching, close to the former position of the nest; and though I approached within two yards of them, they sat still, wearing the most dejected aspect—as well they might!—causing me much to regret having removed it, although I was under the impression that it was the first nest of this species ever discovered." It was, he remarks, a simple but very strong little structure for the materials used; the outside was principally composed of small dead leaves with rough surfaces, next to which was a thin weaving of a kind of flower-stalk which partly entwined the leaves; these stalks were a few inches in length, with a rough exterior, and of the thickness of very thin twine: to the minute barbs on the surface of these stalks was fixed here and there some spiders' webs, which, combined with the peculiar nature of the stalks, which readily adhered to one another, formed a compact and strong material. The interior measured 2 inches in breadth by $1\frac{1}{2}$ inch in depth, and was lined with fine grass and fibres.

The eggs vary but little in character: the ground-colour is reddish white, thickly covered with moderately-sized spots of reddish brown, dusky red, and red, under which lie a few specks of bluish grey; in some specimens the markings are confluent at the large end: in shape they are rather broad ovals, slightly pointed at one end, and average 0.78 to 0.8 inch in length by 0.57 to 0.59 inch in breadth.

In the Plate accompanying my article on *Myiophonus blighi* is to be found a figure of a male of this species shot near Kanthelai Tank.

Genus KELAARTIA.

Bill with the upper mandible more curved than in *Rubigula*; rectal bristles well developed. Wings rounded, with the 3rd and 4th quills shorter than in the last; the 5th and 6th the longest. Tail nearly as long as the wings. Legs and feet robust. Tarsus scutellated.

Feathers of the crown scale-like; nuchal hairs long.

KELAARTIA PENICILLATA.

(THE YELLOW-EARED BULBUL.)

(Peculiar to Ceylon.)

Pycnonotus penicillatus, Blyth, J. A. S. B. 1851, xx. p. 178; Kelaart, Prodrum, Cat. p. 123 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 125.

Kelaartia penicillata, Jerdon, Cat. B. S. India, Suppl. Madr. Journ. 1845, xiii. no. 70; id. B. of Ind. ii. p. 86 (1863); Holdsworth, P. Z. S. 1872, p. 450; Legge, Ibis, 1874, p. 20; id. Str. Feath. 1876, p. 245.

♂ *ad.* suprâ flavicanti-viridis, tectricibus alarum dorso concoloribus: remigibus saturatè brunneis, extûs flavicanti-viridi marginatis, secundariis intimis ferè omninò flavicanti-viridibus: rectricibus olivascenti-brunneis, extûs flavicanti-viridi lavatis et angustè flavo terminatis: pileo summo nigricante, postice flavicanti-viridi lavato: fasciâ lorali albâ: palpebrâ summâ albâ: loris posticis et facie laterali nigricanti-brunneis, fasciâ per regionem paroticam superiorem ductâ latè flavâ: supercilio lato, latè flavo, supra regionem paroticam ducto, fasciam penicillatam formante: genis anticis gulâquo albis: colli lateribus cinereis: gulâ imâ et corpore reliquo subtûs flavis, lateribus olivascenti-viridibus: subalaribus et margine alari flavis: remigibus infrâ cinerascanti-brunneis, intûs albo marginatis: rostro nigro: pedibus nigricantibus: iride rufescanti-brunneâ.

Male. Length 7·5 to 8·0 inches; wing 3·2 to 3·4; tail 3·1 to 3·2; tarsus 0·75 to 0·8; mid toe and claw 0·8; hind toe and claw beneath 0·6; bill to gape 0·85.

Iris red mingled with brown, or red deepening to brown next the pupil; tarsi and feet dark leaden blue; bill black.

Lores, cheeks, forehead, and crown dull black, paling on the occiput into the olive-green of the hind neck, back, rump, wings, and tail, and changing into a grey patch below the ears; a stripe from the nostril up the side of the forehead, a spot at the upper eyelid, the chin and gorge white; a bright yellow tuft of lanceolate feathers passing back to the neck springs from above the eye, and an impure yellow spot lies on the ear-coverts; inner webs of quills and rectrices blackish brown, the latter washed with the olivo-green of the outer webs; tips of tail-feathers beneath yellowish: throat yellow, changing into olivaceous or greenish yellow on the under surface; the abdomen and centre of lower breast nearly as yellow as the throat: flanks dusky, under tail-coverts like the breast. Variations exist in the depth of the green of the upper surface and in the yellow of the under surface.

Female (somewhat smaller). Length 7·1 inches; wing 3·1. Bill, legs, and feet as in the male. The tail-feathers are more broadly tipped with yellowish beneath as a rule.

Young birds of the year have the feathers of the head edged whitish, and the yellow of the throat less in extent and more clearly defined from the hue of the chest.

Obs. Until the publication of Dr. Jerdon's great work on Indian birds this species held rank as a *peculiar* Ceylonese form. It was discovered by Kelaart, and forwarded by him to Blyth, with, it appears, the suggested name of *penicillata*. It was described by Blyth, *loc. cit.*, and placed among the Ceylonese local forms. Jerdon, however, included the species in his 'Birds of India' on the evidence of a specimen from the south of the peninsula, of which he writes as follows:—"I believe that this Ceylon bird is identical with one procured by me from the Mysore country, below the Nilghiris, which was accidentally destroyed before I had taken a description; but I had a coloured sketch drawn, from which I briefly described it in my 'Supplement Cat. Birds of South India.'" From that time until the present no second example has, to my knowledge, ever been procured; and Mr. Hume, even, has no record of its occurrence in South India. I therefore include it in this work among the birds "peculiar to Ceylon." Its slight differences from *Ixos* entitle it to generic rank; and it forms the second genus only peculiar to the island, *Phœnophæës* being the first.

Distribution.—This handsome Bulbul is a hill species, and more exclusively confined to the upper regions than any of our "peculiar" birds, with the exception of *Stoparola sordida*. It is abundant in all the higher parts of the Central Province, from the altitude of Horton Plains and the Nuwara-Elliya plateau to about 3500 feet, at which elevation it is common in the Kandyan and other western districts. In Uva, however,

it is not so numerous at that height, but is found more in the forests above 4000 feet. In the Knuekles it is plentiful in the upper forests, as well as in the wooded patnas. In the southern ranges it is found in the higher parts of the Morowak and Kolonna Korales.

Habits.—This showy Bulbul affects forest by choice, frequenting likewise the outskirts of jungle surrounding coffee-estates and patna-woods which line mountain-streams in the Central Province. It lives in low jungle and about underwood more than in the upper branches of lofty trees, except when the latter are in fruit, and it then congregates in flocks, sometimes in company with the Blackbird. A tree thus besieged with the feathered inhabitants of the Ceylon forests presents a lively scene. The sprightly Yellow-eared Bultuls dart in and out, chasing one another among the boughs and greedily feeding on the fruit, which drops with a constant patter on the leaves beneath, while the more conspicuous Blackbirds, equally active in their movements, fly hither and thither and endeavour to drive away their smaller companions from the feast. It is shy in its disposition, and has a quick darting flight, during which it often utters its not unpleasing whistle, which resembles the syllables *wee, wee, wee*, quickly repeated. Notwithstanding its timid nature it is very inquisitive, and will often fly into a bush close to a bystander, peer at him, and then disappear as suddenly as it came. The resemblance in the style of head-plumage in this bird to that of some of the Meliphagidæ from Australia is singular; the tufts or gay-coloured stripes about its face call to mind the markings of *Meliphaga novæ-hollandiæ*.

In the Plate accompanying my article on *Malacocercus rufescens* will be found a figure of the present species.

Genus PYCNONOTUS.

Bill stout, slightly curved. Nostrils somewhat advanced; rictal bristles stout. Wings with the 1st quill half the length of the 4th, which is the longest. Tail moderately long, square at the tip. Tarsus somewhat lengthened, shielded with smooth scutæ. Head crested; nuchal hairs well developed.

PYCNONOTUS HÆMORRHUS.

(THE MADRAS BULBUL.)

Muscicapa hæmorrhousa, Gm. Syst. Nat. i. p. 941 (1788).

Hæmatornis pusillus, Blyth, J. A. S. B. 1841, x. p. 841.

Pycnonotus hæmorrhous, Blyth, J. A. S. B. 1845, xiv. p. 506; id. Cat. B. Mus. A. S. B. p. 209 (1849); Kelaart, Prodrum, Cat. p. 123 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 125; Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 240 (1854); Jerdon, B. of Ind. ii. p. 94 (1863); id. Ibis, 1867, p. 8; Holdsworth, P. Z. S. 1872, p. 451; Ball, Str. Feath. 1874, p. 292; Butler & Hume, ibid. 1875, p. 473.

Ixos cafer, Sykes, P. Z. S. 1832, p. 88.

Molpastes chrysorrhoides, Adam & Hume, Str. Feath. 1873, p. 378.

Molpastes pusillus, Hume, Nests and Eggs, ii. p. 291 (1874).

Molpastes hæmorrhous, Fairbank, Str. Feath. 1877, p. 405.

Red-vented Flycatcher, Brown, Ill. Zool. pl. 31. fig. 1 (1776). *Bulbul*, Hind.; *Tonki bulbul*, Bengal.; *Pigli pitta*, Telugu; *Konda lati*, Tam. in India (Jerdon). *The Ceylon Nightingale* of some in Ceylon.

Kondé-kurulla, Sinhalese; *Kondacla*, Tamil, lit. "Topknot bird," from the crest; *The Con-datchee Bulbul* (Kelaart); *Pastro kondache*, Portuguese in Ceylon.

Male. Length 7·6 to 8·0 inches; wing 3·75; tail 3·2; tarsus 0·85; mid toe and claw 0·85; hind toe and claw 0·6; bill to gape 0·78.

Iris deep brown; bill black; legs and feet dark or sepia-brown.

Entire head, chin, and throat black, not so intense on the throat, and with the ear-coverts inclining to brown; the feathers of the back of head elongated and capable of being erected at will; hind neck, back, wings, chest, upper part of breast, and thigh-coverts sepia-brown of various shades, deepest adjoining the black of the head and throat, palest on the breast, and edged with greyish white everywhere but on the lower flanks; the edgings are whitest on the sides of the neck, where they coalesce to form a white streak next the black of the throat; quills pale-edged exteriorly; tail blackish brown, broadly tipped with white; under tail-coverts shining crimson.

Birds from high altitudes, such as the upper parts of Uva and about Hakgala have the edgings of the feathers more albescent than low-country specimens, and the whole plumage has a paler appearance.

Young. The black of the head and throat not so intense; and the upper surface with less plainly defined edgings of fulvous grey; quills margined externally with rusty brownish; tail with an obsolete black terminal band, a dusky whitish tip, and the base paler than in the adult; vent and under tail-coverts reddish.

Obs. Some doubt exists as to the true specific name for this species. It has been of late referred to under Blyth's title *Pycnonotus pusillus*, which was held by this naturalist, in his commentary on Jerdon's 'Birds of India' (Ibis, 1867, p. 8), to be alone applicable to the Madras Bulbul, on the ground that the *Muscicapa hæmorrhousa* of Gmelin referred to a Chinese species (*Ixos chrysorrhoides*). It does not, however, appear to me that this is a matter beyond dispute, particularly as one of the localities given by Gmelin for his species was *Ceylon* (Syst. Nat. i. p. 941). I prefer, therefore, not to depart from the nomenclature adopted by Jerdon and others; and I observe that Mr. Hume, in his later notices of this bird, applies Gmelin's title to it. This peculiarly Indian genus of Bulbuls runs through a series of closely-allied species from *P. pygæus*, the large northern representative of the present, to *P. atricapillus*, which is common in the north of Tenasserim. The first-named bird differs from ours in its plumage by having the ear-coverts glossy chestnut-brown, and the black of the head descending upon the hind neck, where it pales into the blackish brown of the back—thus being a much darker bird above, while in the lower parts it is paler. The wings of Nepal, Himalayan, and Assam specimens which I have examined vary from 4·1 to 4·2 inches. *P. nigropileus*, a more eastern race than the last, found in Tenasserim, differs, says Blyth, from *P. hæmorrhous* "in having no black on the throat and breast, which are brown, with greyish margins to the

feathers, like the back; and the whole nape and back are much paler than *P. hæmorrhous*, the cap alone being black;" wing 3·6 to 3·7 (*Hume*). *P. atricapillus* may be said, writes Mr. Hume, to be like *P. nigropileus*, but with the throat, ear-coverts, breast, and abdomen uniform very pale greyish white brown.

Distribution.—This very common bird is found abundantly throughout the whole of the island to a general altitude of about 3500 feet, and in Uva ranges to about 5900 feet, its highest point being the neighbourhood of Hakgala, to which it extends from the Fort-MacDonald patnas, a portion of the Kandyan Province where many low-country birds are located. It is most numerous in open and cultivated districts, particularly in the west and south of the island and in the maritime portions of the eastern and northern divisions. In the extensive forests of the east and north-central portions it inhabits chiefly those localities which have been cleared and are now open or covered with low jungle; but in the depths of the woods it is less frequent than the White-eyebrowed Bulbul. In Dumbura and other wide valleys of the Central Province it is almost as common as in the low country, but it does not range so high on the Rambodde side as in Uva. Neither Kelaart nor Mr. Holdsworth record it from Nuwara Eliya, nor have I myself observed it there: that it should not occur even as a straggler or occasional visitant in the gardens of the residents, while it is not unfrequent just lower down the valley at Hakgala, is perhaps a proof that it is not able to withstand the frost and cold at nights on the plain.

Of this Bulbul Jerdon says that it is one of the most common and generally-spread birds in the south of India, extending throughout the southern part of the peninsula to the Nerbudda river, and beyond it apparently to the north-west. It ascends the Nilghiris to about 6000 feet, and it is, says Dr. Fairbank, found at the top of the Palanis, though it is more abundant at the bottom and on the adjacent plains; in the Khandala district it is an inhabitant of the slopes of the hills, as well as the neighbouring portion of the Deccan. To the north-west it extends as far as Sindh, to the avifauna of which province Mr. Blanford has recently added it, stating that it is found in the deserts of Umarkot. Captain Butler remarks that it is found all over the hills and plains of Northern Guzerat, to which Mr. Hume adds, "Common at Sambhur and in the eastern portions of Jodhpoor, also in Cutch and Kattiawar. In Western Jodhpoor it occurs for the most part only in the rains." In Bengal it is replaced by the large and allied species *P. pygæus*, which extends eastwards into Burmah.

Habits.—The Madras Bulbul affects gardens, compounds, cinnamon-plantations, the vicinity of roads, low jungle, open scrubby land, and the edges of forest. It is a fearless and very sprightly bird, most active and animated in its manners, erecting its conspicuous crest to full height as it sits on the top of a bush chirping to its companions. It locates itself in close proximity to houses, and not unfrequently builds its nest in verandahs, and is consequently a universal favourite with Europeans, who rate its attempts at singing so highly that it is styled by many the "Ceylon Nightingale"! As a matter of fact, however, its notes have but little music in them; but it is constantly uttering its quick chirruping warble, which, in the breeding-season, is to a certain extent more melodious than at other times. Its food consists of insects, as well as fruit and seeds of all kinds, the berry of the *Lantana*-plant being a favourite diet, a fact which conduces to the propagation and spreading of this horticultural pest. In the evening little parties of this Bulbul assemble, and after a great deal of excitement and chattering they choose a roosting-place in some thick bush or umbrageous shrub.

Jerdon remarks, in his 'Birds of India,' that in the Carnatic it is kept for fighting, and that it seizes its antagonist by the red feathers, attempting to pull them out. It is said to imitate the notes of other birds when caged. I am not aware that this habit has been much noticed in Ceylon; but it is a great favourite as a caged bird with the natives, becoming excessively tame, and allowing itself to be carried about by hand.

It is, according to the author of the 'Birds of India,' found in that country usually in pairs or in small families, flying briskly about, restless and inquisitive, feeding chiefly on fruits, but occasionally descending to the ground, and even hopping a step or two and picking up insects; "it destroys various buds and blossoms, and is very destructive to peas, strawberries, brazil-cherries (*Physalis peruviana*), and other soft fruit."

Nidification.—In the western and southern portions of the island this bird breeds, as a rule, between January and May, and on the eastern side during the north-east rains at the end of the year. It appears,

however, to have more than one brood in the year, the second being reared as late as August or September. Its nest is a loosely-made cup-shaped structure of fine twigs, grass, and bents, with a scanty lining of grass or vegetable fibre, fixed in the fork of a branch in low bushes a few feet from the ground. It frequently chooses a small lime-tree close to a dwelling, and will sometimes, as above-mentioned, build in the verandahs of houses. In a rest-house on the Trincomalie and Batticaloa road, I once found a nest placed between the tiles and a rafter over the entrance to the apartment, the pretty little owner taking no notice whatever of the passers-by, and, as we stood admiring her, scanned us from her little habitation with an amount of fearless curiosity that was charming to behold. The eggs are three or four in number, and vary somewhat in shape, the usual form being a pointed oval. The ground is reddish white, blotched and speckled all over, but most thickly at the large end, where there is often a cap or zone of colour, with reddish brown of two shades over a few bluish-grey spots, some eggs having much more of the latter tint than others. They measure from 0.84 to 0.87 inch in length by 0.64 to 0.66 in breadth.

In India the breeding-season lasts in the plains from April until August, but in the Nilghiris it breeds as early as April. Its nest is much the same as in Ceylon; but the late Mr. A. Anderson speaks of one which was "entirely composed of green twigs of the Neern-tree on which it was built, and the under surface was felted with fresh blossoms belonging to the same tree." Mr. Hume gives the average of sixty eggs as 0.89 inch in length by 0.65 inch in breadth.

PASSERES.

BRACHYPODIDÆ.

Subfam. PHYLLORNITHINÆ.

Bill longer than in the last subfamily, curved in some genera throughout; rictal bristles minute. Tail rather short. Legs and feet robust.

Body-plumage lengthened and fluffy. Nuchal hairs absent. Tongue in some bifid.

Genus PHYLLORNIS.

Bill long, gently curved, wide at the base, much compressed towards the tip; gonys-angle imperceptible; rictal bristles minute. Wings moderately long and pointed; the 4th quill the longest; the 1st about half the length of the 4th. Tail moderate, even at the tip. Legs and feet stout. Tarsus short, covered in front with a single scale. Toes short.

PHYLLORNIS JERDONI.

(THE GREEN BULBUL.)

Phyllornis jerdoni, Blyth, J. A. S. B. 1843, xii. p. 392; id. Cat. B. Mus. A. S. B. p. 212 (1849); Kelaart & Layard, Cat. Ceylon B. Prodromus, App. p. 57 (1853); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 176; Jerdon, B. of Ind. ii. p. 97 (1863); Holdsw. P. Z. S. 1872, p. 451; Hume, Nests and Eggs, ii. p. 294 (1874); Ball, Str. Feath. 1874, p. 410.

Chloropsis jerdoni, Jerd. Ill. Ind. Orn. pl. 43 (1847).

Chloropsis cochinsinensis, Jerd. Cat. B. S. India, Madr. Journ. 1839, x. p. 247.

Blue-chinned Thrush, Lath. Hist. v. p. 93; *Leaf-bird* of some; *Common Green Bulbul*, Jerdon.

Harrewa, Hind.; *Wanna bojanum*, lit. "Ornament of the forest," Telugu (Jerdon);

Hurroo in Manbhoom.

Giraw-kurulla, Sinhalese.

Adult male and female. Length 7·3 to 7·5 inches; wing 3·3 to 3·5; tail 2·8; tarsus 0·75; mid toe and claw 0·7; hind toe, from sole, ·35; bill to gape 0·95. The 3rd quill is shorter in proportion to the 4th than in the next species.

Iris brown or pale brown; bill, upper and lower mandibles blackish; legs and feet pale bluish, milky blue, or pale lavender.

Above and beneath, including the wings and tail, grass-green; lores, cheeks, chin, and throat glossy black, enclosing a shining hyacinth-blue cheek-stripe; the forehead, above the eye, and all round the black gorget washed with yellowish, showing plainest in well-plumaged birds; a brilliant turquoise-blue patch on the ulna, and a trace of the same at the metacarpal joint (in some specimens the median wing-coverts are edged with blue); inner webs of quills brown, those of the secondaries washed with green near the tip; under surface of tail greenish grey.

Female. Has a small throat-patch and the lores bluish green instead of black, and the cheek-stripe greenish blue; the wing-patch is less in extent, and the yellowish border round the throat generally more pronounced than in the male.

Obs. A comparison of Ceylonese specimens with South-Indian and peninsular examples enables me to say that our birds do not differ from continental ones. The following are the data from several examined:—Madras—♂, wing 3·45; Travancore—♂, wing 3·5, bill to gape 0·85; Behar—♂, wing 3·6, bill to gape 0·95; Bengal—♀, wing 3·4, bill to gape 0·85. Mr. Ball gives the wing-dimensions of four examples from the Chota-Nagpur district as 3·4 to 3·5 inches; from which results it appears that the example from Behar is longer in the wing and bill than those from other localities. The head and throat are similar in coloration; but a specimen from Madras exhibits an abnormal feature in having the black throat mingled with greenish-blue feathers; and the moustachial stripe is paler than in ordinary birds.

There are several other species of *Phyllornis* inhabiting the regions to the eastward of the Bay of Bengal; among these *P. cyanopogon* of Malacca is not very distantly related to the present. It is larger (wing 4·0), has more black on the throat and face, wants the yellowish bordering, and has a very narrow cheek-stripe.

Distribution.—The Green Bulbul is a very common bird in Ceylon, and diffused throughout all the low country, except those parts which are covered with scrubby vegetation, such as the oft-mentioned jungle-plains on the south-east coast, and similar localities on both sides of the north of the island. It is particularly numerous in the cultivated portions of the western and southern provinces, and ascends the hills of the latter region, as well as those of the Kandyan district, to a considerable altitude. I have met with it in the Morowak-Korale coffee-estates and in the central ranges up to 3500 feet, and in Uva it may possibly be found at a greater elevation. It occurs in open places, and especially on the borders of cultivation, throughout the northern half of the island, the edges of the luxuriant jungle surrounding the great tanks being a favourite locality. In the vicinity of Trincomalie I found it on the borders of paddy-fields and in isolated clumps of

trees on irrigated land near village tanks. It is common in the Jaffna peninsula, affecting the "Jaek," tamarind, and other trees cultivated in native compounds.

In the 'Birds of India' we read that the Green Bulbul "is spread over a great part of the continent of India, not extending, however, to Lower Bengal or to the sub-Himalayan forests. It is extremely common in the Western Provinces and in the jungles of the Eastern Ghâts; but is more rare in the open country of the Carnatic, Mysore, and Hyderabad. It is found in Central India at Mhow, Saugor, &c., and through the vast jungles of Chota Nagpur up to Midnapore." Concerning the latter region, Mr. Ball writes that it occurs abundantly throughout the division, and remarks that it is found pretty generally in the region to the south of the Mahanadi river. Dr. Fairbank found it in the Palanis up to 4000 feet, and says that it frequents the hills from Khandala to Goa. It is not recorded by any observer in 'Stray Feathers' from the north of India, Assam, or Burmah, and does not, as far as is known at present, inhabit the eastern side of the Bay of Bengal. Col. Tickell figures it, in his MS. Illustrations of Indian ornithology, from Tenasserim; but Lord Tweeddale remarks that its occurrence there is extremely doubtful; in fact, though the plate represents the species, the description refers to another, *Ph. chlorocephalus*. Furthermore, Mr. Hume remarks, in his list of the birds of Tenasserim, that it certainly does *not* occur in that province.

Habits.—This "Leaf-bird" frequents compounds, gardens, openly-wooded country, the edges of roads leading through jungle, the borders of forests surrounding tanks, the outskirts of paddy-fields, banks of rivers, and such-like places. It chiefly affects the topmost branches of trees, and has a great partiality for the cocoanut-palm, about the heads of which it searches for insects, uttering its whistle, which can often be heard when the bird, hidden by the luxuriant fronds, is invisible from beneath; it often elings to the leaves like a Titmouse, and flits actively about among the sprigs of waving boughs in search of insects. The form of its bill is very much that of a Honey-eater; indeed, Bonaparte classed this genus among the Meliphagidæ, to which it has some affinity in the matter of habit, though its structure allies it to the short-footed Thrushes. There is, I think, no doubt that it sometimes sucks the honey from flowers: I endeavoured to detect it in this while in Ceylon, but was unsuccessful. Mr. Ball, however, writes (*loc. cit.*), "I have observed that it is especially fond of the flowers of the parasitic *Loranthus* which grows on many trees; so far as I could ascertain, it both sips the nectar from the flowers and catches the insects attracted by the same." I have more than once seen a little troop on the branches of a flowering tree, but was unable to ascertain if they were doing further than catch the insects, which, as Mr. Ball remarks, are attracted by such a condition. Seeds may often be found in its stomach, though they are not so generally partaken of as insects.

When not breeding, the females of this species collect in little flocks, and may be found in scattered company, searching for food and constantly uttering a sharp monosyllabic *chick* note. The ordinary voice of the males is comprised of a number of varied whistles; indeed the bird is capable of mocking almost any other species in the forest, and is a most clever imitator of the notes of Drongos, that of the white-bellied form inhabiting the northern forests being most cleverly mimicked by it. These powers of imitation are well known in India, and were first mentioned by Tickell, who remarks that it is a "most excellent mocker, and imitates the notes of almost every small bird in the country." Blyth likens its *call* to that of the Indian Black Drongo (*Dicrurus macrocercus*), though softened down and mellowed; this note, I imagine, is not natural to it, but is simply an attempt at mimicry, which can be so cleverly executed that it would vary in tone according to the particular King Crow that the bird was pleased to mock!

Nidification.—Common as this Bulbul is, I have never succeeded in finding or obtaining its nest. It breeds, I imagine, in April or May in the Western Province. Layard says that it makes an open cup-shaped nest; and he sent one to Sir William Jardine from Pt. Pedro, which the latter describes as having been placed upon a branch, and being flat in general form, and composed of soft materials, such as dry grass and silky vegetable fibres, rather compactly woven with some pieces of dead leaf and bark on the outside, over which a good deal of spider's web was worked.

Captain Beavan, who records it as breeding in April in Manbhoom, writes of a nest that was brought to him, "It is built at the fork of a bough and neatly suspended from it, like a hammock, by silky fibres, which are firmly fixed to the two sprigs of the fork, and also form part of the bottom and outside of the nest. The

outside is lined with dried bents and hairs. The eggs (creamy white, with a few light pinky-brown spots) are rather elongated, measuring 0.85 by 0.62 inch; interior diameter of nest 2.25 inches by 1.5."

Mr. Hume, generalizing, says, "The eggs are sparingly marked, usually chiefly at the larger end, with spots, specks, small blotches, hair-lines, or hieroglyphic-like figures, which are typically almost black, but which, on some eggs, are blackish (or even reddish) or purplish brown." The average size of a dozen is 0.86 inch by 0.6 inch.

PHYLLORNIS MALABARICUS.

(THE MALABAR GREEN BULBUL.)

Turdus malabaricus, Gm. Syst. Nat. i. p. 837 (1788).

Phyllornis malabaricus, Blyth, Cat. B. Mus. A. S. B. p. 212 (1849); Gould, B. of Asia, pt. xiii. (1861); Jerdon, B. of Ind. ii. p. 98 (1863); Holdsw. P. Z. S. 1872, p. 451; Legge, Ibis, 1874, p. 21; Fairbank, Str. Feath. 1876, p. 258.

Chloropsis malabaricus, Jerdon, Cat. B. S. India, 2nd Suppl. Madr. Journ. 1844-45, p. 124.

Phyllornis malabarica, Kelaart, Prodrumus, Cat. p. 120 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 176; Bourdillon, Str. Feath. 1876, p. 400.

The Golden-fronted Green Bulbul; *The Malabar Honey-eater*, Kelaart.

Giraw-kurulla, Sinhalese (applied to both these species, probably on account of their being the colour of a Parrakeet).

Adult male. Length 7·5 inches; wing 3·5 to 3·6; tail 2·5 to 2·7; tarsus 0·7; mid toe and claw (straight) 0·75; bill to gape 0·85 to 1·0. The tail of this Bulbul is shorter and the under tail-coverts longer than in the preceding species, a distinguishing characteristic which is noticeable the moment the bird is handled.

Iris brown; bill blackish; legs and feet slaty bluish.

Above and beneath a darker green than in the foregoing; face, chin, and throat similarly enveloped in black, but the colour extends lower down on the neck and encircles the eye; maxillary stripe larger; forehead rich golden, shading gradually into the green of the head; the wing-patch deeper in hue, and along the carpal joint there is a streak of hyacinth-blue.

Young. The male of the year appears to have the forehead and throat green, as specimens are often procured with golden and black feathers mixed with the green respectively on these two parts; the maxillary stripe in these is small.

Female. Somewhat smaller than the male. Length 7·1 inches; wing 3·4; tail 2·3. Bill not so black as the male's. Forehead green; throat-patch and cheek-stripe smaller.

Obs. Not having had access to any South-Indian examples of this species I am unable to give data concerning them, but it is improbable that they differ in any way from insular specimens. The northern form of Golden-fronted Bulbul, *P. aurifrons*, erroneously included in the Ceylon list by Kelaart (Prodrumus, p. 120), is allied to the present species. The male has the forehead more occupied by the golden hue, and the gorge, as well as the sides of the throat, are hyacinth-blue; the black of the fore neck is bordered beneath with golden yellow, and the wing-patch is larger than in *P. malabaricus*. The female, as in the present species, wants the golden forehead.

In my synonymy of this bird I have omitted Temminck's reference, Pl. Col. 512, as neither the drawing nor the description apply to the present species. The whole head, nape, sides of neck, and throat beneath the black gorget are yellow, and are described in the text as "une janne jonquille," which "couvre la tête, la région des oreilles et s'étend en zone autour de la grande et large plaque noire qui couvre toute la gorge." He concludes his notice by saying that a couple of these birds were sent to him from Sumatra. The plate and description are perhaps those of *Ph. cochinchinensis*.

Distribution.—This handsome species has always been considered a rare bird in Ceylon: undoubtedly it is far less numerous than the last mentioned; but it is nevertheless widely distributed, both in the low country and in the mountain-regions of the island. Kelaart is said by Layard to have procured it at Nuwara Eliya; and though the latter speaks of it as confined to the upland districts, he only procured one example, which was brought to him by his collector "Muttoo," at Gillymally. There is an example in the British Museum collected at Nuwara Eliya by Mr. Boate. The first specimen which came under my notice was one which was obtained in Dumbara by Mr. Forbes Laurie, and afterwards noticed, in his catalogue, by Mr. Holdsworth.

In 1871 I met with it in the Kukkul Korale and afterwards obtained it in several parts of the island, and not unfrequently saw it in others. These localities were forests near Galle, coffee-estates in the Morowak Korale, the Kandyan district, Uva, the Trincomalie, Anaradjapura, and Kurunegala districts, and lastly in Saffragam and the Pasdun Korale. In the hills I have not seen it myself above 4000 feet. It will, I believe, be found throughout the northern half of the island wherever there are forests, and the same as regards the south-eastern jungle-clad plains. Mr. Parker writes me that he has found it at Uswewa. While at large this bird would, of course, be taken for the commoner species, as it is not distinguishable from it unless viewed close enough to see its yellow forehead.

On the mainland this bird's habitat is restricted to the southern and central portions of the Indian peninsula. I am not aware that it extends further north than Bombay; and being partial to the damp climate of the Malabar region, it does not appear to extend nearly so far north on the eastern coast; at any rate Mr. Ball, who procured *P. aurifrons*, the northern representative of this species, in the district between the Mahanadi and Godavari rivers, did not meet with the present bird in that region. Dr. Fairbank writes that it is found along the hills from Khandala to Goa, and usually near their western base. In Travancore Mr. Bourdillon says that it is a common bird in open jungle with large trees. All that is mentioned of it by Jerdon is as follows:—"This species is found most abundantly in the forests of Malabar, in Wynaad, Coorg, and on the sides of the Nilghiris up to about 4000 feet of elevation. It is also found, though rarely, on the Eastern Ghâts and in some of the forests in Central India."

Habits.—In its economy this handsome Bulbul does not differ materially from the last species; but it does not appear to be so much given to the science of mimicry! I have found it frequenting the topmost branches and lateral boughs of moderately sized trees where the forest was not very dense, and also the outskirts of patna-woods and the borders of jungle surrounding tanks in the Northern Province. It is very active in its movements, and while hopping about and scrutinizing the leaves in search of food pipes out a shrill note, differing from the clear whistle of the last species. The male likewise gives vent to a series of chirps, which, combined, make up a short little warble. Of this performance Mr. Bourdillon remarks that the male makes an attempt to sing, uttering a few notes something like those of the Bronzed Drongo (*Chaptia aenea*). Jerdon observes that it is "seen in small parties, hopping and flying actively about the branches of trees, and lives both on fruits and insects, chiefly the latter."

Genus IORA.

Bill shorter and straighter than in *Phyllornis*, the tip slightly notched. Nostrils oval and exposed; rictal bristles very minute. Wings rounded; the 4th and 5th quills the longest, the 3rd considerably shorter, and the 2nd less than the secondaries. Legs and feet weak; the tarsus lengthened, equal to the middle toe and claw, and covered with wide smooth scales; toes short, the outer one considerably joined to the inner at the base.

Plumage of the lower back and flanks lengthened and fluffy.

IORA TIPHIA.

(THE COMMON BUSH-BULBUL*.)

Iora tiphia, Linn. Syst. Nat. i. p. 331 (1776); Blyth, Cat. B. Mus. A. S. B. p. 214 (1849); Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 266 (1854); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 267; Jerdon, B. of Ind. ii. p. 103 (1863); Armstrong, Str. Feath. 1876, p. 326; Hume, ibid. 1877, p. 428.

Iora multicolor, Gmelin, Syst. Nat. Linn. i. p. 924 (1788).

Iora zeylonica, Gmelin, Syst. Nat. Linn. i. p. 964 (1788); Blyth, Cat. B. Mus. A. S. B. p. 213 (1849); Kelaart, Prodrum, Cat. p. 121 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 267; Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 267 (1854); Jerdon, B. of Ind. ii. p. 101 (1863); Holdsw. P. Z. S. 1872, p. 452; Butler, Str. Feath. 1875, p. 473.

Iora scapularis, Horsf. Trans. Linn. Soc. iii. p. 152 (1821).

Ægithina zeylonica, Hume, Str. Feath. 1873, p. 438.

Ægithina typhia, Ball, Str. Feath. 1874, p. 411; Hume, Nests and Eggs, ii. p. 295 (1874); id. Str. Feath. 1875, p. 129.

The Green Indian Warbler, *The Ceylon Warbler*, and *The Green-rumped Finch* (Latham); *The Ceylon Blackcap*, Brown; *The Ceylon Bush-creeper*, Kelaart; *The Black-headed Green Bulbul* and *The White-winged Green Bulbul*, Jerdon. *Shoubiga*, Hind.; *Patsu jitta*, Telugu; *Pacha pora*, Tam. in India, lit. "Green Bird;" *Chak tuk*, Bengal. (Jerd.). *Kirikahaye* and *Ka-kurulla*, lit. "Yellow Bird," Sinhalese (Layard); *Mam palla kuruvi*, Ceylonese Tamuls, lit. "Mango-fruit Bird."

Adult male and female. Length 5·2 to 5·6 inches; wing 2·4 to 2·6; tail 1·7 to 2·0; tarsus 0·8; mid toe and claw 0·6; bill to gape 0·72 to 0·75.

Male (black plumage). Iris grey, mottled with brown, occasionally hazel-brown; bill, upper mandible black, with a clearly defined blue edge; lower mandible dusky blue with a bluish margin; legs and feet slate-blue, claws black.

September (Colombo). Lores, top of the head, hind neck, wings, and tail deep black; the back and rump intermixed with dark olive-green, the centres of the feathers being of this colour; the terminal half of the median wing-coverts, the tips of the greater coverts, and the inner webs of the lower scapulars white (the latter forming a concealed tuft, except when the bird is in flight); middle primaries with a faint white edge; face, ear-coverts, throat, sides of neck, and under surface, with the under tail-coverts, rich yellow, most brilliant on the throat and chest; lower flank-feathers white and much elongated; under surface of quills at the base white.

This example, in which the breeding-plumage is as perfect as in any that I have seen from Ceylon, is in moult and *putting on* the dark upper surface; the greater wing-coverts are more tipped in one wing than in the other. The iris is *quite brown*. An individual shot in January (Colombo) is in the same plumage, but the greater wing-coverts are more tipped with white; the iris is hazel, mottled with grey. Another, shot in October (Colombo), is in the dark dress, but the back-feathers are merely smeared with black, imparting a sooty-green appearance, and the lower wing-bar is wider than in the two foregoing; the yellow of the under surface is not nearly so brilliant, which is invariably the case when the upper surface is not very black.

Green plumage: June (Galle). Iris grey; bill, legs, and feet as above; head, hind neck, back, and rump olive-green, slightly smeared with black on the tips of the nape-feathers; wings and tail black, the upper wing-band broad,

* This seems to me to be the most suitable name to apply to this species.

the lower, formed by the tips of the greater coverts, almost wanting, partly owing to abrasion; the secondaries and inner primaries very finely edged with yellowish; scapulars black, with the inner webs of those which are concealed white; lores yellowish, cheeks and an orbital fringe the same; throat, fore neck, and down the centre of the chest and breast pure saffron-yellow, but less bright than in the dark stage, and shading off into greenish on the sides of the chest and breast; lower flanks mostly white.

August (Pasdun Korale). In the green plumage; but the head and back more surrounded with black than in the last; both wing-bars conspicuous; commencing to moult to black plumage, new and imperfect dark feathers being perceptible among the old green ones of the back.

Obs. From the evidence adduced by these descriptions it may, I think, be concluded that the black plumage is put on in the autumn and the green in the spring. The former has been generally considered to be the breeding attire; but as the nesting-season in the south-west and west of Ceylon lies between February and June, it would appear that the black upper surface is not always a sign of breeding-plumage. I have seen black individuals, however, at all seasons of the year; and therefore the safest hypothesis is that some breed in the green and some in the black stage, as Mr. Hume and others have determined is the case in India; and it may be that the black plumage is, to some extent, a sign of age rather than a seasonal dress.

Female. Iris olive-grey; bill somewhat paler than in the male.

Head and upper surface dull grass-green; scapulars of a darker green, and the tail dusky green; wings *blackish*, the quills and the white-tipped coverts edged outwardly with yellowish green, and the former with white inner margins; tertials and a few of the inner greater coverts with broad yellowish-green outer and white inner edges; orbits, chin, throat, and centre of under surface yellow, shading on the sides into greenish.

Young. The immature males are very similar to females; but the wings are blacker, and the tail is blackish in some and mingled with green feathers in others. An example (November) in my collection has the longer tail-coverts and the central tail-feathers green, while the shorter coverts and the remaining rectrices are black.

Obs. The Ceylonese birds of this species belong to the southern or black-backed race, *I. zeylonica* of Gmelin. After a careful examination of Mr. Hume's masterly review of this perplexing form ('Stray Feathers,' 1877, pp. 428-41), I cannot but accept his decision that the *Iora zeylonica* of Gmelin, which is the "Ceylon Blackcap" of Brown and the "Green-rumped Finch" of Latham, is not separable from the *Iora tiphia* of Linnaeus (the Green Warbler of Latham) inhabiting Bengal, and which was, in all probability, as Mr. Hume remarks, described from a female or young male. In the latter race, which is not found in the south of India and Ceylon, the males do not acquire the black back in the non-breeding-season, but frequently do while nesting, although, until the recently acquired large collection of Mr. Hume's demonstrated this to be the case, they were by many considered constantly to preserve the green back, as in the southern form. The yellow of the under surface is likewise not so brilliant. Mr. Hume has tabulated his enormous series from localities extending from Ceylon throughout all India, Burmah, Tenasserim, the Malay peninsula, and the larger islands of the archipelago, by which it appears that the females throughout all this range are inseparable, and that the black-backed males from Ceylon, South India, the Western Ghâts, and also Mount Aboo as an outlying station, are similar to those from the south of the Malay peninsula. Commencing in the central provinces and extending through Chota Nagpur, Lower Bengal, along the sub-Himalayan region to Assam, and thence through Burmah to Tenasserim, we find the *tiphia* type of males existing, with, however, as already mentioned, much individual variation in the character of their plumage out of the breeding-season.

We likewise have these individual irregularities in Gmelin's race, for it is evident that males breed in Ceylon sometimes with green backs; and they have been unquestionably proved to do so in the south of India. The female of the Javan bird, described by Horsfield as *I. scapularis*, was stated by Lord Tweeddale to be identical with the Indian *tiphia*, while the researches of Mr. Hume substantiate this opinion; and, as further evidence concerning the identity of the two species, I might mention that Horsfield's description of the note (which he compares to the word *cheetoo*), and the manner in which it is uttered, are in all respects applicable to that of the Indian *Iora*.

I. nigrolutea, Marshall, is an allied species, inhabiting the dry parts of western continental India, stretching across from the coast-region at Kutch to the north-west provinces. It is distinguished from the present bird by the white on the tail-feathers, of which Mr. Hume writes that the females always, and the males during the non-breeding-season, have the central pair almost wholly greyish white, with the tips generally purer white and the outer web often shaded with ashy; the rest of the tail-feathers are black, broadly tipped with pure white. In

the breeding-plumage the male has the white tipplings to the lateral feathers more or less reduced, and the central tail-feathers, like the rest, jet-black and white-tipped. In other respects the plumage is not dissimilar to that of *I. tiphia*.

Distribution.—The Bush-Bulbul is a common bird in Ceylon and widely distributed, being scattered throughout all the low country and the hills up to about 2500 feet. It is of course numerous in the open cultivated lands of the south and west; but it is not less so in the scrubby low jungle-tracts round the north coasts, including the Jaffna peninsula. It inhabits also the east side of the island in the same abundance that it does the west. In the dry forests of the north-central part of the island it is not unfrequent, but it is not found in the damp timber-jungles of the south. In Dumbara and other similarly elevated valleys of the Kaudyau Province it is not uncommon; but I am not aware that it ascends to the upper hills, except perhaps in Haputale and other districts in Uva bordering on the low country.

This Bulbul has a very wide distribution on the continent, and is, in many portions of the Indian peninsula and the regions beyond the Bay of Bengal, as common as it is in Ceylon. In Southern India it is an abundant inhabitant of the plains, and extends into the hills to the elevation of Ootacamund, whence Mr. Hume records it. It is not, however, noted either from the Travancore ranges by Mr. Bourdillon, nor from the Palauis by Dr. Fairbank, though the latter procured it at the base of the hills. It is found in the Deccan and in the northern parts of the Western Ghâts, whence it ranges to the north-west as far as Mount Abo, where it occupies a somewhat isolated position, the circumjacent plains being inhabited by the recently discriminated and allied species, *I. nigrolutea*. Turning eastwards from the northern extremity of the Western Ghâts we find it inhabiting the central provinces, Chota Nagpur, and extending northwards to Oudh, Dehra Doon, Kumaon, Nepal, and along the Himalayas to Assam. In Lower Bengal it is common, and about Calcutta it is numerous. In Burmah it is also common, and inhabits therein the Irrawaddy Delta in tolerable abundance. It is plentiful throughout the province of Tenasserim, not, however, ascending the hills. Southward it extends through the Malay peninsula, specimens being recorded from Wellesley, Pinang, Malacca, and Singapore, and thence onward through the archipelago it is an inhabitant of Sumatra, Borneo, and Java.

Habits.—Owing to its partiality for large trees, which are usually found about the houses of Europeans in Ceylon, this little Bulbul is one of our most familiar birds. It delights in the luxurious shade of the suriah, the mango, the bread-fruit, and in the north the stately tamarind, which spreads out its welcome shelter in the midst of almost every sea-coast village. In one of these latter trees a pair (for they are generally found together) will remain sometimes for fully an hour searching among the boughs and foliage for insects, the male every now and then uttering its flute-like whistle, *chee-tōō*, which imparts to the attentive listener the idea that the little bird must be in a very contented frame of mind! It is fond of open groves of trees, the edge of jungle, and vegetation at the sides of roads, and it is very partial to the low scattered jungle bordering the sea-shore on the north coast. Occasionally several pairs may be seen frequenting the same tree; but it is not usual to find more than one couple together. It is of a restless disposition, hopping actively about the leaves in search of its food, and often clinging, like a Tit, to a slender twig while scrutinizing the surrounding foliage. In its mode of flight it differs from all its family: owing, perhaps, to the fluffy nature of its long flank-feathers, it appears to have no little difficulty in acquiring speed on the wing; and its flight is at best laboured, being performed merely from one tree to the other with a quick beating of its wings and a dipping motion of the body, which combine to produce a whirring sound.

I have occasionally seen it dart out and seize a passing moth or butterfly on the wing, and alighting again swallow it whole, a habit which is testified to by the large Mantidæ and other winged insects which are often found in its small stomach. While in the black plumage the male presents a very handsome appearance, his black back contrasting with his brilliant yellow breast, and when he darts from one tree to another, puffing out while on the wing his long white flank-plumes, looks more like a ball of feathers than any thing else. Jerdon remarks that the natives in the south of India state that this species repeats the words "*Shoubhiya, Shoubhiya*" before rain.

Nidification.—I have found the nest of the Bush-creeper in the north of Ceylon in July; but, if different districts be considered, I believe it breeds all the year round, as males may be found in the black plumage at all seasons. It builds at about 15 or 20 feet from the ground, attaching its beautiful nest to the upperside of a small horizontal bough, generally near a fork, but sometimes, according to Mr. Hume, between one or two upright twigs. It is a symmetrical, rather deep cup, with thin, steep, and compact walls, and is usually made of cotton woven in with fine grass or very slender tendrils of plants, the bottom being attached to the bark by cobwebs, which also adorn the neatly finished top; the interior is roomy and the bottom rather flat, the cavity measuring about 2 inches across. I have found several nests, but only one with eggs: the number was two; they were broad, stumpy ovals, of dirty white or whitish-grey ground-colour, openly blotched with large longitudinal faded brownish spots. My eggs got broken in travelling, and I therefore lack measurements; but Mr. Hume gives the average size as 0.69 by 0.54 inch; and the same author, in his 'Nests and Eggs,' says that the eggs are at times pink or salmon-colour, with *reddish*-brown blotches, which are chiefly confined to the large end, forming there an imperfect zone.

PASSERES.

Fam. TIMALIIDÆ.

Bill curved, compressed, higher at the base than wide. Nostrils placed in a membrane bordered by setaceous feathers. Wings short and rounded. Tail moderately lengthened. Legs and feet strong, with the tarsus longer than the middle toe and scutellate in front; the hind toe and claw large.

Plumage often lax, and in many silky beneath. Insectivorous in diet.

Subfam. TIMALIINÆ.

Wings rounded, with the 1st quill moderately developed, the secondaries long. Tail of 12 feathers, usually lengthened and graduated. Legs and feet stout and large. Toes stoutly scaled, the outer and the middle slightly syndactyle.

Plumage mostly lax. Of gregarious and very active habit.

Genus MALACOCERCUS.

Bill moderately long, compressed, the base higher than wide; culmen well curved; rictal bristles scanty. Wings short, rounded, the 1st quill half the length of the 5th, which is the longest; secondaries almost equal to the longest primaries. Tail graduated, rounded at the tip. Legs and feet strong. The tarsus covered with broad smooth scutæ, becoming obsolete with age. Toes stoutly scaled.

MALACOCERCUS STRIATUS.

(THE COMMON BABBLER.)

Malacocercus striatus, Swains. Zool. Ill. 2nd ser. pl. 127 (1833); Jerdon, B. of Ind. ii. p. 59 (1863); Blyth, Ibis, 1867, p. 300; Holdsw. P. Z. S. 1872, p. 449; Legge, J. A. S. (Ceylon B.), 1870-71, p. 39; Hume, Str. Feath. 1876, p. 458.

Malacocercus bengalensis, Kelaart, Prodromus, Cat. p. 122 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 271.

The "Seven Brothers" (so called from its associating in flocks of six or seven), *Dust-bird*, *Dirt-bird*, *Dung-Thrush*, *Mud-bird*, Europeans in Ceylon. *Pastro manduco*; *Pastru bragaru* (Layard), Portuguese in Ceylon.

Demelitcha, Sinhalese; *Punil*, Tam. (Layard).

Adult male and female. Length 9.0 to 9.2 inches; wing 4.0 to 4.2; tail 4.0; tarsus 1.3; middle toe and claw 1.0 to 1.05; hind toe and claw 0.8; bill to gape 0.95 to 1.0.

Iris white, or white faintly tinged with green; bill fleshy white or yellowish white; legs and feet sickly yellow or whitish in some, tinged in parts with yellowish; eyelid yellowish.

Head, upper surface, entire neck, and chest brownish ashy grey, the brown portions of the feathers being darkest on the lower part of the hind neck, interscapular region, and chest; the edges grey, contrasting with the dark hue, many of the feathers likewise with pale mesial striæ; the wing-coverts more uniform than the back; quills and terminal portion of tail-feathers glossy brown, the outer webs of the former pale greyish at the edges, showing conspicuously when the wing is closed; basal part of tail olive-grey, and the dark portion cross-rayed with the same hue, which gradually blends into the brown; lores greyish; lower breast, belly, and under tail-coverts pale rufescent, blending into the brownish grey of the chest and flanks; under wing-coverts tinged with rufescent, the inner edges of the quills at the base of the same hue.

Individuals vary *inter se* in the amount of cross-raying of the tertials and tail-feathers; but this character is always most perceptible when the feathers are new; it is plainly indicated in the back-feathers of some examples.

Young. Immature birds are very similar to adults. Mr. Holdsworth remarks that the depth of the striæ varies with age, and that in a well-grown young bird there is not a trace of striæ on the tertiaries, and they are very indistinct on the tail.

Obs. This Babbler is not very aptly named *striatus*, for this term is usually held to signify longitudinal lines or central streaks to feathers; in the present case, however, it was applied by Swainson to the species in question to denote the transverse rays which cross the scapular, tertial, and tail-feathers, and which is a prevailing character in this family of Thrushes. His figure (pl. 127, 2nd series, of his 'Illustrations') represents these transverse striæ more pronounced than they ever really are; for in the drawing they appear as *black* lines, well defined, on a greyish-brown ground. It would appear that the name existed in a MS. form prior to Swainson's description of the species; he writes of it, "The present species we received from Ceylon, but without any notice of its habits; and the specimen is in the Paris Museum, under the manuscript name of *Gracula striata*, from the circumstance of the scapular quills and also the tail-feathers being marked with transverse lines of a darker brown, varying in intensity according to the rays of light."

This species is very closely allied to *M. malabaricus*, the Jungle-Babbler, found in the peninsula of India. It was formerly thought to be peculiar to the island, but specimens in my collection from Ramisserum Island are not to be separated from Ceylonese examples; they measure from 3.95 to 4.2 in the wing; the lower parts and under wing are slightly more fulvous than the Ceylonese, and the tail-feathers are faintly tipped with the same; in one specimen the lateral pair have a very distinct rufescent tip; as regards striæ and the pale wing-edging, they are identical. Two specimens received from the same locality are partial albinos.

M. terricolor, the Bengal Babbler, has the brown of the back and wings more ruddy than in *striatus*, and the under surface paler; the throat is grey, passing into sandy fulvous on the chest, and thence into a more albescent hue on

the lower breast, abdomen, and under tail-coverts; the feathers of the chest are pale-centred. This species varies from 3·9 to 4·2 inches in the wing.

M. griseus has been said by Blyth to have been found in Ceylon; but his remark, contained in Kelaart's 'Prodromus,' does not seem to refer to it, as he says the head is concolorous with the rest of the upper surface; whereas in this species the head is very pale grey, and the throat dark brown and grey; the quills and tail are very dark towards the tips of the feathers. The wing of a Deccan specimen measures 3·8 nearly.

Distribution.—The "Dust-bird," or "Dung-Thrush," as it is commonly called in Ceylon, is found throughout the whole low country from the Jaffna peninsula and north-west coast, where it is very abundant, down both sides of the island to the extreme south. It is more numerous in low scrub or open bushy plains and in cultivated districts than in the wilds of the forest tracts; but it is so universally distributed that it may chance to be found anywhere. It ascends, on the northern side of the Kandyan Province, into Dumbura and all the district round the hill-capital, but does not range in that district above 3000 feet, at which it is not very common. In Uva and the great patna-basin between Fort MacDonald and Haputale it is not unfrequent as high as 4500 and 5000 feet. Kelaart records it in his list of Nuwara-Elliya birds; but neither Mr. Holdsworth nor Mr. Bligh have ever observed it there; although it might find its way in the dry season up the Hakgala pass, on the lower part of which, about Wilson's Bungalow, I have myself seen it.

It is found in the island of Ramisserum and on the adjoining mainland of India; but how far it extends northward in the Madras Presidency I am unable to say.

Habits.—The number of popular names (some of them by no means euphonious) which are bestowed upon this bird amply testify to the familiar acquaintance which Europeans have with it. It is, perhaps, the best known of all our feathered friends, save the impudent little Sparrow—as much at home in the tropics as in England—and the Common Bulbul, which enlivens every compound in the suburbs of Colombo; it is, in fact, found in every variety of situation, from the grounds of the English bungalow to the wilds of the interior, evincing no fear whatever of man, and from its habit of dusting itself by the sides of roads and in the most public situations it has acquired one of its best-known names. Its extreme sociability, causing it to associate in a little flock of a certain number, generally six or seven, has given it another of its sobriquets, "The Seven Brothers," and is the most interesting feature in its economy, bringing out in a striking manner the curious habits of which it is possessed. The antics which these little troops perform, often a few yards from the verandah of a bungalow, are well known to the most casual observer, and are best described, to those who have never seen it in a state of nature, by saying that, when performing them, these singular birds exhibit all the symptoms of being charged with electricity! While two or three jump to and fro on the dusty road, shooting out their wings and twitching their tails from side to side, several more, who are perched on the branches above, peer down on their comrades with no little interest, uttering a scarcely audible whistling, and then suddenly commence a spasmodic series of springs and up-dartings of the wings and tail, jumping round on their perches, and uttering loud screams, until, at a given signal, all is silence and repose. On being alarmed, the whole flock decamp, each bird scudding along after its mate to the next tree, where the same performances are again repeated. It is a systematic bird in its movements. I noticed, while living at Colombo, that a troop, which inhabited the Queen's-house Gardens, sallied out, and journeyed by degrees along an adjacent row of Suriah-trees at the same hour every day, and that they were peculiarly lively after a shower of rain. Its food is entirely insectivorous, and is mostly taken by scratching among leaves and debris on the ground. The cinnamon-gardens at Colombo are a favourite resort of these birds; they delight in the leafy Cadju-trees (*Anacardium occidentale*), which afford them shade during the heat of the day, while the thick bushes are an immediate shelter when they are disturbed while seeking their sustenance on the ground. Plantations of young cocoanuts are never without these flocks of Dust-birds, which delight in the grand platforms afforded them for their dances by the broad fronds of these graceful palms.

Layard writes as follows of this bird:—"They are always seen in small parties varying from three to seven, according to the number of young ones in a nest, which seem to remain with their parents until the period of incubation again commences, when they separate to form families of their own. When alarmed, an old bird utters a piping note, making several prodigious hops, and takes to flight; his example is followed by all the rest in succession, and the whole party wing their way in a long file, alternately beating the air with heavy strokes, or sailing along on their rounded wings to a place of safety."

Nidification.—The breeding-season of the "Seven Brothers" lasts from March until July. The nest is placed in a cinnamon-bush, shrub, or bramble at about 4 feet from the ground, and is a compact cup-shaped structure, usually fixed in a fork, and made of stout grasses and plant-stalks, and lined with fine grass, which, in some instances I have observed, was plucked green. The interior measures $2\frac{1}{2}$ inches in depth by about 3 in width. The eggs are two or three in number, small for the size of the bird, glossy in texture, and of a uniform opaque greenish blue. They measure from 0.91 to 1.0 inch in length, by 0.7 to 0.74 in breadth.



KELAARTIA PENICILLATA.
MALACOCERCUS RUFESCENS.

MALACOCERCUS RUFESCENS.

(THE RUFOUS BABBLER.)

(Peculiar to Ceylon.)

Layardia rufescens, Blyth, J. A. S. B. 1847, xvi. p. 453; Jerdon, B. of India, ii. p. 67 (1863); Holdsworth, P. Z. S. 1872, p. 449; Blyth, Ibis, 1867, p. 300; Legge, ibid. 1874, p. 18; id. Str. Feath. 1875, p. 368.

Malacocercus rufescens, Blyth, Cat. B. Mus. A. S. B. p. 141 (1849); Kelaart, Prodromus, Cat. p. 122 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 271.

The Red Dung-Thrush, Red Jungle-Thrush, Europeans in Ceylon.

Rattu demelitchia, Parandal kurulla (Saffragam), also *Panderella, Kala parandal*, Sinhalese.

Suprà sordidè fulvescenti-brunneus, tectricibus alarum dorso concoloribus: remigibus brunneis extùs dorsi colore lavatis, secundariis magis rufescenti-brunneis: rectricibus sordidè rufescenti-brunneis, fulvescenti-brunneo marginatis: pileo nuchâque magis grisescenti-brunneis; loris rufescenti-fulvis: facie laterali et gulâ rufescenti-brunneis vix vinaceo lavatis: pectore fulvescenti-rufo: corpore reliquo subtùs saturatè brunneo vix rufescente: subalaribus fulvescenti-rufis: remigibus infrâ brunneis intùs fulvescentibus: rostro aurantiaco, basaliter saturatiore: pedibus saturatè flavis: iride albâ; palpebrâ virescenti-flavâ.

Adult male and female. Length 9·3 to 10·8 inches; wing 4·0 to 4·2; tail 4·2 to 4·6; tarsus 1·3 to 1·4; mid toe and claw 1·05 to 1·1; bill to gape 1·0 to 1·1; hind toe 0·55, claw (straight) 0·37.

The above limit of length is that of an exceptional bird, as 10·5 inches is rarely exceeded.

Iris white, yellowish white, or greenish white; bill orange-yellow, deepest on the basal half; legs and feet dull chrome-yellow; claws yellowish horn; orbital skin and eyelid pale greenish yellow.

Forehead and head greyish brown, deepening on the hind neck into the brownish rufous of the whole upper surface and wings; quills edged with greyish; tail deeper rufous than the back, and crossed, as are likewise the tertials, with faint rays; beneath dull ferruginous, slightly greyish on the chin and the flanks; sides of belly and under tail-coverts shaded with brown; lores and cheeks concolorous with the throat; ear-coverts brown, with pale striæ.

Young. Birds of the year have the chin and gorge greyer than adults, and the lower parts are pervaded with a brownish hue. Iris as in the adult.

Obs. This species is closely allied, as regards colour, to the South-Indian *Layardia subrufa*, which has the upper mandible brownish, the forehead ash-colour, and the upper surface rufous-brown, with a tinge of olive in it; the tail is darker rufous, and the throat and fore neck brighter than in the Ceylonese bird. Besides having the frontal feathers remarkably stiff, it has the bill more curved than in either the Grey Babblers of India or the present species, and is quite worthy of being placed as a subgenus of *Malacocercus*, as, in addition to the characteristics alluded to, it has the wings much shorter in proportion to the tail. The Ceylonese bird, however, does not differ from typical *Malacocercus* sufficiently to be separated as *Layardia*, which has usually been done, the only differences existing being that the bill is slightly deeper and the 3rd quill a little shorter; I have therefore removed it into the former genus. The wing, in an example of *L. subrufa* in the national collection, measures 3·5 and the tail 5·0 inches.

Distribution.—This Babbler was discovered by Dr. Templeton, R.A., a gentleman who, as before remarked, did considerable work in the ornithology of the island during his tour of service in it prior to 1850. Its range is somewhat restricted, extending over the western and damp portion of the Southern Province, and through the western highlands to the main range. In the Colombo district it is not found nearer the sea than Killapana, at which point the country becomes wooded; from there, throughout the whole interior of

the province, to Saffragam, and thence through the Kukkul and Morowak Korales to the subsidiary hills, through which the Gindurah and Niwelle rivers flow, it is very common. It ascends the slopes of the wilderness of the Peak to the extreme limits of the forest, and ranges through the vast jungles reaching thence to Horton Plains and Nuwara ELLIYA, throughout which latter district it is tolerably common. Mr. Holdsworth only observed it there in the cool season; but I am inclined to think it is resident there, as I have obtained it in a state of breeding at the top of Totapella, and in the Peak forests I have shot it at great altitudes in the height of the south-west monsoon. It is very abundant about Kaduwella and Hanwella, and in the bamboo-scrubs of the Raygam and Hewagam Korales; but north of the Kelaniganga its numbers begin to diminish, and I do not know of its occurrence beyond Kurunegala. I have never seen it in any of the eastern highlands, nor in the low country south of Haputale, its range on that side not extending beyond the limits of the wet south-west hill-region at Tangalla.

Habits.—The Red Jungle-Thrush frequents thickets in the vicinity of cultivation, bamboo-scrub (to which it is as much, if not more, partial than any of our Babblers), thick jungle, and primeval forest. At times it associates in large troops, and, as a rule, lives in parties of not less than a dozen, resembling, in these respects, the Laughing Thrush more than its other congeners. It is very sociable, actively working about the lower limbs of trees, and threading its way through the branches of low jungle in close fellowship, keeping up a conversational, harsh chattering, and moving on from tree to tree without separation. It has the quick movements of the last species, jerking up its wings and tail, and restlessly jumping to and fro on its perch, when engaged in parleying with its companions. Its notes resemble those of *Garrulax* more than *Malacocercus*, and it seems not to indulge in long periods of silence, as does the latter; but a continual low babble proceeding from the flock usually betrays its whereabouts in the jungle. Its flight is not quick, and is performed with vigorous beatings of the wings, simply to enable it to proceed about in search of its food from tree to tree. I found the stomachs of several examples killed in the month of August to contain portions of a large black beetle which was affecting the jungle in great numbers at the time. When located in damp timber-forest, such as the Peak, Pasdun-Korale, and Kukkul-Korale jungles, it appears not to associate with any other species: a solitary flock is often met with after walking through the forest for some distance without seeing a single bird or even hearing a note; notwithstanding the little troop is all life and animation, isolated as it is in the gloomiest recesses of the primeval wood, its members busily engaged in twitting from branch to branch, while they keep up a sociable chattering as if they rejoiced in the loneliness of their retreat.

Nidification.—This bird breeds in the Western Province in March, April, and May, and constructs a nest, similar to the last, of grass and small twigs, mixed perhaps with a few leaves, and placed among creepers surrounding the trunks of trees or in a low fork of a tree. It conceals its habitation, according to Layard, with great care; and I am aware myself that very few nests have been found. It lays two or three eggs, very similar to those of the last species, of a deep greenish blue, and pointed ovals in shape—two which were taken by Mr. MacVicar at Bolgodde measuring 0.95 by 0.75 inch, and 0.92 by 0.74 inch.

The figure in the Plate accompanying this article represents a male bird of this species from the Western Province.

Genus GARRULAX.

Bill straighter than in the last genus; culmen straight at the base, gonys-angle pronounced. Nostrils oval, placed well forward and exposed. Wings longer than in *Malacocercus*, the 3rd quill much shorter than the 4th, the 5th and 6th the longest. Tail rather long, graduated and lax. Legs and feet very stout. Tarsus shielded with three wide scutæ. Hind toe and claw very large.

GARRULAX CINEREIFRONS.

(THE ASHY-HEADED BABBLER.)

(Peculiar to Ceylon.)

Garrulax cinereifrons, Blyth, J. A. S. B. 1851, xx. p. 176; Kelaart, Prodromus, Cat. p. 122 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 270; Blyth, Ibis, 1867, p. 300; Holdsw. P. Z. S. 1872, p. 448; Legge, Ibis, 1874, p. 20.

Laughing Thrush, The Ashy-headed Garrulax, Kelaart.

Ad. supra brunneus, alis dorso concoloribus, primariis externis griseo-brunneo lavatis: rectricibus brunneis, extus rufescenti marginatis: pileo nuchæque cinereis, hac brunneo lavatâ: loribus et facie laterali totâ cinereis: genis et corpore subtus toto rufescenti-fulvis, abdomine pallidiore: mento ipso albido: subalaribus rufescenti-fulvis: remigibus infra brunneis intus fulvescentibus: rostro nigro: pedibus plumbeo-nigris: iride albâ.

Adult male and female. Length 9.6 to 10.0 inches; wing 4.4 to 4.8; tail 4.0 to 4.3; tarsus 1.4 to 1.5; mid toe and claw 1.25 to 1.3; hind toe 0.6, claw (straight) 0.45; bill to gape 1.25.

Iris white; eyelid plumbeous; bill black, inside of mouth greenish yellow; legs and feet plumbeous brown; claws dusky horny; posterior part of tarsus bluish.

Lores, face, and head ashy or cinereous grey, blending at the nape into the rufous-brown of the sides of the neck, upper surface, wings, and tail; the first 3 or 4 primaries with a pale edge, and the inner webs of the quills brown; tail deeper in hue than the wings; chin albescent, blending into the fulvescent rufous of the fore neck and under surface; abdomen more fulvescent than the breast, the concealed portion of the feathers there being albescent; flanks and under tail-coverts dusky rufescent brown; lower feathers of the thighs cinereous, under wing-coverts rufous. On the centre of the throat the colour is brighter than elsewhere.

Young. Iris dull grey, with a dark outer circle; bill black, the gape and base of lower mandible yellowish: eyelid greenish yellow; legs and feet olivaceous brown, soles yellowish fleshy, claws yellowish horn.

Forehead and head as in the adult, the nasal plumes dark, and the grey of the crown not continued so far back; the back is deeper rufous than the adult, and the wing-coverts likewise are more intense; chin not so white and the throat and under surface more fulvescent. In the first plumage the feathers of the chest and breast are fluffy. This dress appears to be quickly put off, and in the next stage or yearling plumage the iris is pearly grey or in some white, with a tinge of reddish; gape and eyelid yellow; legs and feet bluish brown. There is scarcely any perceptible difference in the grey of the occiput, but the fore neck is paler or more fulvescent.

Obs. *G. delesserti*, the Wynaad Laughing Thrush, is allied to the present species. Mr. Bourdillon's dimensions of a specimen in the flesh are:—Length 9.0 inches, wing 4.3, tail 4.0, tarsus 1.45. It differs from *G. cinereifrons* in having the under mandible yellow at the base, and the fore neck and breast white, changing into cinereous grey on the flanks.

Distribution.—The Ashy-headed Babbler was discovered by Dr. Kelaart; it is not recorded in what district he found it first, for Layard only writes of it as follows:—"I do not know where he (Kelaart) found it; but I obtained several specimens along the banks of the Kaluganga, about forty miles inland from Kalatura,

and one at Pallabaddoola in the Peak range." I infer, however, that the Doctor first made its acquaintance in the Central Province, in the damper forest of the western portion of which it is found. I have seen it in the Deltota district and in the Peak forests, and I have no doubt it occurs in Dumbura and many places between Kandy and the Peak range; but being an inhabitant of humid inaccessible jungles, it is less often met with than any of its family. I have not seen it above 3500 feet; but Kelaart speaks of it as being found at Nuwara Eliya; but whether it has erroneously found a place in his list of birds from that place I do not know; suffice it to say that no one else, that I am aware of, has heard of it from so high an elevation, although there is no reason why it should not be found there as well as the Rufous Babbler (*Malacocercus rufescens*). It inhabits the forests of the southern ranges, and all the heavy jungles from the Kukkul Korale to the Kaluganga. I have procured it in the Singha-Rajah forest, in the Pasdun Korale, and also in the Ikkade-Barawe forest, which is only 18 miles from Colombo; there are likewise specimens in the British Museum collected by Mr. Chapman at a place called Dusiwella, which I believe is in the Western Province. It does not appear to inhabit the jungles of the south-eastern portion nor the eastern and northern divisions of the island: the Kurunegala district, as far as is known at this time, forms its northern boundary; and therefore its distribution is one of the most restricted of any of the peculiar Ceylonese species.

Habits.—This Laughing Thrush has a similar disposition to the Wynaad species, loving the gloom and shade of the dampest forests in the island, and delighting in the seclusion afforded by the thick underwood and not unfrequently dense bamboo-thickets with which such localities abound. I once met with it in a dark ravine in the very gloomiest recesses of the lofty timber-jungles of the Kukkul Korale; not the least daunted by the tremendous downpour of rain which was falling at the time, the whole troop were darting hither and thither about the dripping vegetation in search of food, and indulging in their wonted spasmodic cries, as if rejoicing in the brightest sunshine on a pleasant lawn, instead of being imprisoned in the darkest, most dripping, leach-infested glen in Ceylon! It always associates in scattered troops of ten or twenty, and feeds amongst tangled underwood, in spots which are covered with dead leaves, the product of many years' dropping from the monarchs of the forest, and delights in exploring the mossy recesses of fallen trunks, in which humid spots it finds an abundance of caterpillars, bugs (*Hemiptera*), and coleopterous insects. It breaks out constantly into a harsh chattering, which is taken up in turn by all the members of the troop, and as suddenly stopped, when all is silent again, until some trifling alarm sets the garrulous converse loose. This chattering is usually finished up with a hurried sort of scream. Like the last species, it is very active in its gestures and not at all shy, being very loath to break up its party when fired at, some members of it being occasionally bold enough to fly down to and hop about their fallen comrades with loud cries and vigorous flapping of their wings, while the rest mount on to the topmost branches of low trees, and jerk themselves to and fro, peering down on their assailant, and executing a series of spasmodic antics. It shuns the society of other birds, appearing to affect spots so gloomy and damp as to be avoided by all species, except, perhaps, the Rufous Babbler and the little Quaker-Thrush; and in these sylvan retreats it would no doubt often be passed over unnoticed, were it not for its garrulous habit, which is usually provoked when it hears the approach of danger. The stomach of this bird is very muscular, and I have often found it contain a quantity of foul black liquid.

Nidification.—The breeding-season of this bird is from April till July. Full-fledged nestlings may be found abroad with the parent birds in August; and from this I base my supposition, for I have never found the nest myself. Intelligent native woodmen, in the western forests, who are well acquainted with the bird, have informed me that it nests in April, building a large cup-shaped nest in the fork of a bush-branch, and laying three or four dark blue eggs. Whether this account be correct or not, future investigation must determine.

The lower figure in the Plate accompanying the next article represents a female of this species, shot in the Ikkade-Barawe forest.



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POMATORHINUS MELANURUS.
GARRULAX CINEREIFRONS.

Genus POMATORHINUS.

Bill long, curved, compressed from the nostrils to the tip, which is entire. Nostrils lengthened, the membrane overlapping them. Wings short, rounded, the 5th and 6th quills the longest, the 1st about half their length. Tail moderately long, lax, and graduated. Legs and feet stout. The tarsus longer than the middle toe, the scutæ smooth and large. Middle toe considerably longer than the laterals; hind toe and claw large.

POMATORHINUS MELANURUS.

(THE CEYLONESE SCIMITAR-BABBLER.)

(Peculiar to Ceylon.)

Pomatorhinus melanurus, Blyth, J. A. S. B. 1847, xvi. p. 451; id. Cat. B. Mus. A. S. B. p. 146 (1849); Kelaart, Prodromus, Cat. p. 122 (1822); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 271; Blyth, Ibis, 1867, p. 301; Legge, J. A. S. (Ceylon Branch) 1870-71, p. 41; Holdsw. P. Z. S. 1872, p. 447; Hume, Str. Feath. 1873, p. 437; Legge, Ibis, 1874, p. 18, et 1875, p. 395; id. Str. Feath. 1876, p. 245; Whyte, ibid. 1877, p. 202; Ramsay, Ibis, 1878, p. 132.

The Black-tailed Scimitar-Babbler, *The Ceylon Pomatorhinus* (Kelaart); *The Gamut-bird* in Planting-districts.

Batitchia, Sinhalese, Galle district; *Parandeliya*, Western Province.

♀ *ad.* suprâ rufescenti-brunnea, pileo obscuriore, fronte et verticis lateribus nigricantibus: tectricibus alarum dorso concoloribus: majoribus remigibusque saturatè brunneis, extûs rufescenti-brunneo marginatis, secundariis latius: rectricibus chocolatinis, rufescenti-brunneo marginatis: strigâ superciliari latâ a basi rostri usque ad nucham lateralem productâ: palpebrâ albâ: lorîs, plumis infraocularibus et regione paroticâ nigris: colli lateribus castaneo lavatis: genis et corpore subtûs albis, lateribus et subcaudalibus rufescenti-brunneis: tibiis cinerascens: subalaribus cinerascens-brunneis, axillaribus albis apicaliter brunneis: remigibus infrâ brunneis, intûs pallidè rufescentibus: rostro flavo, ad basin mandibulæ nigricante: pedibus fusciscenti-schistaceis: iride brunneâ.

Adult male. Length 8·6 to 8·9 inches; wing 3·5 to 3·8; tail 3·5 to 3·7; tarsus 1·2; middle toe and claw 0·95 to 1·05; hind toe 0·6, its claw (straight) 0·4; bill to gape (straight) 1·13 to 1·23.

Adult female. Length 8·5 to 8·7 inches; wing 3·2 to 3·6; tail 3·4 to 3·6; tarsus 1·2; bill to gape (straight) 1·1 to 1·2. Examples vary *inter se* in size, but there is no constant difference between low-country and hill birds. Dimensions of various specimens are as follows:—♂ (Karawita hills, Saffragam), wing 3·6, bill to gape (straight) 1·26; ♂ (Dumbara), wing 3·6, bill to gape (straight) 1·2; ♂ (Horton Plains), wing 3·65, bill to gape (straight) 1·15; ♂ (Banderawella, Uva), wing 3·61, bill to gape (straight) 1·2; ♂ (Borella, Colombo), wing 3·55, bill to gape (straight) 1·2.

The bill varies in length and curvature according to age.

Iris brownish red, dull red, or reddish brown; orbital skin and eyelid dull blue; bill gamboge-yellow, more or less blackish from the forehead to a short distance in front of the nostril; legs and feet plumbeous or greenish plumbeous; feet generally more bluish than tarsi; claws dusky, pale horn at base.

Lores, region beneath the eye, ear-coverts, forehead, and plumes bordering the supercilium above black, fading into the dark olivaceous of the head and occiput, the crown-feathers having black shafts; a conspicuous superciliary stripe extending from the nostril to beyond the nape, throat, fore neck, chest, and breast pure white, passing up behind the ear-coverts; hind neck, upper surface, wing-coverts, flanks, and under tail-coverts ferruginous brown, more intense on the back of the neck than elsewhere; in many examples the feathers on the sides of the neck and chest at the

junction of the white with the brown hue are centred with the former; quills with the outer webs more olivaceous than the back, and the inner webs blackish brown; tail blackish brown, edged at the base with the hue of the upper tail-coverts, and deepening to blackish at the extremity; there are indications of cross rays on the terminal half, which show plainer beneath; abdomen rusty olivaceous. In some examples the hue of the nape blends imperceptibly into that of the hind neck, in others the line of demarcation is plain.

The above is a description of the generality of examples from the Western Province, the south-west corner of the island, the Pasdun-Korale hills, and the lower parts of the Peak forests, where a ferruginous hue predominates. As this bird ascends from the low country to the hills and to a cooler and drier climate than exists in the south and west, the rusty hues gradually vanish, giving way to olivaceous tints; and examples from the upper zone, and likewise from the Uva patna-district, are clothed as follows:—Upper parts, flanks, and wings (that is, those parts which in the low country are ferruginous) olivaceous brown, faintly tinged with rusty on the sides of the hind neck and on the rump. The same white-centred feathers on the sides of the chest exist in some hill specimens. Soft parts the same, the legs, perhaps, slightly greener. The most ferruginous birds come from the damp districts of the south, where moist climate and heat are combined; and the gradation from their plumage to that of hill birds from the upper zone is very perfect, a complete sequence being obtainable on going up through the wilderness of the Peak from the low-lying portion of Saffragam to the Horton Plains. Examples, however, vary in the olivaceous character of the brown tints *inter se*. It must not be supposed that the greenest birds come from the highest elevations: a specimen from Totapella, 7800 feet, is very strongly tinged with rusty, and so is another from Kandapolla, 6300 feet, while an individual from Banderawella and another from Dumbara are more olivaceous than either. In like manner the ferruginous birds of the Western Province do not vary regularly according to elevation, the most intensely-coloured bird in my collection being from the neighbourhood of Gillymally. Birds from the forests of the north are very similar to Central-Province specimens, not in any way partaking of the rusty character of those from the south-west.

Young. A bird in nest-plumage, shot at Nuwara Eliya, is very ferruginous above, and likewise on the sides of the chest and flanks: the head and ear-coverts are not so black as in the adult, and the white of the chest is very much contracted, and does not extend so far down upon the breast. The bill is much straighter than in an adult.

Obs. The difference between the Western-Province and the hill race of this bird (if I may use the term) has been the subject of some attention. Mr. Holdsworth was almost of opinion that they merited specific distinction; and Lieut. Wardlaw Ramsay, in his synopsis of the genus *Pomatorhinus*, published in 'The Ibis,' April 1878, has likewise made some remarks on the subject, based on an examination of the specimens (probably a small series) in Lord Tweeddale's collection; he writes that "the small race which is found at Nuwara Eliya has the back olive-brown, without being in the least rufescent, whilst the larger race," found in the Western Province, "has a few of the lateral breast- and flank-feathers partially white or centred white." But I have shown that the hill race is not smaller than the low-country, and that the white-centred feathers exist in both. This latter is, I imagine, merely a transition-feature towards an extended development of the white of the chest. A specimen in my collection has white feathers even in the wing-coverts and on the hind neck. The example measured by Lieut. Ramsay from Nuwara Eliya, with the wing 3.2 inches, must have been a female, which is no smaller than a low-country bird of the same sex. The most pointed difference between the two races lies, perhaps, in the more plainly contrasted black of the head of the up-country bird with the olivaceous of the hind neck. The same variation in the brown tinting of these Babblers is to be found in the case of the smaller relative (*Alcippe nigrifrons*) of the present bird, and likewise in another bird of the same family (*Pellorneum fuscicapillum*). The Ceylonese Seimitar-Babbler is allied to the South-Indian species (*P. horsfieldi*); this latter is larger, with the wing 3.8 to 3.95; it is not so black on the forehead, and the upper surface and wings, together with the sides of the breast, are brownish olivaceous; the white of the chest does not descend further than the upper part of the breast, suddenly narrowing to a point; the sides of the breast are black. Lieut. Wardlaw Ramsay, in his above-mentioned synopsis of this genus, remarks that our bird is intermediate between *P. schisticeps* and *P. montanus* of Java. It is not, however, so closely allied to either as to *P. horsfieldi*. The Javan bird is a different type of *Pomatorhinus* from ours, being characterized by the sudden contrast between the plumage of the head and back. It has the head and nape dark slate, most intense on the forehead, while the sides and lower part of the hind neck, together with the scapulars, are rich rust-colour; tail dusky brown; the throat, fore neck, and breast are white, and the flanks concolorous with the back. Examples from Java, in the British Museum, measure 3.4, 3.35, 3.5 in the wing. The Bornean race has been separated by Cabanis, as being smaller than the Javan, and having the secondaries and tail not so rusty-coloured. I have examined specimens of this species, and believe it to be only entitled to rank as a local race. One example measures 3.45 inches in the wing, which exceeds two of the above dimensions of *P. montanus*.

P. schisticeps, from the Himalayas, has the head and nape dark slate-colour, and the upper surface olive-green: the throat and breast are white, and the sides of the fore neck rusty-coloured, with white streaks.

Distribution.—The Seimitar-Babbler, one of the most interesting Ceylonese species, is widely distributed throughout the central and southern hills, but is by no means a mountain bird, being equally common in the interior of the Western Province, more especially in the bamboo-district of Saffragam and the circumjacent country, and likewise in the south-west hilly region. As regards the Kandyan Province, it is a very abundant bird in the main range up to the highest altitudes, and is one of those comparatively few species met with in the woods on the Horton Plains. The same may be said of all the intermediate coffee-districts and the wooded patnas throughout the Province. It is common in the forests of the south-east and on the Batticaloa side, and is scattered pretty freely throughout all the northern forest-tract, its numbers diminishing along the central road, when the latitude of Kokelai on the east and Manaar on the west is reached. I have obtained it as close to Colombo as the neighbourhood of Borella.

Habits.—This wood-loving bird frequents shady dark forests, patna-woods (particularly in the vicinity of streams), bamboo-cheenas, low jungle, and almost every variety of thick cover. It usually associates in pairs, but occasionally fraternizes, and goes about in small companies, searching for its insect-food on low branches, or clinging, Woodpecker fashion, to the trunks or large limbs of trees, about which it jumps and twists itself with considerable agility, proceeding easily upwards with active hops. Early in the morning, while searching among thick underwood for its food, it repeatedly gives out its far-sounding, melodious call, which must be familiar to all who have travelled in the Ceylon jungles, although few are acquainted with the owner of the remarkable voice, proceeding, as it usually does, from dense thickets. The note may be likened to the words *chock off you poor boy*, or *wok wok ek ek wok*, which is answered by the female with a more hurried scale resembling *wok off*. While pouring out these voluble notes, the birds are all the time on the move, attentively scrutinizing every dead leaf or rotten stick in their way. Mr. Bligh has observed them in the breeding-season puffing out the feathers of the chest and bowing to each other; and I have noticed that they were of an inquisitive nature, alighting close to me when they have chanced to espy me watching them in the stillness of the forest, and stretching out their heads for a closer inspection of such an unexpected intruder! Mr. Holdsworth remarks that they are very noisy in the pairing-time, and refers to the powerful notes of the male as having acquired for the species the name of "Gamut-bird."

I subjoin the following note on the habits of this bird, which Mr. Bligh has sent me from Haputale:—"A family reared near my bungalow roost in the thick fir-tree near the bedroom-window. At early dawn I often see them 'getting-up;' they hop from out of the thick tree to the open branches of a large oleander, and, like a higher order of beings, commence to dress themselves, preening and ruffling out their feathers all the time, chattering a little, as if of arrangements for the day: the male often repeats something like *twoi, twoi*, in various keys, swelling out its beautiful white throat considerably each time. The young ones have a plaintive mew-like call when following the old ones for food, and they often make a great clamour when being fed. I once came upon about ten adults, having been attracted by a great noise they made, and found them in a group on the bole of a large tree felled in the jungle. It was a most comical sight to see these excited birds with throats extended like a pigeon, wings lowered and spread, and tail the same, but often elevated, all advancing to a common centre by a quick jerking hop, then retreating backwards, and bowing their bodies the whole time; this went on for a few minutes until I disturbed them; it was a veritable *Pomatorhinus*-quadrille!"

Nidification.—This Babbler breeds from December until February. I have observed one collecting materials for a nest in the former month, and at the same period Mr. MacVicar had the eggs brought to him; they were taken from a nest made of leaves and grass, and placed on a bank in jungle. Mr. Bligh has found the nest in crevices in trees, between a projecting piece of bark and the trunk, also in a jungle path-cutting and on a ledge of rock; it is usually composed of moss, grass-roots, fibre, and a few dead leaves, and the structure is rather a slovenly one. The eggs vary from three to five, and are pure white, the shell thin and transparent, and they measure 0.96 to 0.98 inch in length by 0.7 in breadth.

The figures in the Plate accompanying this article represent the hill olive-coloured form and the low-country rust-coloured one. The former is from the Horton Plains, and the latter from the Kuruwite hills in Saffragam.



Genus DUMETIA.

Bill high at the base, compressed, the culmen curved gradually to the tip. Nostrils oblong; a few loral bristles present. Wings short, rounded; the 5th and 6th quills subequal and longest. Tail broad, cuneate at the tip. Tarsus rather short; toes slender, the lateral ones subequal.

Of small size.

DUMETIA ALBOGULARIS.
(THE WHITE-THROATED WREN-BABBLER.)

Malacocercus albogularis, Blyth, J. A. S. B. 1847, xvi. p. 453.

Dumetia albogularis, Blyth, Cat. B. Mus. A. S. B. p. 140 (1849); Layard & Kelaart, Prodromus, Cat. App. p. 58 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 272; Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 403 (1854); Jerdon, B. of Ind. ii. p. 26 (1863); Holdsworth, P. Z. S. 1872, p. 447; Hume, Nest and Eggs, ii. p. 247 (1874); Butler, Str. Feath. 1875, p. 471; Bourdillon, *ibid.* 1876, p. 399.

Timalia hyperythra, Jerdon, Cat. B. S. India, Madr. Journ. 1839, x. p. 261.

Pellorneum albogulare, Blyth, J. A. S. B. 1852, xxi. p. 357.

“Pig-bird,” in India; *Batitchia*, Sinhalese.

Adult male and female. Length 5·6 to 5·7 inches; wing 2·1 to 2·25; tail 2·2; tarsus 0·8; middle toe and claw 0·65; bill to gape 0·65.

Iris greenish white or white; bill, upper mandible dusky or pinkish brown with fleshy margin, lower mandible fleshy. tip dusky; legs and feet reddish fleshy, toes slightly dusky, claws brownish.

Above olivaceous brown, the forehead and front of crown rufous, and the hind neck slightly fulvescent or paler than the back; wings and tail brown, the primaries and rectrices slightly edged pale; upper tail-coverts in some covered with a yellowish hue; lores and orbital feathers whitish; beneath rufous, with the chin, upper part of throat, and centre of breast white; under tail-coverts and wing-coverts paler than the flanks.

The rufous of the lower surface seems to be brighter in the breeding-season, with the white of the throat and breast more sharply defined against it.

Young. Iris pale olive-greyish. The forehead wants the ferruginous tint, and is concolorous with the head.

Obs. Several examples in the British Museum are somewhat darker in the tint of the upper surface than most Ceylonese specimens that have come under my notice; the rufous colour of the forehead is slightly darker in my insular series than in the aforementioned, but the coloration of the under surface is similar. They measure in the wing from 2·05 to 2·2 inches. Mr. Bourdillon records the dimensions of a South-Indian specimen, measured in the flesh, as—length 5·62 inches; expanse 6·25; wing 2·12; tail 2·25; tarsus 0·73; bill from gape 0·57.

Distribution.—This interesting little bird is tolerably common in Ceylon, being found in nearly all parts of the low country and on most of the open, bushy patnas of the hill-region up to an elevation of 5600 feet or thereabouts. It is of frequent occurrence in the Western Province, being very partial to the damp sedgy parts of the cinnamon-gardens of Colombo; in the extreme south it is, perhaps, rarer, but in the south-east flat region between Haputale and the sea, and in many parts of the eastern portion of the island, it is a common bird. In the northern parts, again, it is not so frequent. In the great patna-districts of Uva, in similar localities in Hewahette, Dumbara, and on the slopes of the Knuckles, as well as in other open waste portions of the Kandyan Province, it is as plentiful as in most parts of the low country, and especially so in the patna-basin of Uva, being found there along the Badulla and Nuwara-Elliya road up to the vicinity of Hakgala. In the southern ranges it is likewise not unfrequent.

Jerdon has the following short paragraph on the distribution of this little bird in India:—“It is found throughout Southern India in suitable localities, in bushy jungle, ravines, thick hedge-rows, &c., but is entirely absent in the forest-districts of Malabar.” Mr. Bourdillon writes of it as common in the Travancore hills from 1000 to 2000 feet elevation. Dr. Fairbank records it from Khandala and Mahabaleshwar, but not from Ahmednagar. The only other mention which I can find of it being found to the north of the Deccan is that by Captain Butler, who says it is not uncommon at Mount Aboo, and is occasionally seen in the plains of that district; Mr. Hume adds that this is by far the most northerly point reached by the species.

Habits.—The little “Pig-bird” (as it is not very aptly called by some of the natives in India) frequents bushy patnas, low scrub, grass-fields dotted with shrubs, detached woods, and waste land in the vicinity of jungle, associating in little troops, and keeping mostly out of sight in the lower parts of bushes and thick underwood; from such haunts it seldom strays, except when alarmed or when roaming hither and thither in the mornings and evenings, when little companies may be seen making their way from one piece of cover to another, in quite “follow-my-leader” fashion, each bird following its companion with a straight low flight and a weak, plaintive *wheet* note. When hunted out from a shrub or clump of brambles it endeavours to remain as long as possible under cover, hopping timidly from branch to branch, and cautiously peering out at its enemy, until it is time to beat a retreat, when it betakes itself off in the above methodical manner. Its food consists of the larvæ of various insects and minute Colcoptera, and in feeding it possesses much the manner of *Alcippe*. On one occasion I observed a little flock, which was assembled at the base of an umbrageous tree in thick jungle, indulging in a series of quaint antics; they were hopping spasmodically about, jerking up their wings with a puffing out of their breast-feathers, and every now and then dropping like balls of fluff on to a bed of dry leaves, where they seemed to have discovered a welcome supply of food.

Nidification.—The breeding-season lasts from March until July, the nest being built in a low bush sometimes only a few inches from the ground. It is globular in shape and loosely constructed of grass, stalks, and dry blades or bents, sometimes interwoven with fibrous or caterpillar-eaten leaves, the interior being composed of the same but finer material than the body. The eggs are usually three in number, dull white, closely freckled throughout with small ferruginous spots; in some there is a well-formed zone round the obtuse end. They are rather small for the bird, measuring 0·7 to 0·72 inch in length by 0·51 to 0·53 inch in breadth.

In South India this bird breeds in June. Mr. Hume thus describes a nest sent him by Miss Cockburn, and taken from a coffee-bush in the Kotagherry district. It was “small and nearly globular, composed entirely of broad flaggy grass, without any lining or any admixture whatsoever of other material; it was loosely put together, and had a comparatively narrow entrance at the top.” This nest contained three eggs; and mention is made of another one with the same number. The ground-colour of these eggs was china-white, marked with a profusion of specks and spots, which, though spread over the whole surface, were “gathered most intensely into an imperfect, more or less confluent, cap or zone at the larger end, where, also, a few purplish-grey spots and specks, not found on any other part of the egg, were noticeable.” They vary from 0·7 to 0·75 inch in length by 0·5 to 0·53 inch in breadth.

Genus *ALCIPPE*.

Bill stout; culmen curved from the base, commissure curved throughout; tip distinctly notched. Nostrils oval; rectal bristles small but stout. Wings rounded; the 5th quill generally the longest. Tail short and rounded. Tarsus longer than the middle toe and claw.

Of small size.

ALCIPPE NIGRIFRONS.

(THE CEYLON WREN-BABBLER.)

(Peculiar to Ceylon.)

Alcippe nigrifrons, Blyth, J. A. S. B. 1849, xviii. p. 815; id. Cat. B. Mus. A. S. B. p. 340 (1849); Kelaart, Prodrumus, Cat. p. 122 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 269; Blyth, Ibis, 1867, p. 302; Legge, J. A. S. (Ceylon Branch) p. 42 (1870-71); Holdsworth, P. Z. S. 1872, p. 446; Legge, Ibis, 1874, p. 18; id. Str. Feath. 1875, p. 367.

The Mountain-Thrush, Kelaart; “*Quaker-Thrush*,” popularly in India.

Batitchia, Sinhalese.

Similis *A. atricipiti*, sed minor, et fronte tantum nigrâ distinguenda.

Adult male and female. Length 4·9 to 5·3 inches; wing 2·15 to 2·3; tail 1·7 to 1·9; tarsus 0·8 to 0·9; mid toe and claw 0·7 to 0·75; bill to gape 0·65 to 0·7.

Females are the smaller of the sexes.

Iris yellowish white or very pale yellow; bill, gape, and culmen dark brown, margins of the upper and lower mandible fleshy; legs and feet fleshy lavender, claws dusky.

Forehead, face, and ear-coverts dull black, blending into the rusty brown of the occiput, upper surface, wings, and tail; outer primaries pale-edged; tail nigrescent towards the extremity and distinctly cross-rayed; beneath, the throat, neck, breast, and abdomen sullied white, with a dusky shade on the sides of the chest; flanks and under tail-coverts olivaceous rufescent; under wing-coverts and inner edges of quills beneath fulvescent buff.

The amount of black on the head varies, being continued further back in some specimens than in others.

Obs. There is a marked difference in the tint of the upper surface of this species according to the locality it inhabits. Examples from the south of the island and from the Western Province are, as described above, rusty brown, while those from the colder climate of the upper hills are decidedly olivaceous on the back and wing-coverts; specimens from the north of Ceylon are, as a rule, intermediate between the two. Although individuals vary *inter se* in the amount of ferruginous tint present on the back, the up-country race will be found, as a whole, to be decidedly less rust-coloured than the low-country birds. The same character, as already observed, is exemplified in the Scimitar-Babbler, *Pomatorhinus melanurus*.

Young. The nestling has the iris olive, but in plumage almost entirely resembles the adult, the forehead only differing in being less nigrescent.

Obs. The Ceylonese species is allied to the South-Indian *A. atriceps*, Jerdon, to which another closely affined race has lately been discovered by Mr. Bourdillon and described by Mr. Hume under the name of *A. bourdilloni*. *A. atriceps* has the head, face, and nape black, in addition to the forehead; the wings and tail are brownish olive (resembling in this particular our up-country birds, but paler even than they are), and the species is somewhat larger than ours. Specimens in the national collection measure 2·3 inches in the wing. *A. bourdilloni* has the black cap replaced by a brown one, and has the bill and tarsi stouter than in the last mentioned; the wing measures 2·4 inches. The Nilghiri Quaker-Thrush (*A. poiocephala*) is larger than any of the foregoing; wing 2·7 inches: it has the same style of coloration, but with the “head and nape dusky cinereous; back and rump greenish olive.”

Distribution.—This little Wren-Babbler, which is the smallest of the Babbling Thrushes found in Ceylon, was discovered by Layard in 1848, and described, *loc. cit.*, by Blyth. It is one of the commonest and most widely distributed of our jungle-birds, being found throughout the whole island up to the jungle-clad summits of the peaks of the main range. It is common throughout the Kandyan and southern hills wherever there

is either forest, low jungle, or even scrubby copse; and the same is true of the low country, where even small detached woods, containing any underwood at all, are tenanted by it. In some portions of the sea-board which are clothed with dry, arid scrub, such as on the south-east and north coasts, it is rare; but even in these it is met with in spots sheltered by tall trees from the blazing heat of a tropical sun. It is especially numerous in those portions of the Western and Southern Provinces in which the forests and jungle contain bamboo undergrowth.

Habits.—This modest but active little bird frequents underwood, thickets, and tangled jungle in little parties of from six to a dozen in number, feeding among fallen leaves which have become lodged among bushes, or about prostrate trunks of trees, and on the ground itself, subsisting entirely on various insects and their larvæ. It keeps up a constant little rattle-note as it threads its way about in the dense undergrowth, dropping, perhaps, suddenly from a branch on to some large Bairoo-leaf (*Sarcoclinium longifolium*) with a startling noise, or flitting through matted bamboos across the closely begirt jungle-paths, each little member of the troop following its mate in true Babbler fashion. It is most active in its movements; I have rarely seen it in a state of quiescence, except when, in the heat of the day, I have chanced to spy a little row seated in close proximity on some horizontal twig or bamboo-stalk, silently feathering themselves after their morning's exertions in search of food. They display much inquisitiveness, flitting round any one who may be standing still in thick jungle, jumping to and fro about the twigs and dead leaves, and stretching out their heads while they utter their shrill little rattle.

Nidification.—The breeding-season in the north of the island lasts from November until March, and in the south, where most of our birds nest during the rains, from March until August. Mr. Parker writes me that in the Seven Korales they breed mostly in May. The nest, as stated in my note, 'Stray Feathers,' 1875, p. 368, "is generally placed in a bramble or straggling piece of undergrowth, often in a prominent position near a jungle-path, at a height of from 2 to 4 feet from the ground." It is almost invariably made of dry leaves placed horizontally or in layers one on the other, the top being supported by the intermixture of a few twigs, and the opening being a wide unfinished orifice almost on a level with the bottom of the interior, which is composed of the same material as the outside. The structure thus formed is a shapeless, globular mass, sometimes of one foot in diameter at least, and from its large size and generally exposed situation is one of the first nests which meets the eye in the Ceylon jungles.

The birds construct these nests with great rapidity, picking up the leaves one after the other from just beneath the spot in which they are building. As mentioned in my notes in the 'Ibis,' 1874, I have seen them, from a place of concealment, sticking the leaves into the structure at the rate of two or three a minute. From the number of these leaf-nests that one finds in the forests of Ceylon it would appear that probably several are constructed by the same birds before the eggs are deposited in the one finally chosen by the little architects. They are used as a roosting-place by the young brood, who resort to them at nights after they have reached their full size and are abroad with their parents. The eggs are invariably two in number, stumpy ovals in shape, and of smooth texture. The ground-colour, before they are blown, is a clear fleshy white, spotted openly all over, or in some chiefly at the large end, with rounded spots of dull red and brownish red underlaid by a few specks of bluish grey. They measure 0.74 to 0.75 inch by 0.55 to 0.56 inch.

In the Plate accompanying the next article will be found two examples of this species—the one from Nuwara ELLIYA, showing the olivaceous character of the hill-birds, the other from the low country, exhibiting the same rusty-coloured tints which characterize the lowland form of *Pomatorhinus*.



ALCIPPE NIGRIFRONS.
PELLORNEUM FUSCICAPILLUM.

Genus PELLORNEUM.

Bill longer than in the last, straighter; the nostrils more linear; rictal bristles feeble. Wings rounded; the 5th, 6th, and 7th quills nearly equal and longest. Tail not shorter than the wing, rounded at the tip and graduated. Tarsus lengthened, its scales obsolete; toes stout, the lateral ones subequal.

PELLORNEUM FUSCICAPILLUM.

(THE WHISTLING QUAKER-THRUSH.)

(Peculiar to Ceylon.)

Dryocataphus fuscicapillus, Blyth, J. A. S. B. 1849, xviii. p. 815; id. Cat. B. Mus. A. S. B. p. 340 (1849); Kelaart, Prodrum, Cat. p. 122 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 269.

Pellorneum fuscicapillum, Blyth, Ibis, 1867, p. 301.

Dryocataphus fuscicapillus, Holdsw. P. Z. S. 1872, p. 447; Legge, Ibis, 1874, p. 19, et 1875, pp. 393, 410.

Batitchia, Sinhalese.

♂. Suprà brunneus, supracaudalibus paullo rufescentibus: alis brunneis, tectricibus et remigibus angustissimè rufescenti marginatis: rectricibus brunneis, extimis rufescenti terminatis: pileo nigricanti-brunneo, fronte vix rufescente lavatâ, scapis plumarum omnium rufescentibus: loris, supercilio distincto, facie laterali et colli lateribus, et corpore subtus toto cervinis, abdomine pallidiore fulvescente, hypochondriis brunneo lavatis: subalaribus pectori concoloribus: remigibus infra brunneis, intus rufescenti lavatis: rostro saturatè brunneo, mandibulâ carneâ: pedibus rufescenti-carneis: iride rufescenti-brunneâ.

Adult male and female. Length 6·4 to 6·8 inches; wing 2·5 to 2·8; tail 2·4 to 2·6; tarsus 1·0 to 1·1; mid toe 0·7 to 0·75; claw (straight) 0·3; bill to gape 0·8 to 0·85.

Iris varying from light reddish to dark red; eyelid olivaceous; bill, upper mandible deep brown with a pale margin, lower flesh-colour; legs and feet brownish fleshy, toes darker than tarsi, claws pale brownish.

There are two races of this little bird in Ceylon—a dark and a pale, the latter inhabiting the north of the island only, the former being found in the south-west and central portions of the island.

Dark race. Forehead, crown, nape, and upper part of hind neck dark glossy sepia, almost black, the feathers with fulvous shafts; lower part of hind neck, back, wings, and tail brownish olivaceous, with pale shafts to the feathers of the back; wing-coverts edged fulvous; outer primaries with pale edges; tail tipped with fulvous, most deeply on the lateral feathers; lores, supercilium, face and throat, and all beneath light sienna-brown, palest on the chin and abdomen, and with flanks dusky; the cheeks, ear-coverts, and sides of neck of a deeper or more rufous hue than the throat.

Birds from the Southern and Central Province districts, which constitute the dark race, vary very much in depth of colouring. Some have the head very dark and the feathers of the back dark-edged, the entire plumage being at the same time of a deeper hue; in such examples the feathers at the sides of the chest are centred with brown.

Pale race (from the whole of the northern and north-eastern parts of the island). The head and nape are light sepia-brown, with the edges of the feathers distinctly darker; the upper surface, wings, and tail pale olivaceous, with a greyish hue, and the shafts of the clothing-feathers very light; the wing-coverts and rectrices more conspicuously tipped, and the under surface very pale throughout.

Young. Birds of the year have the iris browner than adults, and the rump paler than the back; the drop-marks on the sides of the chest are likewise more distinct, and the tail but faintly tipped fulvous.

Obs. This bird was placed by Blyth in the genus *Drymocapthus*, which was instituted for a Malaccan species, *D. nigrocapitata*, differing slightly in the proportion of its longer quill-feathers, and having a slightly different type of plumage from *Pellorneum*. I have compared our bird with *Pellorneum ruficeps* of Southern India, and the quills are the same, and also the bill. The proportion of the longer quills in any given species appears, in many cases, to be an unsafe character, and certainly not worthy of consideration in the creation of genera, unless it be thought desirable to burden ornithology with a still greater multiplicity of genera than it is at present hampered with! In the present case, for instance, the 7th quill is subject to variation in individuals, some having it equal to the 6th and some shorter. In the type species of *Drymocapthus* the tail is shorter than the wing by about the length of the bill, and in this it therefore differs from our bird and from typical *Pellorneum*: the wing is, however, much the same in both forms; and I scarcely think that the genus *Drymocapthus* is a good one, unless the character of the head-plumage, as exemplified in the several species forming this little group, be allowed consideration enough to justify its establishment. The present species was subsequently classed by Blyth as a *Pellorneum*, and Mr. Holdsworth again restored it to its position as a *Drymocapthus*.

Distribution.—This little bird, one of the most interesting species peculiar to the island of Ceylon, was discovered by Layard. He writes:—"But two specimens fell under my notice. One I killed with a blow-pipe in my garden in Colombo, the other I shot in the Central Road." Mr. Holdsworth procured but one specimen, shot in the north of the island, and, in common with Layard, conceived it to be a rare species, its very shy and retiring nature, and its habit of only frequenting thick underwood, obviously giving rise to this idea. On the contrary, however, it is a common and widely distributed bird, being found as a resident more or less over the whole low country, with perhaps the exception of the Jaffna peninsula and some of the open coast districts in the north-west. It is most numerous in regions covered with large tracts of jungle, occurring in such places everywhere, and least so in cultivated portions of country, in which it is confined to wooded knolls or overgrown waste land. It is, accordingly, scattered through all the jungle-clad low hills of the Galle district, the flat forests of the south-east, and the wilds of the Eastern Province, as well as through the entire forest-region of the north, across from Trincomalee (where it is numerous) to the confines of the open country on the north-west, and thence down to the Chilaw and Kurunegala districts. In the Western Province its distribution is partial, it being there most numerous in the jungles of the interior, of Saffragam, and in the region lying at the base of the mountains. In these latter it is found, as also in the southern ranges, ascending in the Kandyan Province to an altitude of about 5500 feet. In the district of Uva and in most of the deep wood-dotted valleys below the coffee-estates it is common, frequenting likewise the intermediate belts of forest above them in Haputale and the main range.

I would here remark that there is no bird in Ceylon concerning the distribution of which my predecessors in ornithological work appear to have been so misled. Scarcely any species shows itself less, but, on the other hand, none make more noise from their place of concealment. An acquaintance with its note, therefore, was required, and failing this one could not but pass it by completely. For my own part I imagined it, during the first three years of my labours in Ceylon, to be one of the rarest of birds, for I could never meet with it in the Western Province. Shortly after I went to Galle, while collecting one morning in the vicinity of the Bonavista Orphanage (to the hospitable and kind superintendent of which I am indebted for the passing of many a pleasant hour in one of the most charming little bungalows in the low country), I was attracted by a bird-note which I remembered often to have heard, and on procuring its owner was surprised to find that I had at last obtained this much-looked-for species. In the same manner I captured it very soon afterwards near Wackwella, and then in other copses in the neighbourhood, and soon ceased to pay any attention to its whistle. On going to Trincomalee my first day's trip into the jungle renewed my acquaintance with my little friend, and so on wherever I travelled I continued to hear the garrulous bird, until it had to be noted in my catalogue as a common and widely distributed species, and as such was spoken of in my account of the birds of the south-west hill-region ('Ibis,' 1874). To this Mr. Holdsworth, who had not made the acquaintance of its note, somewhat naturally took exception in his comment on my paper published in the following number of the 'Ibis.' Mr. Bligh, however, knows it to be a common bird in the Haputale jungles; and those who hereafter work in the ornithological field of Ceylon will, I doubt not, substantiate my experience.

Habits.—This Babbler, as has just been remarked, is a very shy and retiring bird, and a denizen, for the

most part, of forests and cheena-woods, but likewise frequents scrub, brushwood, low jungle, or overgrown land in the vicinity of native cottages. It dwells entirely in the seclusion of such vegetation, feeding near the ground in dense thickets or picking up beetles and insects from amongst decaying herbage; it rarely shows itself in the open except to flit across a jungle-road or forest-path. It is usually found in pairs, except after breeding, when it combines with its newly-reared family to form a little troop, which comport themselves much as *Alcippe*. Its note, which is one of the characteristic sounds of the Ceylon jungles, is a persistently repeated whistle, resembling the words "to-meet-you." This is varied, on the part of the male in the breeding-season, by a combination of ascending and descending bars, which form a pleasant little warble. In the short note there is a peculiar intonation which partakes of the power of ventriloquy, and which renders, at times, the determining of the bird's position a difficult matter. The Whistling Babbler is especially noisy in wet weather, and during the breeding-season utters a low purr when the vicinity of its nest is approached. At this period I have observed a pair seated on a low branch, bowing and courtesying to each other, with their tails carried erect, and appearing to be most intent on rendering themselves mutually attractive. The stomach in this species is muscular; and I have found large beetles therein, proving its digestive powers to be considerable.

Nidification.—The nest of this species is exceedingly difficult to find, and scarcely any thing is known of its nidification. Mr. Bligh succeeded in finding it in Haputale at an elevation of about 5500 feet. It was placed in a bramble about 3 feet from the ground, and was cup-shaped, loosely constructed of moss and leaves; it contained three young. I found what I have reason to believe was a nest of this species at Agalewatta, which was constructed chiefly of the dead leaves of a recently felled shrub, in which it was placed about 2 feet from the ground; it was large and loosely made, resembling the nest of *Alcippe*, but lined with fine dry roots. Although it contained no eggs, I observed the birds frequenting it, and have no doubt, therefore, as to its ownership. Mr. Bligh writes me concerning a brood of four or five young which he found in the Central Province; they had just left the nest and were frequenting some thick brambles, in which he caught several of them with ease. The parent birds, he remarks, "seemed as if they would have died of distress, trying to draw me away by tumbling and fluttering about on the ground as if badly wounded, and nearly buffeting me when I had the young in my hand."

The figure in the Plate accompanying this article is that of a dark-coloured Western-Province specimen, which was shot in the Three Korales.

Genus PYCTORHIS.

Bill short, curved, high at the base, tip entire. Nostrils rounded; rictal bristles strong; orbits nude. Wings rounded, the 5th to the 7th quills subequal and longest. Tail long and graduated. Legs and feet stout. The tarsus shielded with broad smooth scutæ, anterior toes moderately short; hind toe and claw lengthened.

PYCTORHIS NASALIS.

(THE BLACK-BILLED BABBLER.)

(Peculiar to Ceylon.)

Chrysomma sinensis, Blyth, Cat. B. Mus. A. S. B. p. 150. no. 860, spec. *c* (1849); Kelaart & Layard, Prodrumus, App. p. 58 (1853); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 272.

Pyctorhis sinensis, Jerdon, B. of Ind. ii. p. 15 (1863, in pt.); Holdsw. P. Z. S. 1872, p. 448; Legge, Ibis, 1875, p. 290.

Pyctorhis nasalis, Legge, Ann. & Mag. Nat. Hist. 1879, iii. p. 169.

Batitchia, Sinhalese.

Similis *P. sinensi*, sed saturatior, et remigibus haud rufo marginatis, supercilio albo longiore et naribus nigris nec flavis distinguenda.

Adult male and female. Length 6·2 to 7·0 inches, average about 6·5; wing 2·5 to 2·85; tail variable, extreme length about 3·5, centre feathers 1·25 longer than the outermost; tarsus 0·95 to 1·1; middle toe with its claw 0·85; bill to gape 0·65 to 0·7. The average length of wing is 2·6; the limit above given relates to an exceptionally large specimen shot in Uva.

Iris golden yellow; eyelid chrome-yellow; loral skin, which is perceptible through the feathers, greenish yellow; bill and nostril black; legs and feet dull yellow, extremities of toes dusky; claws dusky horn-colour.

Above ruddy earth-brown, the head darker than the hind neck; wings brown, the primaries at the base only edged outwardly with ruddy brown, elsewhere with greyish; wing-coverts concolorous with the bases of the primaries; tail greyish brown, the feathers edged pale; lores, a conspicuous supercilium, throat, and under surface white; the flanks, lower parts, and under tail-coverts tinged with buff; under wing-coverts buff-white.

Some examples, probably immature birds, are more deeply tinged on the lower parts than others, and some have a brownish spot immediately below the gape.

Obs. A comparison of a series of *Pyctorhis sinensis* from various parts of continental India, with a number of Ceylonese specimens of the species, which has hitherto been united with it, induced me to separate the latter as a subspecies or local race, differing in the absence of both the yellow nostril and the reddish wing-coloration from its Indian congener. Examples from Kamptee, Kattiawar, Behar, Nepal, N.W. Himalayas, and the North-west Provinces have a smaller eye-stripe and the upper surface of a ruddier hue than our bird; the head, in particular, displays this character; some specimens (Futteghur and Kattiawar) are more sandy than others, and have the rump and tail-feathers markedly pale. A Bhotan-Doars example, however, differs from all others I have seen in being very dark on the head and back; in all, the outer webs of the quills, except near the tips, are dull cinnamon-red, and the coverts are chestnut-brown, that is, not quite so red as the quills. The nostril membrane is deep yellow, while that of the Ceylonese race is as black as the bill; and this singular character forms, perhaps, the chief distinction between the birds of the two localities. As regards size, the Indian bird appears to measure somewhat less in the wing (2·35 to 2·6) and more in the tail (3·3 to 3·7 inches).

I have not had the opportunity of extending my examination to specimens from the south of India; and, in so far as I have not done this, I still consider my determination of the Ceylonese species as peculiar to the island open to correction. It may be that the race inhabiting the extreme south resembles the Ceylonese in coloration more closely than does that from *continental India*; but I have not yet seen any peculiarity in the colour of the nostril spoken of by recent observers. Blyth, in the first mention of the Ceylonese race which he received from Layard, says, "less rufous variety from Ceylon;" but in this he compares it with specimens from Lower Bengal.

Distribution.—The Black-billed Babbler is widely distributed throughout the island, particularly as regards the southern half; but at the same time it is a local bird, being altogether absent from some parts, while it is tolerably common in others. Commencing with the Western Province, it is not uncommon in the sedgy

overgrown portions of the Colombo cinnamon-gardens, and occurs in such-like situations throughout the more open parts of the interior; further south I have found it at Amblangoda and near Galle and Matara; but it does not become common until the dry low-lying south-eastern country is reached, of nearly all parts of which it is an inhabitant. The open elevated regions of Madulsima and Uva are, perhaps, its head-quarters, in all the patnas of which it is a very common bird, extending up to the vicinity of Hakgala, which has an elevation of 5800 feet. In the eastern portions of Dumbura, and in the country lying between Bintenne and Batticaloa, it is also found, occurring likewise in low cheena-copses throughout the north-east, or the country on the right bank of the Mahawelliganga. Layard writes that he obtained a few specimens in the Anaradhapura Vanni, and I have no doubt that it is found in places as far north as Elephant Pass.

Habits.—Swampy fern-brakes, grass-fields interspersed with bushes, low jungle in cheenas, and patnas covered with maana-grass, lantana, and thick cover are the localities chiefly frequented by the present species. It is a shy bird, except in the breeding-season, resorting to underwood or long grass during most of the day, and not showing itself to any extent until evening, when it perches on the top of a bush, and gives out its loud far-sounding, rather plaintive whistle of two notes, varied with a peculiar mewing call. It is generally found in pairs, in which habit it differs from most of its family, and when disturbed from its haunts flies quickly out, and, settling for a moment on a tall grass-stalk or prominent stick, drops into the nearest bush at hand. A little group of three or four are, however, sometimes seen together; but, in general, I imagine that they consist of a young brood with their parents. It proceeds swiftly through the thickest grass, and when wounded or winged runs with great speed on the ground, and inevitably escapes into the tangled undergrowth. In the breeding-season it is a lively bird, with all the manners of a Warbler, flying hither and thither, the male continually alighting on some prominent position and uttering a strong and rather pretty warble. I have always found its food to consist of small Coleoptera and various minute insects. The district of Uva is the only locality where I have seen small parties of this bird, and then not more than three or four together, which were probably, as previously remarked, a young brood accompanied by their parents.

Jerdon writes of its Indian ally, "It frequents low jungles on the skirts of forests, long grass, hedge-rows, and even comes occasionally into gardens. Though sometimes to be met with singly, it is generally seen in small parties of five or six, flying from bush to bush before you, and trying to conceal itself in some thick clump. It has a low chattering note when at rest, and when flying from bush to bush a loud sibilant whistle. I have on several occasions heard one, perched conspicuously on a high bush, pour forth a remarkably sweet song." In this latter habit the Indian species exactly resembles ours.

Nidification.—In the Western Province this Babbler commences to breed in February; but in May I found several nests in the Uva district near Fort Macdonald; and that month would thus seem to be the nesting-season in the Central Province. The nest is placed in the fork of a shrub, or in a huge tuft of maana-grass, without any attempt at concealment, about 3 or 4 feet from the ground. It is a neatly-made compact cup, well finished off about the top and exterior, and constructed of dry grass, adorned with cobwebs or lichens, and lined with fine grass or roots. The exterior is about $2\frac{1}{2}$ inches in diameter by about 2 in depth. The eggs are usually three in number, fleshy white, boldly spotted, chiefly about the larger end, with brownish sienna; in some these markings are inclined to become confluent, and are at times overlaid with dark spots of brick-red. They are rather broad ovals, measuring, on the average, from 0.76 to 0.79 inch in length by 0.56 to 0.59 in breadth.

The figure of this species in the Plate accompanying the next article is that of a female shot in the Madulsima district.

Genus ELAPHRORNIS*.

Bill straight, compressed, rather slender; culmen straight at the base, the tip notched. Nostrils oblong and oblique; rictal bristles feeble. Wings short and rounded, the 5th, 6th, and 7th quills subequal and longest, the 1st about half their length. Tail exceeding the wing by the length of the hind toe, of 12 feathers, lax and graduated. Tarsus longer than the middle toe and its claw, and covered with long obsolete scales; anterior toes slender, the hallux stout.

Plumage lax and soft; the feathers of the back much lengthened. Nape furnished with abnormal hair-like feathers.

ELAPHRORNIS PALLISERI.

(PALLISER'S ANT-THRUSH.)

(Peculiar to Ceylon.)

Brachypteryx palliseri, Blyth, J. A. S. B. 1852, xx. p. 178; Kelaart, Prodrumus, Cat. p. 102 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 269; Holdsworth, P. Z. S. 1872, p. 443, pl. xviii.

Kelaartia palliseri, Gray, Hand-l. B. i. p. 312. no. 4668 (1869).

♂ *ad.* suprâ brunneus, pilco saturatiore et magis olivascens: tectricibus alarum brunneis dorsi colore lavatis: remigibus brunneis, extus olivacentibus: candâ saturatè brunneâ, rectricibus clariore brunneo lavatis: loris cinerascenscenti-albis: lineâ superciliari cinerascenscente indistinctâ: regione paroticâ et plumis infraocularibus brunneis, angustè albido lineatis: gulâ pallidè cervino-rufâ: pectore olivascenscente flavo lavato, lateraliter cineraceo adumbrato: corporis lateribus, tibiis et subcaudalibus brunneis: abdomine medio pallidè flavo: subalaribus olivascenscenti-brunneis: remigibus infrâ brunneis, intus pallidè marginatis: rostro nigro, mandibulâ pallidiorè: pedibus purpurascenscenti-brunneis: iride ♂ pallide rubrâ, ♀ flavescenscenti-cervinâ.

Adult male and female. Length 6.4 to 6.75 inches; wing 2.35 to 2.65; tail 2.5 to 2.7; tarsus 1.0 to 1.1; middle toe and claw 0.8 to 0.85; bill to gape 0.73 to 0.87. The female is the smaller of the sexes.

Male. Iris clear red; bill black, slate at the base beneath; legs and feet deep neutral brown or purplish brown, claws pale brownish horn.

Female. Iris buff.

Above olive-brown, darkest on the forehead, and changing to rusty brown on the rump, upper tail-coverts, and tail, the centre of the tail-feathers darker than the margins; wings dark brown, the outer webs of the quills rusty olive-brown; lores just beneath the eye, as also the ear-coverts, blackish brown, the latter with pale striæ; a faint light stripe passing from the bill over the eye; orbits greyish; chin whitish, changing into buff-yellow on the gorge and upper part of throat, which blends into the olivaceous slate-colour of the chest and sides of breast; lower flanks and under tail-coverts rusty brown; centre of the breast and the belly flavescent, blending into the surrounding colour.

Young. Iris, in the male pale reddish buff; in the female white.

Obs. A question to be decided by future observation is whether the iris of the female ever turns red. I have one specimen with a faint inner reddish circle; but I have never shot one with a red iris like that of the male, the

* From ἐλαφρός, nimble, active.



PYCTORHIS NASALIS.
ELAPHRORNIS PALLISERI.

invariable colour being buff. As the iris in the male turns from buff to red, and that of the female from white to buff, the inference is that, in the end, the latter may possibly become as dark as that of the male.

Chin dusky greyish, the centres of the feathers whitish, and a slight wash of buff across the centre of the throat; breast and underparts more greenish than in the adult, the chest being devoid of the slaty hue.

Obs. This curious bird is quite a *Timaline* species, both as regards its habits and its external structure. Its wings and legs are essentially those of the present family, and the texture of its plumage is not unlike that of *Pomatorhinus*, although it is considerably more lax. It has, however, its abnormal characteristics, such as its slender bill and its highly developed nuchal hair-like plumes, which ally it to the *Drymœcinæ*. These plumes possess the remarkable structure of dividing at the tip into three or four branches, each of which is furnished with a scanty web; it likewise differs from most of the *Timaliinae* in its non-gregarious propensity, resembling also, in this respect, the *Drymœcinæ*. Notwithstanding, it seems to me to take a better station among the Babblers, to which its active habits, wing- and tail-structure ally it, than among the Wren-Warblers; and I accordingly place it at the end of the *Timaliinae*.

It was placed by Blyth in the genus *Brachypteryx*, which is located by Jerdon and others among the Thrushes in the subfamily *Myiotherinae*. With the exception of the short wing, it does not appear to have any thing in common with this genus, one of the principal characters of which is the very short tail, *much exceeded by the wing* in all the species I have examined. In some, such as *Brachypteryx polio-genys*, Wallace, the tail falls short of the wing *by the length of the tarsus*, whereas in the present bird the tail considerably exceeds the wing, and the gape is bristled and not smooth. I have accordingly founded for its reception the genus *Elaphrornis*, which title I conceive to be not inappropriate, owing to its active manners.

Distribution.—This singular and little-known bird was discovered by Kelaart, who suggested its present specific name in honour of a friend, Mr. Palliser of Dimbulla; he procured it at Nuwara Eliya and Dimbulla. But few naturalists have met with it, owing to its propensity for inhabiting dense thickets in thick jungle. It is confined to the upper hills and higher ranges in the outlying districts, in all of which it is found above an elevation of about 5000 feet. It is a common bird in all the forests of the main range, from False Pedro to the Horton Plains, and thence along the Peak forest to Maskeliya. It is found on Namooni-kuli mountain and on the Haputale hills. Mr. Bligh, however, writes me that for the past three years he has not met with it in the higher jungles of this district, in which it used formerly to be common during the autumn months. For my own part I do not believe much in its moving about; it may be more silent at one time than another, and consequently may chance to be overlooked, for it shows itself but little, except during the early morning, and an acquaintance with its singular note is requisite to a knowledge of its whereabouts. It is, perhaps, more numerous on the Horton Plains than any other part of the Nuwara-Eliya plateau; the woods there are overgrown with elephant-grass (*Arundinaria debilis*?), its favourite haunt, and in this it dwells securely. It must be looked for in the upper jungles of the Knuckles range: when I visited them I was unacquainted with its note, and consequently it found no place in my catalogue of the birds of that district; but the conditions of climate and vegetation are similar there to those of other parts.

Habits.—This Ant-Thrush dwells entirely in the damp close underwood with which the upper Ceylon forests are overgrown; it delights in the nilloo-scrub and the densely matted "elephant-grass," which I have just referred to, both of which form the chief part of the undergrowth in the Nuwara-Eliya district: equally favourite haunts, however, are the numberless little nullahs leading to the mountain-streams, and which are generally blocked up with fallen timber of all sizes, and a tangled mass of dead nilloo-sticks, thorns, decaying boughs, and such like; and here this little retiring bird passes a quiet though active existence, nimbly searching about the mossy trunks, quickly hopping and running along the ground beneath the tangled thickets, through which it threads its way with astonishing rapidity, or darting about the bases of standing trees in the pursuit of ants and other minute insects. It likewise partakes, to some extent, of small seeds, some of which I have occasionally found in its stomach. To the ordinary observer, therefore, it is likely, with such habits, always to remain a stranger; but those to whom its insect-like note, which sounds like the syllable "*quitze*," sharply uttered at moderate intervals, is familiar may frequently detect it in the vicinity of forest-paths, at the sides of which it often appears for a moment, quickly darting across and clinging to the upright trunk of a tree, while it utters a rapid little warble, and then darts into the surrounding vegetation.

As with other birds in Ceylon which are denizens of thick jungle, I find that scarcely any Europeans are

acquainted with the Ant-Thrush, although it is, in the limit of its range, quite a common bird, but at the same time of such retiring manners, and so difficult to hunt into the open, that its presence is overlooked by those who are unacquainted with its voice; while, on the contrary, those who are familiar with it will recognize its sharp little *quitze* at every 100 yards in such quiet solitudes as the jungles of the Horton Plains and other similarly elevated regions. It is chiefly astir in the early part of the day; and its lively little song is at that time oftenest heard. It feeds entirely on the ground and among fallen timber, its strong, curved, hind claw enabling it to cling to wood in any position, and its stout legs affording it the power of threading its way quickly through the densest brakes. It is of unsociable habit, shunning the companionship of any species but *Alcippe nigrifrons*, with which I have once or twice found it associating.

Mr. Holdsworth's experience of its habits corresponds well with my own. He writes, "Frequently it betrays its close neighbourhood by its '*cheep*' once or twice repeated; and it will show itself for a moment within two or three yards of one; then it is lost again in the thick jungle. When on the ground it often jerks up its tail after the manner of the Robins; but I have not observed this habit when it has been on the stems of the jungle plants or creeping about the dry sticks."

Nidification.—The Ant-Thrush breeds in March and April. Mr. Bligh writes me, "I found a nest at Nnwara Eliya in April 1870; it was placed in a thick cluster of branches on the top of a somewhat densely-foliaged small bush, which stood in a rather open space near the foot of a large tree; it was in shape a deep cup, composed of greenish moss, lined with fibrous roots and the hair-like appendages of the green moss which festoons the trees in such abundance at that elevation. It contained three young ones, plumaged exactly like their parents, who kept churring in the thick bushes close by, but would not show themselves much."

The figure in the Plate accompanying this article is that of a male shot at Horton Plains.

PASSERES.

TIMALIIDÆ.

Subfam. DRYMÆCINÆ.

Bill more or less straight, acute at the tip. Wings rounded, with the 1st quill about half the length of the longest. Tail as long as, or longer than, the wing, graduated, the feathers lax. Legs and feet stout; the tarsus lengthened and shielded with moderately developed scutes; hind toe and claw large.

Of small size. Nape mostly furnished with "hairs."

Genus ORTHOTOMUS.

Bill long and slender, straight, tip entire. Nostrils basal, lateral, and somewhat advanced; rictal bristles minute. Wings short and rounded; the 1st quill more than half the length of the 2nd; the 4th and 5th the longest. Tail very narrow, the centre feathers, in some, elongated at the breeding-season. Tarsus long, stout, and scutellate in front. Toes slender, claws much compressed.

Nuchal "hairs" moderate.

ORTHOTOMUS SUTORIUS.

(THE INDIAN TAILOR-BIRD.)

Orthotomus sutorius, G. R. Forster, Ind. Zool. p. 17 (1781).

Motacilla sutoria, Penn. Ind. Zool. p. 17, pl. 8 (1790).

Motacilla longicauda, Gm. Syst. Nat. i. p. 954 (1788).

Orthotomus longicauda (Gm.), Strickl. Ann. & Mag. Nat. Hist. 1844, xiii. p. 35; Blyth, Cat. B. Mus. A. S. B. p. 144 (1849); Kelaart, Prodromus, Cat. p. 120 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 262; Moore, P. Z. S. 1854, p. 81; Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 317 (1854); Jerdon, B. of Ind. ii. p. 165 (1863); Holdsw. P. Z. S. 1872, p. 455; Hume, Nests and Eggs, ii. p. 331 (1874); Oates, Str. Feath. 1875, p. 135; Butler & Hume, *t. c.* p. 479.

Orthotomus sutorius (Forst.), Hodgs. in Gray's Zool. Misc. p. 82 (1844); Walden in Blyth B. Burm. p. 120 (1875); Fairbank, Str. Feath. 1877, p. 406; Davison & Hume, *ibid.* 1878, p. 345.

Le petit Figuier à longue queue de la Chine, Sonn. Voy. Ind. ii. p. 206; *Long-tailed Warbler*, Lath.; *The Rufous-headed Tailor-bird*, Kelaart. *Phutki*, Hind.; *Tuntuni*, Beng.; *Patia*, lit. "Leaf-bird," Nepal.; *Likku jitta*, Telugu.

Tavik, Sinhalese, from the note.

Adult male. Length 4.2 to 5.0 inches (according to length of tail in breeding-season), average normal length 4.3; wing 1.8 to 1.9; tail 2.0 to 2.5, centre feathers 0.75 to 0.8 longer than the rest; tarsus 0.75; middle toe and claw 0.55; bill to gape 0.65 to 0.7.

Adult female. Smaller than male; length 4.1 to 4.2 inches; wing 1.7.

Iris pale reddish; eyelid rufescent yellow; bill fleshy, with dusky culmen; legs and feet fleshy reddish or "flesh-colour."

Forehead and crown rufous, changing into ashy on the nape, and thence into the olive-greenish of the hind neck, back, scapulars, and lesser wing-coverts; quills and tail light brown, the latter tipped pale and with a subterminal bar of darker brown; tail-feathers towards their bases, and the wing-coverts and tertials, edged with the hue of the back; the primaries edged with olivaceous; throat, face, and under surface whitish, purest on the lower breast; the flanks and sides of chest ashy grey; a dark patch (usually concealed) on either side of the throat, formed by the bases of the neck-feathers and the blackish skin of that part; under wing-coverts rufescent yellow, and the thighs brownish rufous. The elongated centre tail-feathers are yellowish olive-green, and they are indistinctly tipped and banded like the rest. The nuchal hairs are small in this species.

Young. Birds of the year have the under mandible dusky and the legs brownish fleshy.

The forehead and crown are dusky rufous; the upper tail-coverts and margins of tail-feathers near the base are slightly rufous; otherwise as in the adult.

Obs. Jerdon has pointed out that in specimens from Ceylon "the ashy nape is inconspicuous, being nearly overlaid with rufous, and passing into the green of the back." A comparison of my specimens with various examples from different parts of India demonstrates that, as a rule, the latter are of a darker green on the back, and have the forehead a deeper rufous, this colour not receding so far back as in the island birds, and also that frequently the ashy nape extends more forward. Then, again, as a rule, in the Indian birds the central tail-feathers are longer, consequently projecting further beyond the adjacent pair. These differences, however, are by no means constant, some examples from various parts of India coinciding exactly with ours. A Malabar example in my collection is in all respects the same, having the ashy nape similar to Kurunegala specimens, and the forehead and upper surface of precisely the same tint; its measurements are:—wing 1·9 inch; tail 2·5, central feathers 0·65 longer than the next; bill to gape 0·65. A Deccan specimen has the tail 2·8 inches; but this is exceptional, for one from Darjiling measures 2·4 inches, central feathers 0·65 longer than the next, bill to gape 0·65: one from Behar, tail 2·4, central feathers 0·5 longer than the next; another from Tenasserim 2·5, central feathers 0·5 beyond the rest. In the latter the rufous of the forehead does not recede so far back as in some Ceylouse birds, but the nape is not more cinereous than in them. In the Darjiling specimen the nape is *slightly* darker than in most island birds, and in that from Behar it is considerably so.

O. edela, Temm., from Java, is allied to the present species, and differs in having the cheeks and ear-coverts rufous as well as the forehead, and the upper surface greyish green; wing 1·7 inch.

Distribution.—The Tailor-bird is ubiquitous in Ceylon, inhabiting the whole island, without regard to the nature of the locality, from the sea-coast to the highest parts of the upper hills. It is uniformly diffused through the low country, being quite as common in the north and east as it is in the south. In the Kandy district and throughout the Central Province it is a well-known bird, and about Nuwara Eliya it is not uncommon. I found it in the Horton-Plain jungles and on the surrounding mountains, and have met with it in all parts of the main range that I have explored.

In India this little bird is spread throughout the whole country to the Himalayas and thence into Burmah and Tenasserim, in which latter province Messrs. Hume and Davison say that it is generally distributed where the country is cultivated; they procured it as far south as Mergui. It ranges into the hills of the southern part of the peninsula, but not to so great an altitude as in Ceylon. Miss Cockburn, in writing from the Nilghiris to Mr. Hume, remarks that it is seldom met with on the highest ranges, but appears to prefer the warmer climates at about 3500 or 4000 feet. Mr. Fairbank, however, observed it at 5500 feet in the Palanis. In the Himalayas it breeds up to 4000 feet. In Guzerat and the Mouut-Aboo district it is common, and in Sindh it has likewise been procured.

Habits.—This interesting little bird, which is a great favourite among Europeans in Ceylon, appears to have no choice of situation, frequenting gardens, cultivated districts, and open country, as well as thick jungle and the depths of the forest. In the vicinity of habitations, however, it is particularly at home, occupying the grounds of European and native houses, and therein delighting in the broad foliage of the "Lettuce"-tree and other umbrageous shrubs, about which it hops during the heat of the day, swaying its tail to and fro and repeating its continued and rather tiresome notes. The male during the breeding-season is most persistent in giving forth his sharp *te-wike, twike*, and his well-known metallic-sounding call somewhat like the sharpening of a saw, which he reiterates close to one's verandah in some adjacent tree till it becomes deafening. The muscular action consequent on the display of these vocal powers exposes the naked black skin (otherwise concealed) at the side of the throat, giving the appearance of a dark stripe at this part. Jerdon likened its call to the syllables *to-wee, to-wee, to-wee*. Although it usually consorts in pairs, it is not strictly a sociable bird, its companion being, for the most part, seen at some little distance off, now and then answering the notes with which it is hailed. After rearing its young brood, however, the little family go about in company for some months, flitting actively around and feeding on larvæ and insects which they secure among the leaves of trees. It is a bird of very restless habit, particularly in the breeding-season, and when watched at that period quickly disappears into the nearest thick foliage.

Nidification.—The breeding-season in the west and south of the island lasts from about March until November, during which period probably more than one brood is reared; in the Central Province it commences somewhat later, and in the north it is during the cool season or north-east monsoon. In the low

country an umbrageous tree with large leaves, more especially its favourite habitation the "Lettuce"-tree, is usually chosen in which to construct its ingenious nest, while in the Central Province it frequently builds in a coffee-bush, sewing four or five leaves together. Layard speaks of one being constructed of a dozen oleander-leaves; but the usual number of which it makes use is two. I have found beautiful nests constructed in a single leaf, the edges of the lower half being brought close together, sewn firmly, and the nest built into the cone thus formed, the back of the leaf serving for one half of the egg-cavity; but these are rare exceptions. Two, or perhaps three, adjacent leaves, about 4 or 5 feet from the ground, are selected and their ends brought together and so formed as to make a cavity for the nest, which is built inside it and consists of fine grass, bits of cotton, thread, coir-fibre, wool, small roots, and such like, some of which ingredients are passed through the holes perforated in the leaf casing and then incorporated with the body of the structure, the whole forming a very solid and substantial piece of workmanship. The coir used is mostly pulled from the mats in the verandahs of houses near which the nest is often built. The egg-cavity formed in this skilful manner is about 2 inches in diameter by the same in depth, the lining being simply the finer materials of the body of the nest. The eggs are generally three, sometimes four, in number, of a whitish or greenish-white ground-colour, spotted openly throughout, but chiefly at the large end, with one or two shades of rather light brown and brownish red. In shape they are rather pointed ovals, with but little gloss, and measure about 0.65 inch in length by 0.45 inch in breadth. Naturalists in India appear to differ in opinion as to the Tailor-bird using dead leaves for the formation of its nest. I have found and examined many and I have never seen such a thing. The most likely solution of the problem is that suggested by the late Mr. A. Anderson, and quoted in 'Nests and Eggs,' p. 33, and which is, that the dead leaves sometimes found in the composition of the nest are those which have been pierced to excess, separated from the stalk, and afterwards withered. Writers quoted in Mr. Hume's useful work testify to its building at all times of the year and in very various situations. Mr. Anderson speaks of a nest being taken in his presence from the very top of a high tree and enclosed within a single leaf; another seen by him was composed of seven or eight leaves. Miss Cockburn writes that it builds in coffee-trees in the Nilghiris. Mr. Hume gives the average length of Indian eggs as 0.64 by 0.46 inch.

Genus PRINIA.

Bill shorter, slenderer, and more curved than in *Orthotomus*. Nostrils linear and exposed as in that genus; tip entire. Wings as in the last genus. Tail variable, of 10 feathers in some, 12 in others, much graduated, the feathers lax. Tarsus long, shielded in front, with large but smooth scutes.

Nuchal "hairs" more developed than in *Orthotomus*.

PRINIA SOCIALIS.
(THE ASHY WREN-WARBLER.)

Prinia socialis, Sykes, P. Z. S. 1832, p. 89; Jerdon, Cat. B. S. India, Madr. Journ. 1839, xi. p. 3; Blyth, Cat. B. Mus. A. S. B. p. 143 (1849); Layard & Kelaart, Prodr. Mus. Cat. App. p. 57 (1853); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 263; Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 321 (1854); Jerdon, B. of Ind. ii. p. 170 (1863); Holdsw. P. Z. S. 1872, p. 455; Hume, Nests and Eggs, ii. p. 337 (1874); Legge, Ibis, 1874, p. 21, et 1875, p. 397; Hume & Butler, Str. Feath. 1875, p. 479; Morgan, Ibis, 1875, p. 321; Fairbank, Str. Feath. 1877, p. 406; Davidson & Wender, ibid. 1878, p. 83.

Foodkey Warbler, Latham, Hist. viii. p. 125.

Phutki, Hind. (Blyth).

Adult male and female. Length 4·5 to 5·0 inches; wing 1·75 to 1·9; tail 1·8 to 1·9; tarsus 0·75 to 0·85; middle toe and claw 0·55 to 0·6; bill to gape 0·65. Females are smaller, as a rule, than males.

Note. This species has 10 tail-feathers.

Iris pale red or brownish yellow; bill black; legs and feet fleshy reddish, claws dusky.

Male. Head, back, and wing-coverts dark bluish ashy, the colour just encircling the eye and covering the upper half of the ear-coverts; two long hairs spring from the nape on each side; wings and tail *umber-brown*; the tail with whitish tips and a subterminal blackish-brown bar, the central pair of feathers less lightly tipped than the rest, and all the bars showing darker beneath; under surface rufescent buff, paling to whitish on the centre of the breast, and tinged most deeply on the flanks with the rufescent hue; thighs brownish rufous; under wing rufescent. The plumage of the under surface is silky.

Female. Has a buff and more or less conspicuous *stripe above the lores*; under surface not so deeply tinged with buff as in the male.

Young. Similar to the adult, with the exception of the less pronounced hues of the upper surface, and more albescent character of the lower parts.

Obs. For want of South-Indian specimens to compare with those in my possession from Ceylon, I am at present, I regret to say, unable to deal satisfactorily with this species. I believe it will have to be separated as a smaller browner race of *P. socialis*; and I hope to refer to it again in the Appendix. It *may* turn out to be one of those forms which undergo a gradual change of plumage and size as they range south towards Ceylon, making it difficult to define their limits as distinct birds from their northern representatives; but even then I should almost doubt the propriety of not separating the Ceylon race as a subspecies. Sykes's male type of *P. socialis*, which was described from the Deccan, and is now in the India Museum, has the lower part of the back ashy, like the upper part, as in Ceylon birds; but the wings and tail are a decided brownish rufous, and consequently much redder than in the insular bird; the tail measures 2·2 and the wing 2·1 inches: another example (labelled ♀) has the wing 1·85 and the tail 2·3. There is a third example, from the Deccan (but not one of the types), which is similar to the above in coloration, and measures 2·1 inches in the wing and 2·4 in the tail. These Deccan specimens are nearer to our birds than those from more northern parts; but it will be seen at once how much the tail, in particular, exceeds that of the Ceylon birds; and the dark caudal bands are not so broad as in the latter. Travelling northwards we find some examples have the rump ashy, like the back, but with much longer tails than those from Ceylon, and others with the rump brownish rufous, running so much into *P. stewarti* (which species has the back overcast with an olivaceous hue, becoming quite rufous on the rump and upper tail-cover(s) that I do not wonder that Mr. Hume considers the two species doubtfully distinct. A Sikhim example collected by Anderson, and labelled *P. socialis*, has the back similar to Sykes's specimens, and the wings and tail rufous-brown, somewhat approaching in colour those of Ceylonese birds; but the secondaries are edged with brighter rufous-brown, and the

tail, besides being very long (2·7), has the subterminal spots very narrow, as in Deccan skins. The determination of this bird appears to be correct, for it is much closer to the true *P. socialis* than to *P. stewarti*. The Ceylonese race might stand as *P. brevicauda*, if proved to be distinct.

Distribution.—This little bird is widely distributed both in the low country and the hills up to 5500 feet, but is nowhere very numerous. In the western and southern parts of the island it is found chiefly in paddy-fields and plots of Guinea-grass in the vicinity of native houses, as well as in other suitable spots in the interior. In the north I have met with it usually either in scrubby jungle interspersed with long grass, or in the dry grassy beds of large tanks, such as Hurullé, Toparé, or on the borders of Minery Lake and other large sheets of water. In the Central Province it is a common bird on the maana-grass patuas; and in Uva, where the large hilly wastes are suited to its habits, it is very frequently met with, and ranges up the Nuwara-Elliya road to within a short distance of Hakgala. I have seen it on the Elephant Plains, between Udu Pusselawa and the Sanatorium, and likewise in Lindula at an almost similar elevation, namely 5500 feet.

Jerdon writes of its range in India that it is only found in the south, and does not extend north of the Godaveri; of late years, however, it has been found to inhabit the north-western portions of the empire. At Khandala it is very common, as also in the Deccan, ranging southwards to the Nilghiris and other mountain-ranges, on which it is found, where their sides are grassy, up to 6000 feet. In the Carnatic it is met with among reeds and long grass by the sides of the rivers and tanks, and on the west coast it is, says Jerdon, found in similar situations. Captain Butler remarks that it is common on Mount Aboo; but the race which inhabits the adjoining plains appears to be a variety of *P. stewarti*.

Habits.—In the low country this species exhibits a tendency to wander about in search of localities favourable to its habits. It appears in fields of “Guinea-” and “Manritius-grass” when they have grown up, rears its brood, and then departs on the field being cut; it finds a permanent home, however, in low grassy jungle, the sedge-covered borders of reservoirs and marshy places, and in the overgrown beds of large tanks. In the south of Ceylon it is a common bird about sugarcane-fields; in fact it is the characteristic Warbler of these localities, and may be seen clinging actively to the tall wavy stalks, energetically jerking its tail about and uttering its twittering little warble until disturbed by the approach of some one, when it drops suddenly into the brake and disappears. Its special delight is in the fields of tall Guinea-grass cultivated near towns and villages on the west coast; and it flits about in the dense cover which they afford, until some fine day its habitation is cut from under its feet and its retreat ruthlessly laid bare! It then vanishes, and takes up its quarters in the nearest favourable locality. I found great numbers of these birds in the long grass covering the dried-up tank of Hurullé, their companions in this thick vegetation being the Common Grass-Warbler and the White-browed Warbler. It is to be found permanently living in the maana-grass of the hill-patnas and on the bushy sides of the hills in the Fort-Maedonald district. Its food consists of insects; but occasionally I have found small seeds in its stomach. Its flight is weak and of short duration, for the tiny rounded wings with which nature has endowed it are not such as to afford it great powers of locomotion; it is very active in threading its way through long grass or reeds, and clings adroitly to upright stalks in its progress onwards. Sykes calls its flight a straggling one, as if it had a difficulty in making its way.

Nidification.—This Warbler breeds, both in the low country and in the hills, during the months of May, June, and July, constructing, as a rule, a very different nest from what is ascribed by some writers to its handiwork in India. There it is said to build generally a fabric resembling that of the Tailor-bird, using, however, more grass in its construction, and not sewing together the leaves with the same neatness as that species. I have found several nests in widely different parts of the island, and watched the birds building them, but in no case was there a single leaf of any kind present. For a description of one of the most remarkable, I quote the words of my note to Mr. Hume, published in ‘Nests and Eggs,’ Rough Draft, part ii. p. 337:—“In May 1870, a pair resorted to a Guinea-grass field attached to my house at Colombo, for the purpose of breeding. I soon found the nest, which was the most peculiarly constructed one I have ever seen. It was an almost shapeless ball of Guinea-grass roots, *thrown*, as it were, between the upright stalks of the plant about 2 feet from the ground. I say ‘thrown,’ because it was scarcely attached to the supporting-stalks at all. It

was formed entirely of the roots of the plant, which, when it is old, 'crop' out of the ground and are easily plucked up, the bottom or more solid part being interwoven with cotton and such like, to impart additional strength. The entrance was in the upper half of the side, and was tolerably neatly made; it was about an inch in diameter, the whole structure measuring 6 inches in depth by 5 in breadth." When this nest was finished and the complete clutch of three eggs laid, I took it; and the following day another was commenced and built in a similar manner. The time occupied in building these nests was about eight days. Other nests found in the Central Province were neat bottle-shaped structures of grass, fixed among the stalks of maana-grass, some of the fine blades being *sewn* through the stalks for stability; the openings were at the side, and the interior was roomy and lined with a finer description of the same material as the body of the nest. The number of eggs is three; they are pointed ovals, and possess a considerable gloss; they are of an almost uniform dull mahogany colour, showing indications of a paler underlying surface in parts, particularly at the small end. They measure about 0.65 inch by 0.46.

My experience, however, of this bird's nesting by no means compasses the question of its habits; for it is a bird which, like some of its congeners, the nearly-allied *P. stewarti* for instance, indulges in a very varied style of architecture. Two observers, Miss Cockburn and Mr. Davison, writing of the same district, the Nilghiris, give accounts of very differently-constructed nests. The former found them neatly built in Tailor-bird fashion, the bird drawing the leaves of the branches on which they were placed close together, and sewing them so tightly that the lining of fine grass, wool, and the down of seed-pods was supported by the framework thus made.

Mr. Davison, again, says that the nest is made of grass, beautifully and closely woven, domed, and with the entrance near the top; a third naturalist, Mr. Wait, found two nests in September—"the one deeply cup-shaped and the other domed; both constructed of root-fibre and grass, 'bents,' and down of thistle and hawkweed, all intermixed." Mr. Morgan says it constructs a very neat pendent nest, which is artfully concealed and supported by sewing one or two leaves round it, which is very neatly done with the fine silk that surrounds the eggs of a small brown spider. The eggs in all these nests are severally described as light red, deep brick-red (darker at the larger end, where there is generally a zone), and deep brownish red (deeper than brick-red), mottled with a still deeper shade. Mr. Hume's average for twenty-one eggs is 0.64 inch by 0.47.

PRINIA HODGSONI.
(THE MALABAR WREN-WARBLER.)

Prinia gracilis (Franklin), Jerdon, Cat. B. S. India, Madr. Journ. 1840, xi. p. 3.

Prinia hodgsoni, Blyth, J. A. S. B. 1844, xiii. p. 376; id. Cat. B. Mus. A. S. B. x. p. 143 (1849); Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 322 (1854); Jerdon, B. of Ind. ii. p. 173 (1863); Hume, Nest and Eggs, ii. p. 342 (1874); Legge, Mem. B. Hambantota, Ceylon Blue-book, 1874, p. 9 (first record from Ceylon); id. Str. Feath. 1875, p. 203; id. Ibis, 1875, p. 397; Oates, Str. Feath. 1875, p. 136; Butler & Hume, *t. c.* p. 480; Bourdillon, *ibid.* 1876, p. 401.

Prinia albogularis, Walden, Ann. & Mag. Nat. Hist. 1870, v. p. 219.

Prinia pectoralis, Legge, Mem. B. Hambantota, *ut supra*, note.

The Small Wren-Warbler, Jerdon; *The Slaty-breasted Wren-Warbler*, Hodgson's *Wren-Warbler*. *Phutki*, Hind.

Adult male and female. Length from 4.3 to 4.6 inches; wing 1.65 to 1.85; tail 1.85 to 2.0; tarsus 0.7 to 0.75; mid toe and claw 0.52 to 0.57; bill at front 0.55 to 0.58. Females are, on the average, the smaller of the sexes.

Note. This species*, together with *P. gracilis* and *P. cinereocapilla*, has 12 tail-feathers.

Male. Iris reddish yellow; eyelid brownish yellow; bill black; legs and feet fleshy yellow, in some a faint tinge of brown on the tarsus; claws brown.

Head, hind neck, back, and wing-coverts dusky cinereous ashy, with a slight olivaceous tinge on the back, and the rump somewhat pale; wings and tail hair-brown, the latter tipped whitish, with an adjacent blackish bar, showing darkest beneath and almost obsolete on the centre feathers; edges of the quills lighter than the rest of the feather; beneath white, with a broad cinereous ashy pectoral band, above which the throat is tinged with buff; flanks concolorous with the chest; thighs fulvous-brown.

Female. Iris as in the male; tarsus not so clear in colour. Less cinereous above, wings paler brown; a light streak above the lores; the pectoral band about the same width, but *much paler*; flanks the same.

Young. In the nestling just fledged the iris is olive; bill dark brown, yellow beneath at base; legs and feet brownish yellow, claws light yellowish.

Above brownish olivaceous, inclining to rusty on the rump; wings brown, edged with light ferruginous; beneath white, a faint dark band across the chest, and a slight tinge of buff over the whole; edge of wing white.

For some little time the upper parts remain the same, but the pectoral band darkens, the tips of the rectrices are whiter than in the adult, and the soft parts undergo a gradual change; the iris becomes yellow, the bill blackish, with a pale base below, and the legs less brownish. At the end of the first year the head is cinereous as in the adult, but the back is more olivaceous, the wing-coverts and quills still edged rusty, and the pectoral band of not quite the normal depth, with the lower parts tinged still with buff.

During nonage females are distinguishable at all stages by the pectoral band being lighter than in the male, and slightly incomplete in the centre.

Obs. Examples of this species procured by me in Ceylon in 1873 were identified by Mr. Blanford as identical with his Nellore specimens, which he had compared with the types of Lord Walden's *P. albogularis* from Coorg and which corresponded with them. Misled by the omission of all mention of the pectoral band in Jerdon's description, and not possessing Indian specimens for comparison, I had, on first discovering the species in Ceylon, come to the conclusion that it was new, and had named it, in my manuscript for a paper I was writing at the time, *P. pectoralis*. I have been unable to compare South-Indian specimens with mine, as the series of *Prinia*-skins in the British Museum is scanty; but, in addition to the above evidence, Mr. Fairbank writes me that a specimen he got at the base of the Mahabaleshwar hills had a broad dark slaty band across the chest. Captain Butler and Mr. Oates both refer to the dark band across the chest in this species; and therefore I conclude that Ceylon specimens will

* It has been stated that Jerdon erroneously described this species as having 12 tail-feathers. It, however, certainly has 12.

compare well with those from all parts. But two or three examples I inspected in the national collection from Bhotan and Burmah, labelled as *P. hodgsoni*, had nothing but a slaty wash over the chest, blending imperceptibly into the surrounding white, and not taking the form of even a pale band; they were rufescent brown above, and the quills were edged with the same colour; the lower parts were likewise washed with buff instead of being pure white; they resembled *P. gracilis* above, but had the chest darker than that species, which may be said to be, in its plumage, an ally of *P. hodgsoni*, and has the upper surface, wings, and tail rufous-brown, and the underparts silky white, shaded with greyish on the sides of the neck.

Distribution.—The present species is of local range in Ceylon, and was unknown in the island until I discovered it in 1873, near Hambantota. I found it subsequently all over the Wellaway Korale, the Magam Pattu, and in other parts of the south-east, as far up the coast as Batticaloa. On the road from that place to Badulla I met with it frequently, and traced it as far up as Passara, between which and the skirts of the Madulsima district, where the range descends suddenly into the Nilgalla country, it was tolerably common. I have not seen it to the north of Vendeloos Bay, nor west of Hatagalla, on the Tangalla road.

In regard to the reference *P. pectoralis* in the synonymy of this article, I may mention that the memorandum of the birds inhabiting the Hambantota district of the south-east of Ceylon was written at the request of my friend Mr. Thos. Steele, C.C.S., Government Agent of that part, to be embodied in the reports of the Ceylon Blue-book for 1874, relating to the district in question; it contained a list of 190 species, with some remarks on their distribution, and was printed at the Government Offices in Colombo.

On the mainland this *Prinia* is, according to Jerdon, to be found "all through the Malabar coast, the Wynaad, the slopes of the Nilghiris, and more rare on the Eastern Ghâts and in wooded valleys at the northern termination of the tableland." As already mentioned, Mr. Blanford has it from Nellore on the east coast; and Mr. Fairbank records it from the base of the Khudala hills. Mr. Ball has procured it at Sambalpur; and to the north-west it is found in the Mount-Aboo district, the avifauna of which is much the same as that of the Western Ghâts, it being, as it were, a northerly but isolated spur of this range. Mr. Hume remarks that it is found in the adjacent hill-ranges of Girwar in Kattiawar and of Koohawun. It extends eastward along the sub-Himalayan region through Bhootan and Nepal (that is, if the species there be identical with the southern form), and is found in Burmah, concerning which region Mr. Oates writes that round Thayetmyo it is common.

Habits.—This tiny Wren-Warbler is more arboreal in its habits than its other congeners of Ceylon; it frequents the edges of low jungle, underwood at the sides of the roads and jungle-paths, and also the tangled vegetation with which badly-cultivated cheenas or deserted forest-clearings are overgrown. It is a more sociable bird than *P. socialis*, little troops of three or four consorting together and following each other from bush to bush, or moving about in the underwood in a restless manner, all the while giving out a feeble sibilant utterance. In the early morning I often found these little families by the sides of the roads and paths in the hot dry jungle of the south-eastern district, and was enabled to procure the young in all stages, from the nestling to the immature bird acquiring the dark pectoral band; their flight was very short and feeble, and, after alighting in a bush or shrub, they had the faculty of quickly threading their way to the further side, from which they again took flight. The food of this bird consists of small insects, which it picks up among the dead wood to which it is so partial. Mr. Bourdillon remarks that it has a feeble twittering song; and Mr. Oates writes that the "male sits on the topmost twig of a bush, and sings a tremendously hearty little song." I have only heard the feeble chirping above mentioned, which I conclude must be the usual call-note of the species.

Nidification.—I never succeeded in finding the nest of this Warbler, but know that it breeds in May and June, from the number of young birds I met with in July in the low country below Lemastotta. Mr. Hume and his correspondents, cited in 'Stray Feathers,' describe its nest as quite Tailor-bird like, composed chiefly of fine grass, with no special lining, carefully sewn, with cobwebs, silk from cocoons, or wool, into one or two leaves, which often completely envelop it, so as to leave no portion of the true nest visible. The ground-colour of the eggs is very delicate pale greenish blue, and the markings differ so much as to divide them into two "distinct types"—the one unspotted, and the other finely speckled throughout with brownish or purplish red, frequently forming a zone towards the large end. They vary from 0.53 to 0.62 inch in length, by from 0.4 to 0.45 in width.

Genus DRYMÆCA.

Bill stouter and shorter than in the foregoing genera of the subfamily. Nostrils linear; rictal bristles stout but few. Wings with the 4th, 5th, and 6th quills the longest, and the 1st more than half the length of the 5th. Tail of 10 feathers, graduated and moderately long. Legs and feet stout; tarsi covered with strong and prominent scutæ, and longer than the middle toe and claw; claws strongly scaled; hind toe and claw large.

Nuchal hairs much developed in some species.

DRYMÆCA VALIDA.

(THE ROBUST WREN-WARBLER.)

(Peculiar to Ceylon.)

Drymoica robusta, Blyth, J. A. S. B. 1849, xviii. p. 812; id. Cat. B. Mus. A. S. B. p. 142 (1849).

Drymæca valida, Blyth, J. A. S. B. 1851, xx. p. 180; Kelaart, Prodrömus, Cat. p. 120 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 262; Blyth, Ibis, 1867, p. 302.

Drymoipus validus, Jerdon, B. of Ind. ii. p. 182 (1863); Holdsworth, P. Z. S. 1872, p. 457; Legge, Ibis, 1874, p. 21, et 1875, p. 397.

Suya robusta, Bonap. Consp. vol. i. p. 281 (1850).

Similis *D. jerdoni*, sed robustior, alis caudâque longioribus, et rostro toto nigro, robustiore et magis curvato distinguenda.

Adult male and female. Length 6·0 to 6·4 inches; wing 2·3 to 2·5; tail (varies much) 2·4 to 2·8; tarsus 0·95; mid toe and claw 0·5 to 0·7; bill to gape 0·7 to 0·75.

Iris light reddish or reddish grey; eyelid and bill* black, in some with the base very slightly pale; inside of mouth black; legs and feet fleshy or fleshy reddish, claws brownish.

Above greyish brown, slightly cinereous on the sides of the neck; wings and tail brown, with rufescent grey edgings to the quills and coverts, and the tail with whitish tips and subterminal blackish-brown bars, indistinct on the central rectrices; these latter have obsolete dark cross rays; lores dark grey, surmounted by a just perceptible streak of whitish; cheeks brownish, the lower parts blending into the colour of the throat and crossed by narrow dark lines; beneath fulvescent whitish, with the buff tinge strongest on the chest and sides of the belly close to the flanks, which darken into cinereous grey; thigh-coverts pale fulvous brownish.

Young. Iris whitish or greyish yellow; bill brown; under mandible fleshy with dusky tip; legs and feet fleshy reddish, or more delicate in hue than the adult.

Above rufescent brown: loreal spot small; wings and tail edged with faded rufous; the tips of the rectrices, which are uneven, fulvous white, and the dark spots lighter than in the adult; cheeks washed with brownish; beneath white, strongly tinged with rufescent buff on the chest and sides of belly; under tail-coverts dusky buff.

Obs. This species has, like many others in Ceylon, a representative form in South India, the Jungle Wren-Warbler, *D. sylvatica*. This bird, which is found in many parts of the peninsula and ranges up the Nilghiris to an elevation of 4000 feet, is paler on the upper surface and has a plainly developed superciliary streak. I have not had an opportunity of examining this species; but it is evidently exceedingly close to the present, as is also the next bird. The *Dymecine* of India, as Mr. Hume has more than once remarked, want reviewing exceedingly; and I trust

* The bill in this species frequently dries in the specimen, so as to leave the base of the under mandible white.

that when he amasses a large enough series he will publish a monographic notice of them, determining once and for all which are and which are not good species. I regret to say that, owing to a want of Indian material, my treatment of the Ceylon members of this genus must needs be very imperfect.

Distribution.—This is one of the many species discovered by our indefatigable ornithological pioneer Layard; he procured it in 1848, and on sending it to Blyth this naturalist named it primarily *D. robusta*, but two years afterwards gave it its present title, the reason for this change of name being because *D. robusta* was preoccupied by another species described by Dr. Rüppell.

Layard does not seem to have become well acquainted with it, for he speaks of it as "rather a rare bird," and as such it was likewise considered by Mr. Holdsworth. It is, however, a common bird, frequenting the cinnamon-gardens in the environs of Colombo, and also every similar locality along the western sea-board; in the interior it is found by the sides of roads and in low scrubby land near paddy-fields or semicultivated native gardens. In the south-west it is of frequent occurrence. In the eastern portion of the island, from Hambantota round the coast to the Trincomalee district, it is usually found in jungle clearings in which low bushes have sprung up; and these are, in fact, its favourite localities throughout the wider northern half of Ceylon. In the hilly districts of the Morowak and Kukul Korales it is fond of kurakan-fields, and in the Central Province may usually be seen in the hill paddy and among the long grass of the patnas. In the western portion of the hill-zone I have not detected it above 3000 feet; it is common at a higher altitude between Badulla and Haputale, where the vast stretch of patna-hills affords a considerable tract of country suitable to its habits and nature.

Habits.—As will be gathered from my remarks on its distribution, this species delights in any situation affording the cover which it frequents, such as low grassy jungle, open scrub, brambly wastes, the borders of paddy-fields, rank patna vegetation, the sides of roads through jungle and deserted forest clearings, or rude cultivation near jungle-begirt tanks. It passes most of its time near the ground, searching in thick grass and undergrowth for insects, often flying up to the top of the bush which has afforded it shelter; here it sits motionless for some little time, and commences suddenly to reiterate its loud clear call. It is particularly noisy in the afternoons, and is able, in the stillness of the evening, to make itself heard at no little distance as it sits on the top of a fence or dead stump in a solitary jungle clearing. It has but little pretension to the name of Warbler; but there are perhaps few birds which endeavour to make themselves heard more than it, or which give one the impression of trying to proclaim their whereabouts to all their neighbours. When it desires to give out the singular ringing note of which it is possessed, it invariably mounts to the very top of a bush, and having commenced its call continues lustily with it until disturbed, when it often remounts to an adjacent shrub and prolongs its evening salutation. It is equally noisy throughout the year; and I have no doubt its notes are well known to most of the residents in the handsome bungalows now adorning the cinnamon-gardens of Colombo, as well as familiar to those who take an afternoon's drive round the "Circular," or on the many radiating roads which start from that pretty spot. It often descends to the ground and feeds among grass, and when wounded I have seen it run with considerable facility. Its diet is purely insectivorous; and Layard remarks that it hunts in small parties, and traverses the branches up and down in a similar manner to the Tailor-bird. I have usually seen it solitary, and it is rare to see more than two or three together.

In the Plate accompanying the article on *Drymæca insularis* will be found a figure of the present species, taken from a male example shot in the Kalcobokka district, Central Province.

DRYMŒCA JERDONI.

(JERDON'S WREN-WARBLER.)

Drymoica jerdoni, Blyth, J. A. S. B. 1847, xvi. p. 459; id. Cat. B. Mus. A. S. B. p. 142 (1849).

Drymoica inornata (Sykes), Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 328 (1854), in pt.

Drymoipus jerdoni (Bl.), Jerdon, B. of Ind. ii. p. 180 (1863); Holdsw. P. Z. S. 1872, p. 456;

Hume, Str. Feath. 1873, p. 437; Legge, Ibis, 1874, p. 21.

Adult male and female. Length 6·0 inches; wing 2·1 to 2·3; tail 2·45 to 2·6; tarsus 0·75 to 0·85; middle toe and claw 0·75; bill to gape 0·71 to 0·74.

Iris pale reddish or yellowish red; bill, upper mandible dark brown, lower dusky, pale at the base; inside of mouth *flesh-colour*; legs and feet brownish fleshy, claws blackish.

Above olivaceous brown, not so dark as the last species; the lores brownish grey; wings darker brown than the back, the quills edged pale; tail slightly paler brown than the wings, with obsolete transverse striæ, all but the central feathers with a pale tip and narrow subterminal dark bar showing beneath; face and ear-coverts pale brownish, mingled with the albescent hue of the throat; under surface, from the chin to the under tail-coverts, fulvescent whitish, most strongly tinged with buff on the sides of the chest and on the flanks: under wing-coverts and inner edge of quills fulvescent; thighs brownish fulvous.

Young. Iris as in the adult, bill with the under mandible lighter, and the tarsus washed with brownish.

An individual shot in June, and seemingly about two months old, has the upper surface of a more earthy hue than the adult; the quills are edged with fulvous, and the tertials have a broad but indistinct pale cross band formed by the margins of the centre of the feathers being fulvous; tips of the tail-feathers fulvous, and the subterminal dark spot indistinct.

Obs. This species is very close to the last. It may, however, be distinguished from *D. valida* by its having a *straighter, slenderer, and paler bill, and a flesh-coloured mouth*, by the wing being shorter, and the tarsus not so stout and studded with less prominent scutæ. As a rule, the brown of the upper surface is paler, and the lores are lighter, although much stress cannot be laid on this last character, as the lores are variable in the last species, being, in some specimens, nearly as pale as in the present bird. Neither can any dependence be placed on the tint of the under surface, for it is, in many specimens of *D. valida*, quite as much tinged with buff as in this species.

Specimens of this Warbler were sent by Jerdon from Southern India to Blyth, who described it under its present title, but afterwards absorbed it into *D. longicaudata*. Jerdon, however, sent examples to the British Museum, and with these Mr. Holdsworth compared his Ceylonese skins and found them to agree. But little is known of this species in Southern India—that is, as far as we can judge from the experience of late observers, not one of whom mentions it among the collections which have from time to time been described in 'Stray Feathers.' I imagine, therefore, that its distribution must be very local or that it must be a rare species.

Distribution.—Jerdon's Wren-Warbler is widely diffused throughout the low country, but is nowhere very common. It occurs, but only sparingly, according to my experience, in the hill-country up to about 3500 or 4000 feet, at which elevation I have met with it in the Knnekles district. Mr. Holdsworth procured his specimens near Colombo, and I found it commoner there than anywhere else. It frequents the cinnamon-gardens, chiefly affecting those low-lying spots which are overgrown with fern and bracken. I have procured it in the Eastern Province, also in clearings in the Kukkul Korale, and I have no doubt that some of the many birds of this genus which I have seen in the south-eastern region and the Northern Province may have belonged to the present species. It is not possible to distinguish it from the last bird when at large, and it may not, therefore, be so sparsely diffused through the island as I suppose; at the same time, however, I may mention that the majority of specimens of these large Wren-Warblers which fell to my gun in various parts of Ceylon belonged to the last-named, *D. valida*.

Concerning its distribution in South India I am unable to give particulars. I conclude it occurs in suitable localities in the low country of Madras, and probably on the slopes of such ranges as the Palanis.

Habits.—This bird frequents fern-brakes, the sides of overgrown ditches, long grass, and “hill-paddy” fields. It is of a sneaking disposition, keeping as much as possible under cover, and when roused from its haunts it flies along near the ground and quickly reestablishes itself in some thick vegetation. It has none of the bold habits of the Ceylon Wren-Warbler, although at eventide I have often heard it pouring out its warble, but not from a prominent position, as is the custom of its insular ally. Its food consists of various small Coleoptera and other minute insects. Its notes are moderately loud, but not so shrill as those of *D. valida*.

Nidification.—I have never found the nest of the present species, but have obtained fledgings in the Eastern Province in September. It breeds, therefore, on that side of the island in July or August, and on the west most probably from March until June.



DRYMŒGA INSULARIS.
DRYMŒGA VALIDA.

DRYMÆCA INSULARIS.
(THE WHITE-BROWED WREN-WARBLER.)

(Peculiar to Ceylon?)

Drymæca inornata, Blyth, Cat. B. Mus. A. S. B. p. 142, spec. F (1849); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 263; Layard & Kelaart, Cat. B. App. Prodromus, p. 57 (1853).
Drymoipus inornatus, Legge, J. A. S. (Ceyl. Br.), 1870-71, p. 50; Holdsw. P. Z. S. 1872, p. 456; Hume, Str. Feath. 1873, p. 439; Legge, Ibis, 1875, p. 396.
The Plain-Warbler, Grass-bird, Europeans in Ceylon.

Adult male and female. Length 4·9 to 5·4 inches; wing 1·85 to 2·15; tail 2·1 to 2·5; tarsus 0·8 to 0·9; hind toe and claw 0·58 to 0·61; bill to gape 0·65 to 0·68.

Iris very pale reddish or reddish yellow, a dark, thin, outer ring generally visible; eyelid reddish; bill black, with a clearly-defined white base; legs and feet flesh-colour or fleshy grey, claws dark brown.

Above dull cinereous or greyish brown, pale on the rump and tinged with chestnut on the head; wings and tail brown, edged with rufescent greyish; centre rectrices with faint cross rays; tips of rectrices white, with an adjacent blackish spot, both showing most beneath and least defined on the centre pair; a conspicuous white supercilium spreading over the lores, except at the corner of the eye, which is brown; orbital fringe whitish, with the posterior corner rufescent brown; beneath white, tinged with buff, most strongly on the sides of the chest and belly; flanks slightly dusky; under wing and under tail-coverts buffy white; thighs fulvous-brown.

I do not observe any constant difference in the plumage of adults in the winter. Some specimens are certainly darker in the cool season than the generality of breeding birds; but I have an example, shot from the nest in July, quite as dark as one killed at the latter end of October. The tail is, if any thing, *shorter* in winter than in summer.

Young. Iris greyish; bill, upper mandible brown, lower fleshy, with a dusky tip; legs and feet pinkish flesh-colour. Upper surface rufescent brown; the wings broadly margined with brownish rufous; tail tipped fulvous, with a trace of the subterminal bar; supercilium narrow and buff-white, under surface more washed with fulvous buff than the adult.

The tail is *even* in the nestling, the lateral feathers being nearly as long as the centre pair.

Obs. This Wren-Warbler has hitherto been united with the Indian species, *Drymoipus inornatus*, Sykes, to which it is, indeed, very closely allied. I will, however, keep it distinct, on account of its shorter tail, generally smaller size, and darker summer plumage, which differences, I find, exist between it and the type of the above-mentioned species, which is preserved in the India Museum. Mr. Brooks has lately compared this specimen, which is from the Deccan, with others of the northern race, which he and Mr. Hume have recently demonstrated to possess a distinct summer and winter plumage, and he finds that it is identical with them. In his notice on this subject ('Stray Feathers,' 1876, p. 407), Mr. Hume contrasts the winter phase (*D. longicaudatus*, Tickell) with the summer (*D. terricolor*, Hume) as follows:—

"*Drymoipus inornatus*. Winter, *longicaudatus*: lower surface warm buff; upper surface strongly rufescent; wings hair-brown, strongly margined with dull ferruginous; tail 3·2 inches, rufescent brown. Summer, *terricolor*: lower surface white, with a faint yellowish tinge; upper surface dull earthy grey-brown; wings earthy brown, margined albescent; tail 2·5, central feathers pale earthy brown."

Now although, as I have above remarked, some winter specimens of our bird are darker than some summer ones, no such thorough change or increased length of tail takes place as I have just quoted; and as Mr. Brooks says ('Str. Feath.' 1876, p. 274) that Sykes's type of *Drymoipus inornatus* is in the *longicaudatus* or dark winter plumage of *terricolor*, it follows that it must be a different bird from ours. Touching Mr. Brooks's decision, however, I would remark that Mr. Moore and myself have compared a pale summer-plumaged Ceylon specimen with Sykes's type, and find that the latter is the paler of the two, so that it cannot well be as dark as the above diagnosis of Mr. Hume, and likewise former writings of Mr. Brooks's on the subject, would lead one to suppose *D. longicaudatus* really is. Furthermore it would be necessary to possess summer specimens of the Deccan bird (there is no date of procuring on Sykes's specimen) before a decided opinion could be pronounced whether it was identical with the northern form. But whether Mr. Brooks be right or not, Sykes's bird does not agree well with ours; for besides

being paler than even a summer example of the latter, it is 0·37 inch longer in the tail and a trifle shorter, notwithstanding, in the wing; the eye-stripe is not so conspicuous and the bill is paler, the ground-colour of the tail darker beneath, with the blackish subterminal bars not so conspicuous. Another example of Sykes's measures 2·15 in the wing and 2·9 in the tail. As our bird, therefore, cannot be united to *D. inornatus*, it remains to be seen whether it is the same as the species inhabiting the Nilghiris and Southern India generally, and which Mr. Hume says should stand as *D. fuscus*, Hodgson. The natural inference would be that it is so; but Mr. Hume points out that the Nilghiri bird is larger, and has not so slender a bill as the Ceylonese; and I observe, furthermore, that its eggs are marked with fine hair-lines or streaks, which is never the case, to my knowledge, with the Ceylonese race, the eggs of which are always spotted openly with rather large blotches. I have therefore decided to separate our bird as an insular though closely allied race to the Deccan form, which, I have no doubt, will prove to be the same as the South-Indian species, now styled *D. fuscus*.

Distribution.—This sprightly little bird is about equally common with *Prinia socialis*, being widely distributed throughout the low country, as well as an inhabitant of the Kandyan and Southern-Province hills up to an altitude of about 5000 feet. At this height it is to be found on patnas in Uva, Haputale, and the slopes of Northern Saffragam, in which I include the sides of the ranges from Haldamulla round to Ratnapura; it also affects grassy spots and paddy and hill-grain fields in most of the upland valleys of the Central Province. In the Western Province it inhabits the Guinea- and Mauritius-grass fields in the neighbourhood of towns and villages, and in the interior is to be found in paddy-fields as soon as the grain is of sufficient length to afford it cover. In the Galle district I have often detected it in sugar-cane cultivation, and in the eastern and northern province it inhabits sedges and long grass in the beds of dried-up tanks.

Habits.—This Warbler frequents grass-fields, tall paddy and other native cereals, and long grass or tussocky wastes of all kinds, such as are found in the dry beds of tanks, on open plains, or the sides of hill-patnas. It is an active little bird and generally found in pairs, which flit about the tall corn, alighting on, and clinging with ease to, the most pliant stalks, while they constantly utter their repeated note, *kink-kink-kink*. Several pairs frequented the Guinea-grass near my quarters on the Galle face, and, together with the Ashy Wren-Warbler and the little Grass-Warbler, conduced to make the little field an interesting resort of small birds. I found it in great abundance in the bed of Hurullé tank, which, in the dry season, is a vast area of long grass; to such large tracts as this, as well as to extensive paddy-fields, it usually flocks for the time being, taking itself off again when its shelter is removed by fire, water, or the hand of the reaper. It consorts much with the Ashy *Prinia*, and at a distance is with difficulty distinguished from that species, except by its note. I have found the nests of both in close proximity to one another. It has a weak jerky flight, sustained for a short distance only, and it is insectivorous in diet, feeding on small caterpillars, larvæ, minute insects, &c.

Nidification.—I have found the nest of this species in almost every month from February till November; the prevailing time, however, in all parts of the island is from May until June, birds breeding in October and November being probably in the act of rearing a second brood. It builds its neat and cleverly-constructed nest between the tall stalks of paddy or other cultivated species of grass, about 3 feet from the ground. The egg-cavity is very deep for its width, for the better security of its contents, which are liable to be swayed to and fro with the wind. The nest is sometimes dome-shaped, with the top forming a hood over the entrance, which, in some instances, is neat and rounded, and in others wide and unfinished. Many, however, have an ingeniously made roof of the green blades of the supporting stalks, cleverly bent down and interlaced. The body of the nest is constructed of strips of green grass, generally sewn into the stalks at the bottom to form a secure foundation, the rest being woven round them to form the walls; the lining consists of finer strips of grass, scantily arranged in some cases, so that the bottom can be plainly seen through. The interior usually measures 2 inches in width by 3 in depth. The eggs are almost invariably 4 in number, of a beautiful blue ground-colour, very handsomely though sparingly blotched with rich umber and sepia blotches of two shades, which in some examples are gathered mostly round the larger end. They measure from 0·6 by 0·47 to 0·67 by 0·49, and the period of their incubation is from 11 to 13 days. They are almost entirely hatched by the heat of the atmosphere in fine weather, the bird resorting to the nest at sundown and leaving it again in the morning.

The figure on the Plate accompanying this article is that of a male shot in July at Hurullé tank.

Genus CISTICOLA*.

Bill more compressed than in *Drymæca*, high at the base, the culmen moderately curved; rictal bristles small and fine. Wings ample, with the secondaries much curved, the 1st quill less than half the length of the 4th, 5th, and 6th, which are subequal and longest, the 2nd shorter than the 7th, which is slightly less than the 6th. Tail of 12 feathers, and not exceeding the wing, the lateral feathers graduated. Legs long; the tarsus exceeding the middle toe and its claw, and shielded with broad smooth scutæ. Toes delicate; hind toe and claw large.

Plumage above striated. Nape furnished with short hair-plumes.

CISTICOLA CURSITANS.

(THE COMMON GRASS-WARBLER.)

Prinia cursitans, Frankl. P. Z. S. 1831, p. 118; Jerdon, Ill. Ind. Orn. pl. 6 (1847).

Cisticola schænicola, Bonap. Geogr. and Comp. List B. of Eur. p. 12 (1838); Jerdon, B. of Ind. ii. p. 174 (1863); Shelley, Ibis, 1871, p. 133; id. B. of Egypt, p. 97 (1872); Holdsw. P. Z. S. 1872, p. 455; Hume, Str. Feath. 1873, p. 439; id. Nests and Eggs, ii. p. 343 (1873); id. Str. Feath. 1874, p. 235, et 1875, p. 137; Butler & Hume, *t. c.* p. 481; Irby, B. of Gibraltar, p. 91 (1875).

Cisticola cursitans (Frankl.), Blyth, J. A. S. B. xvi. p. 457 (1847); id. Cat. B. Mus. A. S. B. p. 145 (1849); Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 324 (1854); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 262 (in pt.); Hume, Str. Feath. 1877, p. 90; Davison & Hume, B. of Tenass. *ibid.* 1878, p. 349.

Cisticola omalura, Blyth, Cat. B. Mus. A. S. B. p. 145 (1849); id. J. A. S. B. 1851, xx. p. 176; Kelaart, Prodromus, Cat. p. 120 (1852) (in pt.); Layard, *ut supra*, p. 262 (in pt.); Blyth, Ibis, 1867, p. 302; Legge, Ibis, 1874, p. 21.

Drymæca cisticola, Von Heuglin, Ibis, 1869, p. 132.

Cisticola homalura, Hume, Str. Feath. 1877, p. 93.

The Mountain Grass-Warbler (*C. omalura*); *The Grass-Warbler* (*C. cursitans*), Kelaart; *The Fan-tail Warbler*, Shelley; *Bou-fesito*, Moorish, lit. "Father of eloquence;" *Cierra-puño*, *Tin-Tin* (from its note), Spanish; *Bolsicon*, Spanish (Saunders). *Ghaska phutki*, Hind., lit. "Grass-Prinia;" *Kher ghusa*, Hind. at Bhagulpore (Jerdon); *Chittu kuruvi*, lit. "Small bird," Ceylonese Tamils.

Adult male. Length 4.0 to 4.6 inches; wing 2.0 to 2.3; tail 1.3 to 1.6 (lateral feather from 0.3 to 0.5 shorter than central); tarsus 0.7 to 0.8; mid toe and claw 0.59 to 0.65; bill to gape 0.55 to 0.61.

* This peculiar genus, on account of its short 1st and long 2nd quill, and likewise its striated plumage, appears to form a link between the Drymæcine division of the Timaliidae and the Sylviidae, which latter family I propose to place next in order to the present. Notwithstanding these characters, the rounded form of the wing, the lengthened secondaries, the stout legs and feet, and the graduated tail ally *Cisticola* to the Drymæcinæ, in which subfamily Jerdon placed it.

Female. Length 3·9 to 4·3 inches; wing 1·9 to 2·05.

Iris varying from greyish yellow to olive-grey or pale olive; bill fleshy, the culmen varying from dusky to blackish brown, tip of lower mandible dusky; inside of mouth in the male *black*, in the female *fleshy*; legs and feet fleshy; joints of toes dusky.

Male (Hambantota, 30th June). Centres of the hind neck, back, scapulars, and wing-coverts deep sepia-brown, paling gradually off at the margins into brownish rufescent and rufescent greyish, the wing-coverts and scapular feathers having the lightest edgings; forehead and sides of the crown uniform sepia-brown, but the feathers of the centre of the occiput and of the nape and hind neck indistinctly edged with rufous-grey; tertials and the innermost feathers of the greater coverts brownish black, broadly edged with fulvous greyish; primaries and secondaries dark brown, edged with greyish; rump brownish rufous; upper tail-coverts dark brown at the centres of the feathers; central tail-feathers and a subterminal band on all the rest black-brown, these latter deeply tipped with whitish, which, together with the black bar, is clearer and more conspicuous beneath; above the bar a rufous patch, chiefly confined to the inner webs of the feathers.

Lores and supercilium whitish, a small dark spot just in front of the eye; face and ear-coverts rufescent, the latter with pale shafts; throat and under surface white, changing on the flanks and under tail-coverts into rufescent; wing-lining tinged with the same; thighs pale rufous.

Colombo (27th January and 8th February). These two examples have the feathers of the centre of the crown very faintly margined with fawn-colour, the head being scarcely less uniform than in the above; the feathers of the back are darker, as also the wings; rump deeper rufous.

Galle (12th April). Head almost uniform brown; margins of the feathers just perceptibly paler than the rest of the web.

Colombo (26th October). Feathers of the crown conspicuously margined with pale fawn, the forehead uniform, and the brown tint of the head very dark.

Horton Plains and Kandapolla (January). These birds are darker above than low-country ones; the margins of the feathers are more greyish than rufescent, the rump rufous-brown, and the tail-feathers with the tips not so white as in the above detailed examples; the spot in front of the eye is darker, and the bill is also blackish; the under surface is not so white, but is pervaded with greyish on the chest, and the flanks are brownish rufous; the head is more plainly striated than in any lowland birds.

It will be seen from the above that there is but little difference in Ceylon specimens in summer and in winter plumage,

Genus SCHENICOLA* (?).

Bill straight, the culmen curved, compressed, rather deep at the base; the tip slightly notched. Nostrils oval and placed well forward; two or three stont rictal bristles, one of which is much longer and stouter than the others. Wings rounded, the 1st quill more than half the length of the longest, which is the 3rd; the 2nd subequal to the 5th. Tail long, of 10 feathers, the middle pair very broad, the laterals graduated. Tarsus long, covered with broad transverse sentæ; middle toe long, the lateral ones subequal and reaching to the last joint of the middle one; claws very straight.

SCHENICOLA PLATYURA(?).

(THE BROAD-TAILED REED-BIRD.)

Timalia platyura, Jerdon, Cat. B. S. India, Madr. Journ. 1844, xiii. no. 96 bis.

Schenicola platyura, Jerdon, B. of Ind. ii. p. 73 (1863); Hume, Str. Feath. 1878, p. 37.

Adult (Ceylon: ex Cnming). Length from skin, which is rather stretched, 6 inches; wing 2·6; tail 2·7; tarsus 0·9; middle toe 0·7; bill to gape 0·61. Lateral tail-feathers 1·3 shorter than the central pair, which are 0·15 longer than the adjacent ones; under tail-coverts 0·3 shorter than the outermost pair.

Head, hind neck, back, scapulars, and rump ruddy brown, darkest on the head, and inclining to rufous-brown on the

* These are the characters of a bird presumed to belong to this genus, which is now in the British Museum.

the up-country birds cited proving, however, an exception: in breeding-plumage the head is somewhat more uniform than in winter; but there is in this sex always an absence of that striation which is characteristic of the other; some birds at the autumn moult retain the dark head more than others.

Female. Galle (June). Edges of the feathers of the head dusky buff, and those of the back conspicuously wide.

Colombo (September: two examples). Head and upper surface the same as in the above.

Horton Plains (January). Head striated, edgings of back-feathers very dusky; rufous of the lower back the same; flanks dark; spot in front of the eye not so dark as in the male. At all seasons the head of the female is striated, owing to the light edgings of the feathers.

The length of the lateral tail-feathers, and also of the adjacent pair, varies. Specimens from the eastern province are more rufous in their markings than those from the Colombo district.

Young. Iris greyish olive; bill dark horn, under mandible yellowish fleshy; legs and feet fleshy reddish.

In first plumage (July) a male in my collection has the feathers of the head, hind neck, back, and wing-coverts very broadly margined with fulvous, the quills edged conspicuously with the same; the centres of the feathers are very black; fore neck and chest tinged with buff, and the flanks strongly coloured with fulvous, as in the adult.

Obs. Blyth described (*loc. cit.*) a second species of *Cisticola* from Ceylon, under the title of *omalura*, alleging that it differed from *C. cursitans* in having "a shorter bill, the whole upper parts much darker, and the tail subeven, except that its outermost feathers are $\frac{1}{4}$ inch shorter than the next. The prevailing hue of the upper parts is dusky black, with much narrower rufescent margins to the feathers than in *C. cursitans*, the rump, however, being unmixed rufescent as in that species, and the neck much tinged with the same." This is simply the plumage of a dark specimen from up-country, in which district Kelaart affirms that he found this supposed species, although Layard discovered it first of all at Galle, and afterwards met with it at Pt. Pedro. Numbers of examples may be met with corresponding to Blyth's *C. omalura*; but it is impossible to separate them from *C. cursitans*, which is as variable in Ceylon as it is throughout the vast range of territory in which it is elsewhere found. Males of the *omalura* type have the inside of the mouth black and the forehead uniform, as in typical *cursitans*; and the females of both have the inside of the mouth fleshy and the head striated, and there is *no difference* in size, which, more than any thing, shows the identity of the two supposed species. Any one examining a large series of this interesting little bird from India, Europe, and Africa must speedily come to the conclusion that it would be very unsafe to take slight differences in plumage into consideration, so variable is it in this respect. The relative

upper tail-coverts; primaries and secondaries plain brown, the feathers margined with rufous-brown; tail ruddy brown, obsoletely and narrowly barred with brown; the ground-colour of the two outer pairs of rectrices dark brown towards the tips, which are pale; lores, which are brown, surmounted by a whitish streak; ear-covert feathers brown at the tips and whitish at the base; chin, throat, and down the centre of the breast dull white, the sides of the fore neck and the flanks brownish fulvous; under tail-coverts fulvescent brownish, tipped whitish; under wing whitish.

Obs. While examining some drawers of skins in the British Museum, I came on this example of a Timaline bird, labelled "Ceylon, ex Cuming." It appears to have been entirely overlooked during a period of more than twenty years; for no bird corresponding to it has ever been noticed as being in the national collection from Ceylon. My friend Mr. Sharpe informs me that there is no doubt about the locality, and therefore the subject of this notice must be added to the already long list of Ceylonese birds. Whether the specimen in question is correctly identified as being the *Schaenicola platyura* of Jerdon it is impossible to say, for he only procured one example, and that was lost, not, however, until after Blyth had seen it, and applied to it the generic appellation of *Schaenicola*. I have carefully compared the skin in the British Museum with the description given by Jerdon of the generic characters and plumage of his bird, and it corresponds in both respects so closely, that I feel almost sure that it is the same species. Jerdon's generic characters are:—"Bill moderate, rather deep, much compressed, slightly curved on the culmen; a few strong rictal bristles Wings moderate, slightly rounded, 4th quill longest, 3rd equal to the 5th; tail moderate, very broad, soft," &c. His description is extremely curt, and runs as follows:—"Above dark olive-brown; the feathers of the tail obsoletely barred; beneath ochreous yellowish, bill horny yellow; irides yellowish brown. Length 5.25 inches; wing $2\frac{1}{2}$; tail 2.5; bill at front 0.4; tarsus 0.9."

It would appear that the Broad-tailed Reed-bird has recently again been procured in Travancore, as in the last number

length of the respective tail-feathers is furthermore not to be depended upon at all. Mr. Hume notices the conspicuous difference in the cold- and hot-weather plumage of this species in India, the head being striated in the former, and uniform in the latter; but this does not appear to be the case in Ceylon, where there is but little change in the seasons. Specimens from Madras, Nepal, and the North-west Himalayas have the lateral tail-feathers variable in length, and nearly all have the head paler than in Ceylonese birds; but the back in some is as dark as in our up-country birds, while in others, notably in one or two from Nepal, it is very pale. The wings vary from 1.9 to 2.2 inches in the males, and the tails from 1.65 to 1.8 inch. A Nicobar example in the national collection, which is, judging from its size, a female, has the wing 1.7; the upper surface is somewhat dark, and the edgings of the feathers rather rufescent.

The West- and South-African representatives of *Cisticola cursitans* do not admit of separation from ours. I append the following among the results arrived at on comparison of a large number of specimens. A West-African example, a presumed female, from the River Volta, has the wing 1.85 inch, tail 1.55, bill to gape 0.5, and is the exact counterpart, as regards plumage, with one of my Galle birds; another, a male from Potchefstroom, measures 2.03 in the wing and 1.8 in the tail, and has the colour of the upper surface pale, like a Hambantota specimen, from which it cannot be separated. Captain Shelley records the wing of Egyptian specimens as 1.9 inch, and Mr. Gurney that of Sicilian examples as 1.86 to 2.0. Turning south-eastwards from India we find that examples of the *Cisticola* from the Malayan archipelago are scarcely separable from ours. A male specimen from Macassar has the wing 1.9, and the edgings of the back-feathers slightly more rufous than most Ceylon birds, but the rump not more so than in some; in the length of the tail, which measures 1.9 inch, it differs from the generality of *C. cursitans* from the continents of Asia, Europe, and Africa; but it is not so sufficiently removed from them to be treated as a distinct species. An example from Flores (*C. fuscicapilla*, Wallace) has the head uniform brown, but not more so than some of my old male specimens in summer plumage. The wing measures 2.0 and the tail 1.6, and I do not think it can be separated from *C. cursitans*.

My space does not permit me to instance further examples; but the evidence here adduced is sufficient to show that specimens throughout the vast range of the species may be found to correspond with others from Ceylon, although races, as a whole, from particular localities may present special characters. I also find that individuals from all parts vary *inter se* in the proportion of the tail-feathers to one another.

Distribution.—This curious little denizen of the grass frequents the whole island of Ceylon from Pt. Pedro to Dondra Head and up to the elevation of Horton Plains. It is, of course, only found in grassy localities, which are alone suited to its habits. It is equally abundant in these spots all over the low country, and is

of 'Stray Feathers' which I have received I find an account of its (presumed) rediscovery by Mr. Bourdillon on the 18th of April last year. Mr. Hume gives a minute description of the specimen; and it appears from it that the 3rd, 4th, and 5th quills are almost equal, and the 1st 0.9 shorter than the 4th; the tail of ten feathers, soft, very broad, and much rounded. Length 5.75 inches; wing 2.5; tail 2.5. The plumage is rich rufescent olive-brown, darker on the crown and tail, which latter is obsoletely rayed; the feathers of the upper surface lax, lower surface brownish olivaceous, with the centre of the abdomen fulvous-white. This bird may or may not be identical with Jerdon's species; it appears, except as regards the length of the tail, to correspond pretty well with the Museum example. Jerdon places his specimen at the end of the Timaliinae; and I consider the Ceylonese bird to belong to what I have separated as the Drymœcine section of the Timaliidae, to the members of which its bill, tail, wings, and feet ally it. I accordingly place it here; but as I am uncertain as to whether my identification of it as the *Schoenicola platyura* of Jerdon is correct, I shall assign it a place in this work as a *doubtful* species.

The type of Jerdon's bird having been lost, and no other apparently similar specimen having been subsequently procured or noticed prior to the capture of the Travancore bird and my discovery of the Ceylonese skin in the British Museum, it will be a very difficult matter to determine what *Schoenicola platyura* of Jerdon really is.

Distribution.—The scanty information on the label of this bird affords me no clue as to where Mr. Cuming procured it in Ceylon. It would seem reasonable to suppose that it occurred in the island as a straggler from the coast of India, otherwise subsequent collectors would surely have met with it. There is, perhaps, no spot more favourable to its habits than the great swamp lying between the Negombo Canal and the highroad to that place from Colombo; in this vast morass I met with one species of similar disposition, which has never before been seen in Ceylon, and I would therefore indicate it as a not unlikely locality for the rediscovery of this *rara avis*.

Jerdon's remarks on his meeting with *Schoenicola platyura* are:—"I only once observed this curious bird among

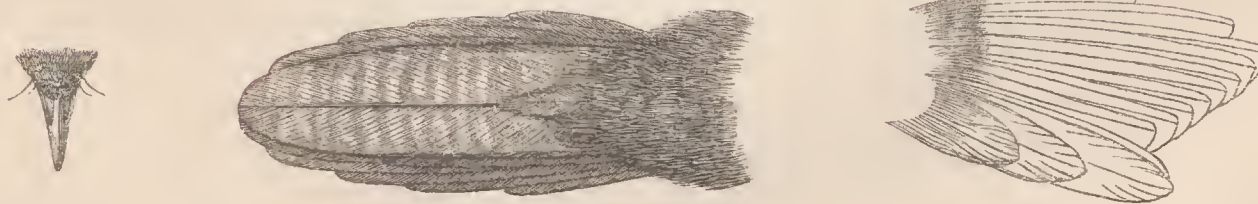
likewise just as plentifully diffused over all the patnas and grass-lands of the Central Province, being quite as numerous at Nuwara ELLIYA and on the Horton Plains as it is several thousand feet lower down. It is a very well-known bird in the neighbourhood of Colombo, frequenting in large numbers the "Water" grass-fields in the cinnamon-gardens, and those in Borella, Malagaha kanda, and other suburbs of the capital. It is equally common near Galle, Trincomalie, and Jaffna.

It is found in suitable localities throughout the whole of India, extending into Burmah, where Mr. Oates says it is "very common in all paddy-lands during the rains." Further south, in Tenasserim, it does not seem to be so generally distributed as there. The same writer remarks, "I have only occasionally met with this species in the Thatone plains and at Tavoy in grassy lands or rice-fields. It was by no means numerous, and always seen singly or in pairs." In the Malayan archipelago it may be said to exist in the form of a species which cannot well be separated, and specimens of which I have seen sent from Macassar and Flores.

Turning northward we find it, according to Swinhoe, an inhabitant of China, Hainan, and Formosa; and Père David writes that it occurs throughout the east of China, from Hainan to Tientsin, and that he met with it frequently at Shanghai. In Europe it inhabits the countries bordering the Mediterranean, being much more common in some localities than in others. In Corsica Mr. Bygrave Wharton says it is numerous at Biguglia, but observed nowhere else. Dr. Giglioli reports it as common in the neighbourhood of Pisa, frequenting grass- and corn-fields in the spring. It is likewise found in Switzerland. Near Gibraltar it is, according to Col. Irby, resident and very plentiful in winter, and in Southern Spain it is said by Mr. Saunders to be common as far north as lat. 40°. It has been stated to be plentiful in Portugal; but I observe that the Rev. A. C. Smith, in writing to 'The Ibis' of 1868, states that he did not meet with it in that country, though he searched diligently for it in likely places. Crossing over to Africa, we find it noted as the most common of aquatic (?) warblers in Tangier by Mons. Favier; and Captain Shelley, in his excellent book on the Birds of Egypt, says that it is one of the most abundant birds in that country and Nubia: further testimony as to its distribution in this part of the world is afforded by Dr. von Heuglin, in his exhaustive monograph of the *Malurinae* of North-eastern Africa (*Ibis*, 1869, p. 132), who says that it inhabits Arabia, besides being a permanent resident in Egypt and Nubia, and goes southwards to Abyssinia and probably to Senaar. In Western Africa it is common in various localities, having been procured on the River Volta, at Cape Coast, Acre, &c.; on the opposite side of the continent Dr. Kirk records it from Zanzibar. In South Africa it is

some reeds in swampy ground close to Goodaloor, in the Wynaad, at the foot of the Nilghiris." Mr. Bourdillon's bird, however, was met with under very different circumstances, from which I infer (should it in reality be the same as Jerdon's) that the Broad-tailed Reed-bird is not entirely a denizen of reeds. "It was obtained," says Mr. Hume, "in open grass-land at Colathoorpolay patnas, at an elevation of 3800 feet, in the Assambo hills, the southernmost section of the Western Ghâts, about three degrees due south of Goodalore, where the lost type and hitherto unique specimen was obtained." Nothing is said of its habits; but Jerdon informs us that his bird "took short flights, and endeavoured to conceal itself among the thick herbage." Its food consisted entirely of small insects.

The accompanying woodcuts represent the bill, tail, and wing of the Ceylonese bird.



plentiful in parts of the Transvaal, Natal, and also in Damaraland, in which region it exists in the form of *C. ayresi* (Natal) and *C. terrestris* (Transvaal), which two races, Mr. Gurney has pointed out, are identical with the *C. schanicola* of Europe, and consequently with *C. cursitans* of Asia.

Habits.—The Grass-Warbler, as its name implies, frequents both cultivated and wild grass-land of all sorts, paddy-fields, marshes, swamps, meadow-land surrounding inland tanks, waste ground covered with rank herbage, patnas, and all places where the soil will grow sufficient cover for it to thread its way about in. It is essentially terrestrial in its mode of life, and is the most restless little creature imaginable, rising up a hundred times in the day, with its spasmodic jerking flight and singular *chick-chick* note, and then suddenly descending to earth, as if it were simply desirous of exercising its muscular powers or discontented with the haunts that fate had allotted to it. Nothing, perhaps, can be more interesting to the lover of animated nature than, on a lovely morning, to walk through the rich pastures clothing the alluvial deposits round the vast Minery tank, and while the ear is arrested with the sweet song of hundreds of Sky-Larks, to watch the vagaries of these little denizens of the grass, as they flit up and down and send forth their singularly sharp little notes. Its manner of hovering on the wing when it reaches its greatest altitude, which is generally from 50 to 100 feet, is a mere habit, and not done with any view of selecting a place to alight in, as it invariably “jerks” itself down to the ground considerably beyond where it has been poising itself. The large variety, which frequents the patnas of the Nuwara-Elliya plateau and the Horton and other elevated plains, has a habit of alighting on the tops of bushes and rhododendron-trees, and there remaining perched for some time, which I have not observed in the low-country birds. This species is particularly lively in the evenings, just before going to roost, and when it settles on the ground, immediately threads its way through the grass, not by running on the ground, but by adroitly springing from stalk to stalk, and darting here and there wherever an opening in the vegetation presents to it an easy way of escape. When it realights, after being flushed, it will always be found a good number of paces from where it first disappeared, no matter how quickly one follows it up.

There is perhaps no bird of this family concerning which more has been written than the present; and that which has attracted notice, in the case of all naturalists who have observed it, is its peculiar flight, as also its interesting mode of nidification. Of the European race, which, however, appears to frequent sedges and marshy places much more than ours, Col. Irby writes:—“In the spring they go to the cornfields as well, never, however, being found away from water. I do not recollect ever seeing them perch on bush or tree, but always on some plant. Their note and jerky flight somewhat remind one of the Meadow-Pipit; during the nesting season in particular they will fly darting about high over head for several minutes, continually uttering their squeaky single note (whence the name of Tin-Tin), all the time evidently trying to decoy the intruder from their nest.” In spite of what I have already said about the European, African, and Asiatic *Cisticolæ* being identical, I would here remark that the difference in the note of the European and the Indian bird, and likewise the extraordinary variety in the eggs of the former (allusion to which will presently be made), while those of the latter are all of the one type, is somewhat remarkable, and might well be considered sufficient to establish grounds for a slight separation of the two races. As far as external characteristics go, I do not perceive that the African bird can be separated from the Indian, as has already been stated in this article; and competent ornithologists affirm that there is no difference in the birds on both sides of the Mediterranean. The diet of the species in Ceylon consists of many sorts of small insects and caterpillars; and Brehm says that “the indigestible parts of the food, which consists of small beetles (*Diptera*), caterpillars, and little snails, are thrown up in pellets.” It is with reference to observations made in Africa that this statement is made; but I have no knowledge of the same thing having been noticed in India. Jerdon remarks that “during the breeding-season the male bird may be seen seated on a tall blade of grass, pouring forth a feeble little song.”

Nidification.—This Warbler apparently has two broods in the year, nesting for its first in May, June, and July, and for the second in November and December. Its style of architecture is suited to the locality in which it builds; but at all times it constrains a very beautiful little nest. It is, when built in tall grass or paddy, usually situated about 2 feet from the ground: a framework is first made by passing cotton or other such material round and *through* several stalks or stiff blades of grass; when a tolerably secure wall is thus

obtained, several blades belonging to the stalks round which the framework is passed are bent down and interlaced to form a foundation, on which, and inside the cotton network, a neat little nest of fine strips torn off from the blade is built; this is, as a rule, beautifully lined with cotton or other downy substance, mixed with the saliva of the bird and having the appearance and texture of thick felt. The average dimensions of the egg-cavity are 2 inches in depth by $1\frac{1}{4}$ in diameter; the network or frame takes two or three days to construct, and the entire nest is finished in about six days. When nesting in short, tussocky grass, such as is found on the "Plains" of the main range, the Grass-Warbler builds in the centre of a thick tuft close to the ground, the blades being drawn round the nest and brought into a point above it, in which the entrance is placed, and the whole is so well concealed, that, unless the bird be roused from it, it would invariably elude the best search. The eggs are usually three, but sometimes four, in number, short ovals in shape, and without much variation in colour; the ground is white or very pale greenish white, spotted and blotched, generally in an open zone round the large end, with brownish red and reddish grey. Dimensions, on the average, 0.6 to 0.63 inch in length by 0.48 to 0.51 in breadth. The period of incubation lasts from nine to ten days, the bird sitting for the most part only at nights. I had ample opportunity of ascertaining this fact from two years' observation of this and other birds breeding in the "Guinea-grass" field attached to my bungalow on the Galle face, Colombo.

The nesting-season in India lasts during the rainy months—April to October. Mr. Hume, writing, in 'Nests and Eggs,' of its nidification there, says that it selects a patch of dense fine-stemmed grass, from 18 inches to 2 feet in height, and, as a rule, standing in a moist place; in this, at the height of from 6 to 8 inches from the ground, it builds. Corresponding with my own observations in Ceylon, he states that the "sides are formed by the blades and stems of the grass *in situ*, closely packed and caught together with cobwebs and very fine silky vegetable fibre;" the interior is also stated to be closely felted with silky down, in Upper India usually that of the Mudar (*Calotropis hamiltoni*). In India, as in Ceylon, the eggs appear to be all of one type, the ground being white, spotted, most densely towards the large end, with, as a rule, excessively minute red, reddish-purple, and pale purple specks, thus resembling, though smaller, more glossy, and far less densely speckled, the eggs of the Rufous-fronted Wren-Warbler. The average dimensions of a large number are recorded as 0.58 in length by 0.46 in breadth. Dr. Von Heuglin found it nesting in Africa in date-palm groves and low thorn hedges, about 2 or 3 feet from the ground. He likens the nest to that of the Reed-Warbler, and describes it as interwoven with leaf-sheaths, thorns, twigs, and even grass-stalks, and composed of fine dry grass and rootlets, the interior being "carefully lined with wool, hair, and fibres." These nests appear to be somewhat abnormal, as it is unusual for this species to build anywhere except in grass, standing corn, sedges, &c.

Concerning its nidification in Egypt, Capt. Shelley writes (*loc. cit.*):—"It breeds in March, forming a charming little deep purse-shaped nest, open at the top, which I have found in clover, corn, and sedge, at a height of from a few inches to a foot from the ground. The nest is constructed of dried grass and cotton, and often thickly lined with soft downy seeds of the reed or thistle, and is firmly secured by the interweaving of the surrounding herbage, which assists to hide it; in general appearance it looks very like the cocoon of a large caterpillar." The eggs are said to vary to a great extent in Europe. Dr. Bree figures three varieties, one pink, another bluish white, and the third a dark bluish green, all being *spotless*.

PASSERES.

Fam. SYLVIIDÆ.

Bill moderately slender and straight; the culmen acute; the tip notched; rictal bristles short. Wings pointed; the 1st quill much reduced. Tail of 12 feathers, shorter than or not exceeding the wing. Tarsus scaled, longer than the middle toe.

Of small size, with a double moult, and of unspotted young plumage.

Genus SYLVIA.

Bill small, rather straight; the culmen gently curved from the base. Nostrils oval; gape beset with small bristles. Wings long; the 3rd, 4th, and 5th quills equal and longest, the 1st not much exceeding the primary-coverts. Tail rounded at the tip. Tarsus rather short, shielded in front with well-developed scales; toes stout and strongly scaled.

SYLVIA AFFINIS.

(THE LARGER INDIAN WHITETHROAT.)

Sylvia affinis, Blyth, Cat. B. Mus. A. S. B. spec. C (1849); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 267; Layard & Kelaart, Prodromus, Cat. p. 57 (1853); Jerdon, B. of Ind. ii. p. 209 (1863); Holdsworth, P. Z. S. 1872, p. 457.

Sterparola curruca (Lath.), Hume, Nests and Eggs, ii. p. 373 (1874).

Sylvia althæa, Hume, Str. Feath. 1878, vol. vii. p. 60.

The Allied Grey Warbler, Jerdon. *Nella kumpa-jitta*, Telugu.

Adult male (Aripu, Dec. 1869). Length (from skin) 5·6 inches; wing 2·8; tail 2·8; tarsus 0·7; middle toe 0·5, its claw (straight) 0·15; bill to gape 0·57.

2nd quill intermediate in length between the 6th and 7th.

"Irides pale yellow; bill, base slate, tip dusky; feet dark leaden" (*Holdsworth*).

Crown and nape *dull* bluish ashy, changing into the *subdued* earthy brown of the hind neck, back, and scapulars; the upper tail-coverts more ashy than the back; lesser wing-coverts ashy at the margins of the feathers, the centres being concolorous with the back; wings brown, the edges of the primaries and secondaries pale fulvous brownish, the tertials more conspicuously margined than the outer secondaries; tail darker brown than the wings, the margins of the feathers albescent, the outer web and terminal portion of the inner web of the outer feather and the tips of the two next dull white; lores and ear-coverts dark brown, contrasting with the ashy hue above and below the ears on the side of the neck; lower portion of orbital fringe white; chin and throat pure white; chest and under surface whitish, faintly tinged with reddish ashy, mostly on the sides of the chest and the under tail-coverts; flanks slightly shaded with greyish; edge of the wing white; under wing-coverts tinged with reddish ashy.

Obs. The above is a description of an example procured by Mr. Holdsworth at Aripu, and the only one, I believe, now extant from Ceylon, unless Specimen C of Blyth's Catalogue is still in a state of preservation in the Calcutta Museum. It appears to belong to the larger race lately distinguished by Mr. Hume as *S. althæa*; it, however, has the head more ashy than I am led to suppose is the case in *S. althæa*; and as I think Mr. Hume will require a larger series before he can safely found his new subspecies, I will keep the Ceylonese bird as *S. affinis*, the title

by which the Indian Whitethroat has hitherto been known. *S. althæa* is characterized by its large size, the wings of five examples in Mr. Hume's museum varying from 2·7 to 2·8 inches, and further by having the upper surface darkish grey, slightly tinged with brown on the back. The 2nd quill of one of these examples nearly equals the 8th, and in three others is intermediate between the 6th and 7th, as in the Ceylonese example. The ordinary form of Indian Whitethroat, *S. affinis*, from which Mr. Hume separates the last named on account of the characters here noticed, has a smaller wing; in 93 specimens it varies from 2·4 to 2·71 inches, and several that I have examined from Fetteghur and Cawnpore measure 2·5 to 2·6 inches. The 2nd primary, as a rule, equals the 6th. All these examples have, according to Mr. Hume (and so have others which I have examined), the crown brownish grey and the mantle earth-brown. An example in Mr. Seebohm's collection, procured at Yenesaïsk, is almost as "earthy brown" as the Cawnpore birds above mentioned, and its wing measures 2·5 inches. The third and smallest race, which appears to be confined to "the extreme western portions of the continent," has the wing varying from 2·3 to 2·45 inches, and has the "crown pale bluish grey, and the mantle pale sandy brown" (*Hume*).

These Indian Whitethroats differ from their closely allied relative of Europe, *S. curruca*, in the proportion of the primaries to one another. The 2nd quill in the latter is considerably longer than in the Indian birds, it being generally equal to the 5th, or only very little shorter than it. The bill in the European bird is usually shorter, and the ear-coverts are not so dark, while the upper surface is more cinereous or less brown than in *S. affinis*. The coloration of the upper surface varies, however, scarcely any two specimens being precisely alike. A Heligoland specimen in Mr. Seebohm's collection is almost a counterpart of Mr. Holdsworth's, being only slightly paler on the head. A specimen from Christiania is nearly as sandy-coloured as any Indian example of *affinis*. Two specimens from Asia Minor, which I have examined, are ashy on the back, being almost devoid of any earthy tint at all; they belong to the European species, having the 2nd primary longer than Indian examples.

Mr. Seebohm, in his notice of the Whitethroats he procured in Siberia, 'Ibis,' 1879, p. 8, hesitates to allow the Indian bird to be a good species, and instances one specimen from India which has the 2nd quill as long as in the European species. He will, however, no doubt reinstate it in his forthcoming volume of the Catalogue, now that the results of Mr. Hume's researches have been published. If the proportion of the primaries is allowed to hold good in the separation of certain *Phylloscopi* and *Acrocephali*, members of this family, it must be a matter of equal importance in the present case.

Distribution.—This Whitethroat is evidently a very rare cool-season migrant to Ceylon. Whether it is actually commoner than is supposed, and escapes observation owing to the habits of concealment which it no doubt affects in the non-breeding season, I am unable to say; but certain it is that it has only, as yet, come under the notice of two observers. Layard, its first discoverer, writes as follows concerning it:—"I noticed a few of this species at Ambegamoa in the year 1848, but I never afterwards met with it." He informs me, *in epist.*, that, as far as he can recollect, the month of March was the time of his meeting with them. Recently it was again observed by Mr. Holdsworth, who procured the example noticed in this article at Aripu in December 1868. The two localities in question are far apart; and the facts of the case prove that it wanders over the island when it does visit it, and there is no saying where it may not be met with in future. I always kept a look out for it in my wanderings in the north, but never once saw it that I am aware of.

The larger race, to which I have attached Mr. Holdsworth's specimen, has been found in the western parts of peninsular and continental India—Mr. Hume's specimens being recorded from Ahmednuggur, Deesa, Jhansi, Bhawulpur, and Ramoo Cashmeer. Jerdon, in speaking of the distribution of the Indian Whitethroat generally, says he "found it in the Carnatic at Jaulnah and other parts of the Deccan, and also at Mhow;" and these observations may possibly refer to the larger race as well as the smaller, *S. affinis*. The majority of Mr. Hume's specimens of the latter appear to come from the central portion of continental India, between Sambhur and Cawnpore.

Habits.—Like the European Whitethroat, this species frequents low bushes, grassy patches of land, gardens, and groves, and is very active in its movements, flitting from place to place, and threading its way among the thick masses of vegetation in which it takes up its abode. Jerdon remarks that, in addition to being insectivorous in its diet, it feeds much on flower-buds. Blyth writes of its habits:—"I observed many of them frequenting the Baubul (*Mimosa*) trees, and, as in England, keeping chiefly to the trees and not to low bush-coverts, as is the habit of *S. cinerea*" (the Greater Whitethroat). Mr. Brooks writes that its song resembles that of the European species, being full, loud, and sweet, and that the male usually sings near the nest.

Nidification.—This species breeds in Cashmere in May, building a nest, according to Mr. Brooks, similar in size and structure to the European Lesser Whitethroat, "formed of grasses, roots, and fine fibres, and scantily lined with a few black horsehairs." The nests are "slight and thinly formed, very neat but strong," and are decorated on the outside with bits of spiders' webs. At the time this was written, Mr. Hume did not accept the Indian birds as distinct from the European; but having since altered his opinion, based on the characteristic wing-formula of the two species, I shall be correct in giving his description of the eggs as applying to the Indian bird, though perhaps not to the larger race with which I am principally dealing. He characterizes them as somewhat broad ovals typically, a good deal pointed towards the lesser end; the ground-colour is white, marked with small spots, blotches, and specks of pale yellowish brown, more or less intermingled with spots of dull inky purple; in some the markings are confined to a zone, in others scattered over the surface of the egg. The average dimensions of sixteen eggs are 0.66 by 0.5 inch.

Genus ACROCEPHALUS.

Bill lengthened, straight; culmen acute, the tip slightly bent down and plainly notched. Nostrils basal and oval; rictal bristles well developed. Wings pointed; the 1st quill minute, the 3rd and 4th the longest; the 2nd variable, but never much less than the 3rd. Tail moderate and rounded at the tip. Legs and feet strong; the tarsus protected by broad scutes in front, and longer than the middle toe; lateral toes short; hind toe and claw very long.

ACROCEPHALUS STENTORIUS.

(THE CLAMOROUS REED-WARBLER.)

Curruca stentorea, Hemp. & Ehr. Symb. Physicæ, Aves, fol. 66 (1828); Blanford, Ibis, 1874, p. 79.

Agrobates brunnescens, Jerdon, Madr. Journ. 1839, x. p. 269.

Acrocephalus brunnescens (Jerd.), Blyth, Cat. B. Mus. A. S. B. p. 181 (1849); Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 331 (1854); Jerdon, B. of Ind. ii. p. 154 (1863); Hume, Lahore to Yarkand, p. 214, pl. 16 (1873); Legge, Str. Feath. 1873, p. 488 (first record from Ceylon).

Calamoherpe brunnescens (Jerd.), Blyth, J. A. S. B. 1846, xv. p. 288.

Calamodyta brunnescens (Jerd.), Hume, Str. Feath. 1873, p. 190; Adam, *t. c.* p. 381; Legge, *ibid.* 1875, p. 369.

Acrocephalus stentorius (H. & E.), Allen, Ibis, 1864, p. 97, pl. 1; Shelley, Ibis, 1871, p. 133; *id.* B. of Egypt, p. 95 (1872).

Calamodyta stentoria (H. & E.), Hume, Nests and Eggs, ii. p. 326 (1874).

Calamodyta meridionalis, Legge, Str. Feath. 1875, p. 369.

The Clamorous Sedge-Warbler, Shelley; *The Greater Indian Reed-Warbler*. *Bora-jitta*, Telugu.

Adult male. Length 7·5 to 7·8 inches; wing 3·3 to 3·4; tail 3·2; tarsus 1·05 to 1·1; middle toe and claw 0·9 to 1·0; bill to gape 1·05.

Adult female. Length 7·5 inches; wing 3·1; tarsus 1·0; middle toe and claw 0·85 to 0·95; bill as long as in the male.

Iris brownish yellow; bill, upper mandible dark brown, lower fleshy at base, with dusky tip; gape and inside of mouth red; legs plumbeous grey or greenish plumbeous; feet olivaceous, claws brownish.

Above shining olivaceous brown, in some specimens slightly darker on the forehead; wings and tail brown, margined with the hue of the back; from the nostril over the eye a pale streak, beneath this the lores are dark brown; orbital fringe fulvous-grey, dark at its posterior corner; chin and throat white, with a fulvous-grey wash over the chest and flanks, darkening on the lower parts above the thighs and paling again to white on the centre of the breast and abdomen; under tail-coverts whitish; under wing and its edge fulvous; between the flanks and abdomen the grey hue is tinged with tawny. In non-breeding plumage the underparts are more fulvous than after the spring moult.

During the breeding-season, in July and August, the plumage becomes much abraded, causing the feathers of the upper surface to have pale edgings, and exposing on the fore neck the dark portions of the shafts of the feathers, which are quite concealed in a newly-plumaged bird, the effect of this being to produce a number of pale brown striae. I observe the same feature in examples sent me by Mr. Hume from North India.

Obs. I was under the impression, when writing of this species in 1875, that it merited separation from the Indian form, on account of the presence of striae on the chest, and the absence, in some specimens from Ceylon, of the rusty hue on the upper surface, which is a character of the latter species. Mr. Hume, however, pointed out that these characters were seasonal; and I have since examined Cashmere specimens shot in July with these throat-marks and find they show on the surface merely, on account of abrasion, the dark shaft-stripe, as above remarked, existing more or less always, but being concealed by the tips of the feathers in birds in new plumage. Three examples from the locality in question have very large bills, varying from 1·1 to 1·2 inch in length from the gape; but one from Calcutta, perhaps bred in the lowlands, is the counterpart of my Ceylonese birds, both as regards plumage and length of bill (1·05 inch).

This Warbler and *A. orientalis*, which inhabits China, Japan, and some of the Malay islands (Lombok, Morty, Batchian, and perhaps others), are very closely allied Asiatic representatives of the large Reed-Warbler of Europe, *A. arundinaceus*, from which they differ in their smaller size and the proportion of the quills to one another. The European bird has a more pointed wing than its Asiatic relatives and is larger. The following is a diagnosis of the characters of the three races :—

A. arundinaceus. Larger: wing (5 examples measured) 3·7 to 3·9 inches; 1st *long* primary longer than the 3rd.

A. orientalis. Smaller: wing (19 examples measured) 3·05 to 3·5 inches; 2nd *long* primary slightly shorter than, or equal to, the 3rd.

A. stentorius. Intermediate in size in its average measurements: wing (6 Ceylonese and 6 Indian examples measured) 3·1 to 3·55 inches; 2nd *long* primary shorter than the 4th.

A Labuan specimen is intermediate between the two latter; it has the 2nd long primary equal to the 4th; wing 3·4 inches, bill to gape 0·98.

Mr. Seebohm recognizes the *Acrocephalus longirostris* of Gould and the *Sylvia syrinx* of Kittlitz as subspecies of *A. stentorius*, depending for their rank chiefly on their peculiar distribution and smaller size. The first-named bird, which winters in Lombok and breeds in Western Australia, has a proportionately longer bill than *A. stentorius*, and measures in the wing 2·8 to 3·1 inches; the 2nd primary is intermediate in length between the 5th and the 6th. The second, *Acrocephalus syrinx*, is confined to the island of Ponape in the Caroline group. It has a proportionately shorter tail than the preceding species, and measures in the wing 2·9 inches; the 2nd primary is intermediate between the 6th and the 8th.

The whole of these Austral-Asiatic Reed-Warblers appear to be merely local races of our European species.

Distribution.—It is only of late years that this fine Warbler has been known to inhabit Ceylon. It was first discovered by myself in the Jaffna-Fort ditch, where there is a bed of reeds suitable as a refuge for such a lurking species as it is. It is also an inhabitant of the adjacent lotus-ponds, and occurs in similar spots throughout the island. I found it breeding in July in the Tamara-Kulam near Trineomalie, which, in the dry season, is a vast bed of gigantic rushes; at the celebrated Pollanarua tank it was abundant during the same month, and in the extreme south I procured it near Hambantota likewise in the hot season. Mr. Parker met with it near Puttalam, and afterwards, in the month of July, came on “dozens in a small tank full of reeds at Ambanpola on the Anaradjapura road a few miles beyond Bulalli.” There is therefore abundant proof that it is a tolerably plentiful resident in the island, a circumstance somewhat remarkable when it is considered that the bird is a visitor to the plains of India. On strict search being made for it, it will doubtless be found in many places, similar to those mentioned, in the wild dry districts of the country. From the damp portion comprised of the Western Province and south-western district it appears to be absent; for I examined the lofty reed-beds (a most likely place) which line the old Dutch canal and its branches which intersect the Mutturajawella swamp between Colombo and Negombo, and found no trace whatever of it, which, I think, is strong testimony that it does not inhabit any part of the south-west.

Dr. Jerdon writes that it is found in most parts of India during the cold weather, being only a winter visitant. Mr. Hume likewise, in ‘Lahore to Yarkand,’ expresses the same opinion; but I observe that Mr. Adam found it at the Sambhur Lake in the middle of May; and though the eggs in the ovary were very minute, yet it was close to its breeding-time, Mr. Brooks having found its young in Kashmir on the 10th of June; it is therefore probable that some examples may remain behind to breed. On the other hand, Captain Butler gives the date of its departure from the district with which he deals as the 8th of April. Dr. Fairbank merely remarks, with regard to the Deccan, that it is found among rushes, giving no details of its arrival or departure; but Dr. Jerdon specifies the Carnatic as a region to which it is a visitant; therefore we may conclude that this writer’s statement, backed as it is by the experience of Mr. Hume, will be found to hold good for the entire peninsula, and that this Warbler, while migratory from Northern India to the Southern parts of the empire, is a resident in Ceylon! I believe, however, that further investigation is still necessary, as, owing to its habits, it may have been overlooked; and I commend the matter as one of great interest to my Indian readers.

Mr. Blanford records it from Persia, and says that it was rather scarce at Bampur in Beluchistan in April, but abounded in June near the lake of Shiraz; in these localities he considers that it probably breeds, leaving

the highlands in winter; it probably extends into Northern Persia, as Mr. Blanford notices that De Filippi gives an account (Viag. in Persia, p. 162) of a bird which he saw resembling this species.

In Northern Africa it is an inhabitant of Egypt and Nubia. Mr. Allen, who gives an account of its breeding, found it in a lake near Damietta, and speaks of it as being very rare; subsequently Mr. E. C. Taylor and Captain Shelley met with it in the same place. The latter author considers that it is resident in Egypt, as he noticed a specimen as early as the 7th March in the Fayoom.

Habits.—In Ceylon, as in other countries inhabited by it, this Warbler is only found in high reeds or lofty rush-beds surrounding water, in the thickest parts of which vegetation it skulks, rarely showing itself except during the breeding-season, when it becomes very noisy and restless, constantly flying up to the tops of the tallest reed-stalks and there giving out its harsh warble. This commences with somewhat measured notes and then breaks forth into quick and jerky variations. Its usual voice consists in nothing but a monosyllabic "*chit*," varied sometimes by a "*churr*" sound. There are few spots in any part of the island suitable to its habits, as Ceylon is not at all prolific in reeds or any tall rushes, and to those which furnish it with a good retreat it clings with an instinctive tenacity which is something quite remarkable. The tank which I have mentioned above as being overgrown with enormous rushes in the dry season, abounded with these Warblers in the month of June; shortly afterwards it was burnt by herdsmen for feed for their cattle, leaving nothing but a few solitary clumps of reeds standing amidst the blackened waste. When I visited it no sign of a Warbler was anywhere to be seen. Blue Coots and Waterhens were moping about at the edge of the only remaining sheet of water, and a few of the handsome Water-Pheasants (*Hydrophasianus chirurgus*) "seudded" along the lotus-leaves as I approached. None of these I wanted, and was about to turn my back upon the wild scene when a flock of Weaver-birds (*Ploceus*) flew across the open and settled on one of the reed-clumps, when immediately out sallied one of my looked-for Warblers and chirped defiance at the strangers, which was the signal for further notes almost in every little oasis of vegetation. On my trying to drive them out of their strongholds they retreated to the base of the reeds, and no amount of shouting or stone-throwing, and in some cases of stamping even on the rushes, sufficed to flush them. It was only by setting fire to the almost impenetrable cover that I succeeded in getting a shot. At Topare tank they were constantly on the wing and very noisy, and I had ample opportunity of observing their animated movements, although I could not get a shot at them. I found the food of the specimens I procured at various times to consist of small flies and minute insects.

Of its habits in India Jerdon writes:—"It frequents high grain-fields, to the stalks of which it clings, and on being observed conceals itself among them. At Jaulnah I have seen it in my garden, hunting about various low shrubs, peas, and beans, &c., among which, on being observed, it immediately withdrew, most carefully hiding itself and being with difficulty driven from its place of refuge. I occasionally heard it utter a harsh clucking note. I found its food to consist of small grasshoppers and ants."

Mr. S. S. Allen (*l. c.*) thus describes meeting with it in Egypt:—"Shortly after entering the labyrinth of tall reeds which covers the greater part of the lake, and is intersected by narrow lanes of water, along which the flat-bottomed boat is poled, a curious harsh grating note burst out suddenly, with almost startling abruptness, from the reeds a little distance ahead, and was answered by others in two or three different directions. On questioning the Arabs who accompanied me, they replied that it was 'only a little bird,' which I could scarcely believe at first; but on watching the spot closely for a short time, we presently saw a little sober-coloured bird, rather larger than a Nightingale, hopping in and out among the reeds, every now and then making the air ring with his noisy song."

Nidification.—This species breeds in Ceylon during June and July. Its nest was procured by me in the former month at the Tamara-Kulam, and was a very interesting structure, built into the fork of one of the tall seed-stalks of the rush growing there; the walls rested exteriorly against three of the branches of the fork, but were worked round some of the stems of the flower itself which sprung from the base of the fork. It was composed of various fine grasses, with a few rush-blades among them, and was lined with the fine stalks of the flower divested, by the bird I conclude, of the seed-matter growing on them. In form it was a tolerably deep cup, well shaped, measuring $2\frac{1}{2}$ inches in internal diameter by 2 in depth. The single

egg which it contained at the time of my finding it was a broad oval in shape, pale green, boldly blotched with blackish over spots of olive and olivaceous brown, mingled with linear markings of the same, under which there were small clouds and blotches of bluish grey. The black markings were longitudinal and thickest at the obtuse end. It measured 0·89 by 0·67 inch.

In India it has as yet only been found breeding in Cashmere, and there only (at the time Mr. Hume's 'Nests and Eggs of Indian Birds' was published) by Captain Cock and Mr. Brooks. It breeds in May and June; and the nest is described variously as an "inverted and truncated cone," "a deep cup," and "a largish nest of a deep cup form," composed of coarse water-grass or dry sedge, woven round the reeds which support it about 2 feet above the water. Mr. Hume describes two types of eggs—the one stippled minutely with small specks, over which are scattered bold and well-marked spots of greyish black, inky purple, olive-brown, yellowish olive, and reddish umber-brown; in the other the stippling is almost wanting, and the markings are smaller and less well defined. The average size of nine eggs was 0·89 by 0·61 inch.

ACROCEPHALUS DUMETORUM.

(BLYTH'S REED-WARBLER.)

Acrocephalus dumetorum, Blyth, J. A. S. B. 1849, xviii. p. 815; id. Cat. B. Mus. A. S. B. App. p. 326; Kelaart, Prodromus, Cat. p. 120 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 263; Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 332 (1854); Jerdon, B. of Ind. ii. p. 155 (1863); Holdsworth, P. Z. S. 1872, p. 455; Adam, Str. Feath. 1873, p. 381; Brooks, ibid. 1875, p. 241; Anderson, *t. c.* p. 351; Butler, *t. c.* p. 479; Dresser (Severtzoff's Fauna of Turkestan), Ibis, 1876, p. 84.

Calamodyta dumetorum (Bl.), Hume, Nests & Eggs, ii. p. 327 (1874); Ball, Str. Feath. 1874, p. 414.

The Lesser Reed-Warbler, Jerdon; *The Bush-Warbler* of some. *Tikra*, Bengal.; *Podena*, Hind.; *Tik-tikki*, Mussulmen.

Adult male and female. Length 5·4 to 5·6 inches; wing 2·35 to 2·55; tail 2·1; tarsus 0·8 to 0·9; middle toe and claw 0·6 to 0·68; bill to gape 0·7 to 0·72; 2nd quill equal to the 6th.

Iris clear olive; bill dusky brown or dark brown above, lower mandible light fleshy, tip slightly dusky; legs and feet plumbeous or bluish grey, claws dusky bluish.

Above uniform brownish olive, paling slightly towards the upper tail-coverts; in some specimens the upper surface is of a darker hue than in others and the forehead deeper in colour; wings and tail hair-brown, edged with the hue of the back; orbital fringe fulvous-grey; lores dusky, surmounted by a pale supercilium; cheeks mottled brownish; beneath white, more or less shaded with pale brownish on the sides of the chest and flanks, this colour blending into the white with a fulvous tinge; the hue of the sides of the neck likewise blends softly into the white of the throat.

Young. Some specimens which are obtainable in Ceylon during the season of their visit have the tips of the secondaries and tertials pale; these are probably immature birds.

Obs. Ceylonese specimens of this bird were stated to possess a greenish shade; they, however, migrate to us from the peninsula of India, and it is difficult to see how they could differ from their fellows on the mainland. I find that the hue of the upper surface varies in specimens from India and elsewhere; and in comparing six from Ceylon with the same number from India and Siberia, I observe that the former as a whole are not more olivaceous on the back than the latter. The wing in nine examples varies from 2·3 to 2·5 inches, one specimen from Etawah alone exceeding 2·4; *A. dumetorum* is the Indian representative of the Reed-Warbler of Europe (*A. streperus*), which is a summer visitor to England. It is closely allied to this latter, differing from it in the proportion of the longer primaries to one another, which give it a more rounded wing; likewise in its deeper bill, the more olivaceous tint of the upper surface, and its somewhat smaller size. Various examples of *A. streperus* which I have examined vary in the wing from 2·45 to 2·5 inches in males, and from 2·4 to 2·5 in females. The 2nd quill or 1st long primary is equal to the 4th.

The following comparison of the differentiating characters of these two Warblers will show at a glance in what respect they differ:—

A. streperus. Larger, browner on the lower back; bill slender; 2nd quill (1st long primary) equal or slightly shorter than the 4th.

A. dumetorum. Smaller, back and rump more olivaceous than in *A. streperus*, bill stouter; 2nd quill equal to the 6th.

The *Acrocephalus montanus* of Jerdon, B. of Ind. p. 155, and which he compares with *A. dumetorum*, is a small Babbler (*Alcippe*), about the size of *A. nigrifrons*. There is, at least, a specimen of it, collected by Mr. Wallace, in the British Museum, and provisionally labelled *A. montanus*. It is olivaceous brown above and pale beneath, tinged with fulvous.

Distribution.—The Lesser Reed-Warbler (or Bush-Warbler, as it would be more appropriately called, as

far as Ceylon is concerned) is a cool-season visitant to the island, arriving usually in October, but some seasons not appearing about Colombo until the beginning of November. It is found throughout the entire low country, being very numerous in the north and in all the west of the island. It inhabits the Jaffna peninsula and adjacent islands, as well as Manaar, in great numbers, and about Colombo it is very common. In the Central Province it ranges up to 4500 feet, at which height I have seen it at Catton, in Haputale, inhabiting there patnas and coffee-estates; above 2500 feet it is not very frequent in any part but Uva; but lower than this, in Dumbura and portions of the western districts of similar altitude to that valley, it is almost as common as in the low country. Its time of departure varies according to season; during some years I have seen it at Colombo as late as the 15th of April; but I should say all leave the island, at the latest, before the 25th of that month. Mr. Hume remarks that they leave the plains of India after the end of March; but I conclude that they remain somewhat later than this in some parts; in fact Captain Butler says it does not quit the Mt. Aboo and Deesa districts until the middle of April.

In the cool season (namely, from September until April) it is found throughout India, more or less, inhabiting such districts as are suitable to its habits. Jerdon writes that it is found in the Nilghiris and on the west coast, and also in the Carnatic, Central India, and Bengal; it likewise, he says, extends into Assam; but it does not migrate southwards into Burmah, if we may take the experience of naturalists who have lately collected there. It breeds in the Himalayas and Cashmere, whither it retires after its season's residence in more southerly latitudes, and inhabits these hills to an altitude of 7000 feet. In some parts of the north-west it is plentiful, as in Kattiawar; in others it is rare, as in the Sambhur-lake district and in Sindh, from which latter place it has only lately been recorded by Mr. Blanford. In Chota Nagpur it is local, for Mr. Ball has only obtained it in Sirguja. About Calcutta he speaks of it as common, although Blyth wrote, many years ago, that it never was to be seen about the marshy salt lakes of that neighbourhood, among which the last species is common. Severtzoff found it in Turkestan; but it does not seem to range to the eastward of that region, as Przevalsky did not meet with it in Thibet or Mongolia.

Habits.—Blyth's Warbler frequents low and thick bushes, detached thickets, and bushy trees, even in the most public places, but never betakes itself (in Ceylon) to reeds or sedgy spots, although I have noticed it sometimes in clumps of bamboos overhanging streams. When it first arrives it takes up its quarters in some thickly-foliaged tree or dense bush, and there remains throughout most of the season; and so regular is it in its habits, that I have perceived it for weeks from my windows, sallying out of the same tree to another close by, about the same hour every morning. It feeds on insects, which it procures among the branches and leaves of trees, attentively searching for them, and leisurely hopping about from twig to twig, now and then jerking out a sudden "*chik*," reminding one of the note of the "*Whitethroat*" in our hedges at home. It remains almost perpetually concealed from view, showing itself, when it does emerge from its stronghold, for a very short time. It commences to warble slightly in March; and on one or two occasions I have seen it perched on the top of a bushy Suriah-tree in the Fort at Colombo, endeavouring to utter its love-notes, perhaps preparatory to winging its way, in a few days, to far more temperate climes, where they develop into a fine and vigorous song.

In India it seems to avoid reeds, in the same manner as in Ceylon. Blyth writes that it comes a good deal into gardens, frequenting pea-rows and the like. Mr. Adam noticed it hunting for insects among reeds, and says that after each hunt it perched well up on a reed and uttered its peculiar loud call.

Nidification.—This species breeds, as far as is known, not further south than the Himalayas. There, according to Indian observers, it nests along the banks of streams or in thick bushes near water, building, as noticed by Captain Hutton, a globular nest of coarse dry grasses, lined with finer grass. The eggs are described by Mr. Hume as "broad ovals, smooth and compact in texture, with little or no gloss; they are pure white, very thinly speckled with reddish and yellowish brown, the markings being most numerous towards the larger end." Dimensions 0.62 by 0.5 inch.

Since the publication of Mr. Hume's '*Nests and Eggs*' in 1873, the late Mr. A. Anderson found this Warbler breeding in Upper Kumaon at elevations from 3000 to 6000 feet; his experience corroborates that of

Captain Hutton as to its building in a bush ; he found a nest in the middle of a small rose-bush, about 2 feet from the ground ; it was "elliptical in shape, and about the size of an Ostrich's egg, made of the largest and coarsest blades of a kind of dry grass, the egg-cavity being lined with grass-bents of a finer quality." The eggs in the nest were four in number, "pure white and beautifully glossed, and well covered with rufous or reddish-brown spots, most numerous at the obtuse end."

Subgenus LOCUSTELLA.

Similar in *external* structure to the last, but possessing longer under tail-coverts, minute instead of well developed bristles, and a striated upper plumage.

but in the Nicobars it is only found in Camorta and Trinkut, having been introduced into the former place from Port Blair.

From Burmah its range extends as far east as China and Eastern Siberia. Swinhoe notes it as being found throughout the former, including Formosa and Hainan; and, in its large form of *C. japonensis*, it inhabits North China and Japan. The smaller Raven, designated *Corvus culminatus* by Sykes, and kept distinct by Mr. Sharpe, has been found at Yarkand.

Habits.—This bold bird frequents native villages, some of the towns in Ceylon, pasture-lands, and other situations in open country, as well as the wildest forest and jungle of the low country. It is usually found in pairs, except when collected to feed on carrion, when large flocks come together. They are constantly in attendance on cattle and buffaloes, perching on their backs and feeding on the ticks which infest these animals. In the interior it is very destructive to poultry and young chickens and is particularly partial to eggs. Several pairs always take up their quarters during the breeding-season in the swamps and tanks where Herons and Egrets breed, and rob the nests right and left while the owners are absent. I have seen one drop into the nest of a Purple Heron, turn over the eggs, and selecting one, adroitly carry it off in his bill, in less time than it takes to write this. On two occasions I have known them to kill squirrels (*Sciurus penicillatus*), in one of which the marauder seized the animal by the tail and dashed it against the limb of a tree until it was killed; in the other, which I witnessed myself, my attention was attracted by the creature's cries, when I observed it to be doubled up, in its agony, round the bird's bill, which had transfixed its stomach, the Crow holding it firmly, without any apparent exertion. It is a bird of powerful flight, traversing wide tracts of country high in the air, and frequently mounting to considerable altitudes in its pursuit of Hawks and Eagles. In its own turn it is subject to the feeble but troublesome attacks of the "King-Crow" (*Buchanga leucopygialis*). The "caw" of this Crow is louder than that of *C. splendens*, but it has the power of modulating it and altering the tone to an extraordinary extent.

Jerdon speaks of it in India as eminently a carrion-crow, and often the first to discover a dead animal; while Mr. Ball writes of it as being a most useful guide to the sportsman as to the whereabouts of both dead and living game, for, he says, "A tiger or a bear cannot walk about in the daylight without being made the subject of some loudly-expressed remarks on the part of the Crows of the neighbourhood."

I have myself observed this inquisitive tendency in the Corby in Ceylon; and Layard remarks that though a wounded deer may retire to the most tangled brake to die, its covert is invariably revealed to the hunter by the Crows, who, congregating in small parties on the surrounding trees, patiently wait till life is extinct to begin their repast with the jackals and wild hogs.

Nidification.—The principal months for breeding are May, June, and July, most nests being built during May. The nest is placed in the fork of a top bough, often so slender that it will not admit of the eggs being safely reached; or it may rest at the bases of cocoanut-frouds, entirely concealed from sight below. It is a large structure of sticks and twigs, lined with fine roots, hair, wool, &c. The exterior is often very straggling; but the nest is very little larger on the whole than that of *C. splendens*. As remarked in a former article, it is the favourite receptacle for the eggs of the Koel, containing sometimes as many as three or four of them. The eggs are usually four in number, and much resemble those of *C. splendens*. They are long ovals, and in many cases somewhat pyriform, of a pale sea-green or light bluish-green ground, some being thickly spotted with small specks of pale brown or umber-brown over the whole surface, mingled with linear spots of the same; others have the markings much darker, larger, and more openly distributed. They vary, in general, from 1.7 to 1.58 inch in length by 1.2 to 1.7 in breadth; but Mr. Hume records one specimen as 1.95 in length, and says that in India they vary *inter se* surprisingly in size, in tone of colour, and in character of marking, and that the birds of the plains lay slightly larger eggs than those of the Himalayas or Nilghiris, the average of twenty of the former being 1.74 inch by 1.2 against 1.73 by 1.18 and 1.7 by 1.18 respectively.

CORONE SPLENDENS.

(THE COMMON GREY CROW.)

Corvus splendens, Vieill. N. Dict. d'Hist. Nat. viii. p. 44 (1816); Blyth, Cat. B. Mus. A. S. B. p. 90 (1849); Kelaart, Prodromus, Cat. p. 124 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 214; Horsf. & Moore, Cat. B. Mus. E. I. Co. ii. p. 559 (1856); Jerdon, B. of Ind. ii. p. 298 (1863); Nevill, J. A. S. (Ceylon Br.) p. 33 (1870-71); Legge, ibid. p. 52; Holdsworth, P. Z. S. 1872, p. 460; Legge, Ibis, 1874, p. 23; Butler, Str. Feath. 1875, p. 493; Hume, ibid. 1876, p. 463.

Corvus impudicus, Gray, Hand-l. B. ii. p. 14 (1870); Hume, Nests and Eggs, p. 413 (1873); id. Str. Feath. 1873, p. 206; Adam, ibid. p. 386; Ball, ibid. 1874, p. 418.

Corone splendens, Sharpe, Cat. B. iii. p. 33 (1877).

The Indian Hooded Crow, Kelaart; *The Common Indian Crow*, Jerdon.

Kowa, *Patti-kowa*, *Desi-kowa*, Hind., in various districts; *Kag* or *Kak*, Beng.; *Manchi-kaki*, Telugu; *Nalla-kaka*, Tam. (Jerdon).

Karavi-kaka, lit. "Low-caste Crow," Sinhalese; *Kakum*, Ceylonese Tamils; *Gráya*, Portuguese in Ceylon.

Adult male and female. Length 15.75 to 17.0 inches; wing 10.0 to 11.0; tail 6.0 to 6.5; tarsus 1.9 to 2.0; mid toe 1.4 to 1.5, claw (straight) 0.5; bill to gape 1.9 to 2.0. This species is as variable as the last in size, but females average smaller than males.

Iris dark brown; bill, legs, and feet black.

Forehead, crown, chin, cheeks and throat, back, wings, and tail black; the back, wing-coverts, and outer webs of secondaries with purple, and the throat, primaries, and tail with green reflections; nape, ear-coverts, sides and back of neck cinereous grey, blending into the black of the surrounding parts, and passing on the chest into a slightly dusky hue than that of the hind neck; breast and lower parts greyish black, glossed slightly with greenish and blending into the hue of the chest; under surface of primaries, particularly near the base, pervaded with greyish.

Young. Birds of the year have the wing varying from 9.0 to 10.0 inches.

In the nest-plumage the hind neck is dull grey and the crown is pervaded with the same; the chest and under surface are of an earthy brown, and at the age of three or four months the greenish-black feathers appear on the breast.

Obs. The plumage of this Crow is subject to variation dependent on age and freshness of the feathers; in abraded plumage the hind neck becomes quite fulvous, losing the grey tint of the newly acquired feather. This character is not the result of age in the individual: birds that are in moult may be seen with grey feathers intermingled with old fulvous-coloured ones. The amount of metallic reflections present on the upper-surface plumage increases somewhat as the bird grows to maturity.

Ceylonese specimens have been said to be blacker than Indian; but I do not know whether this alleged character would invariably hold good as regards the upper surface, were an equally large series of adult examples from the two localities compared; certainly continental birds are paler on the chest, and the grey tint descends lower down than in those from Ceylon, but some examples from India will coincide as regards the hind neck with insular ones. Birds which I have examined from Nepal and Darjiling are very pale on the hood and chest. The wings of eight specimens measure respectively 11.2, 11.0, 11.4, 10.8, 10.0, 11.9, 11.0, 10.8 inches; the largest are from Nepal. Ceylonese examples compared, therefore, with the above series will be seen to be smaller than their Indian fellows; but in regard to size insular birds vary very much; one has only to look at a number of adults as they hop about in the streets to notice at once the variation in size which exists among them. Mr. Hume writes that specimens shot in the Laccadives were very dark, recalling *C. insolens*.

In Burmah is a nearly allied race or subspecies of the present, the *Corvus insolens* of Hume. It differs from the Indian bird in being blacker with a somewhat dull appearance about those parts which in the Indian Crow are

it darted out with a quick jerky flight into the nearest tussocks, from which I found it, in several instances, impossible to drive. It frequented the same spots from day to day, as on escaping my pursuit on one occasion I was sure to find it, at my next visit, in the same place. I was unable to detect it uttering any note save a little *chik* of alarm; but in the breeding-season it very likely has a somewhat similar creaking song (like the noise of a cricket or grasshopper) to that which has earned for its European relative the name of Grasshopper-Warbler. Mr. Seebohm remarks of it, as observed in Siberia in August, that he "found it very shy and skulking in its habits. The young birds," he writes, "some only half-fledged, were still in broods; and occasionally I got a shot at one which left the sedges and ventured into the willows. They were calling anxiously to each other, the note being a harsh *tic, tic, tic*."

All the members of this interesting group of Warblers are characterized by their skulking habits. The English bird (*L. nevia*), which arrives in the country in April, secretes itself in thick branches and grassy underwood, out of which I have seen it running like a mouse. We read of it in Yarrell that "except on first coming, when the cocks, awaiting the arrival of their mates, display themselves more than is their wont, it is at all times difficult, and in the breeding-season, when bushes and shrubs are clothed with leaves, almost impossible to obtain a sight of it." It is said to sing more at sunrise than any other time, and it has the power of pitching its note so that it is very difficult to determine the direction from which it comes. This is said to arise from the bird turning its head, which produces a remarkably ventriloquistic effect, already noticed in this work in the case of other species.

Genus PHYLLOSCOPUS.

Bill straight, rather slender and wide at the base; the culmen curved at the tip only; tip notched. Nostrils oval and lengthened, placed in a wide membrane; rictal bristles scanty. Wings long; the 1st quill exceeding the primary-coverts, the 3rd and 4th the longest, the 2nd variable in length. Tail of 12 feathers, slightly emarginate. Tarsus longer than the middle toe and shielded with smooth scutæ. Feet small.

PHYLLOSCOPUS NITIDUS.

(THE GREEN TREE-WARBLER.)

Sylvia hippolais, Jerdon, Cat. B. S. India, Madr. Journ. 1840, xi. p. 6.

Phylloscopus nitidus, Blyth, J. A. S. B. 1843, xii. p. 965; Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 263; Layard & Kelaart, Prodromus, App. Cat. p. 57 (1853); Jerdon, B. of Ind. ii. p. 193 (1863); Holdsworth, P. Z. S. 1872, p. 457; Adam, Str. Feath. 1873, p. 382; Legge, ibis, 1874, p. 22; Seebohm, Ibis, 1877, p. 72.

Abornis nitidus (Bl.), G. R. Gray, Gen. B. i. p. 175 (1848).

Regulus nitidus (Bl.), Bonap. Consp. Gen. Av. i. p. 390 (1850).

Adult male and female. Length 4·5 to 4·75 inches; wing 2·5 to 2·6; tail 1·65 to 1·8; tarsus 0·65 to 0·7; mid toe and claw 0·55; bill to gape 0·55 to 0·6; bastard primary about 0·3 longer than the primary-coverts.

Iris dark olive-brown; bill dark along culmen, margin of upper mandible and almost all the lower fleshy; legs and feet brownish fleshy, or the tarsus bluish grey and the feet olivaceous in some.

Above olivaceous greenish; the breast slightly darker than the back; wings and tail brown, edged with the hue of the upper surface; the outer primaries pale-edged; basal inner edges of quills whitish; greater wing-coverts with whitish tips, forming a slight bar across the wing; superciliary streak and beneath the eye greenish yellow-white; lores and a streak at the posterior corner of the eye brown; beneath whitish, tinged with flavescent greenish, generally brightest on the chest; flanks shaded with dusky grey; tail-feathers in some tipped beneath with greenish white, but not so conspicuously as in *P. magnirostris*; shafts of the tail-feathers beneath white.

Summer plumage. The above description is taken from Ceylon-killed winter specimens. Mr. Seebohm recognizes a difference in the breeding attire. Specimens I have examined from Northern India certainly appear to differ from mine in being uniform dull pale green above, the head concolorous with the hind neck, and the upper tail-coverts paler than the back, having a yellowish tinge.

Obs. This Tree-Warbler and the two following are among those classed by Mr. Seebohm in the section which have no mesial line on the crown, in addition to which the under mandible is pale and the wing-coverts are tipped whitish, forming one and sometimes two bars across the wing. It is very closely allied to the Greenish Tree-Warbler, but can be easily distinguished from that species, as I shall presently point out. I have submitted all my specimens to Mr. Seebohm for examination, and have myself compared them with examples of the Greenish Tree-Warbler, *P. viridanus*, and there is no doubt that they are all *P. nitidus*. A male from Futteghur, in Mr. Anderson's collection, measures 2·5 inches in the wing, and three females vary from 2·3 to 2·4 inches.

Distribution.—This diminutive Warbler migrates in great numbers from the Himalayas through India to Ceylon, spreading over the whole island, from the sea-coast to the summits of the highest mountains, and frequenting all districts independently of climate or nature of locality. It is equally at home in the Suriah-trees in the streets of Colombo and in the heart of the forests of the Northern Province. It arrives in the island about the middle of September, and departs again at the end of March and the beginning of April. By the end of September it may be found all over the coffee-districts and throughout the extreme south of the island. It is common at Nuwara ELLIYA and in the circumjacent forests, and frequents the woods on the Horton Plains; while I have even procured it on the summit of Totapella, one of the mountains which overlook this elevated tableland.

The Green Tree-Warbler is spread throughout India in the cold weather, and breeds, in all probability, in the Himalayas. It would seem to be less numerous in the central portions of continental India in the cool season than it is in Southern India and Ceylon. Jerdon writes that he frequently procured it in the hills of the peninsula; and Mr. Bourdillon remarks of it, "common in heavy jungle, for the most part frequenting high trees, but sometimes descending to the underwood." As regards the north, Jerdon states that it is rare about Calcutta; and Blyth writes that it is generally distributed, but rare in Lower Bengal. I have seen

specimens collected at Futteghur and at Etawah. About the Sambhur Lake Mr. Adam says that it is very rare; and it has only lately been added to the avifauna of Sindh, having been procured at Kotri by a collector of Mr. Blanford's. But there is much more still to be learnt about the distribution of this tiny Warbler. The extraordinary fact of a specimen of it having been shot in Heligoland some years since proves that it must breed in Western Siberia. Many species, singularly enough, after breeding in Northern Asia stray, on their migration back, westwards through Europe till they find their way to the little island of Heligoland; and this example of the Green Tree-Warbler must have been, as Mr. Seebohm infers, *loc. cit.*, a young bird which had got out of its track.

Habits.—This species frequents the upper branches of umbrageous trees, no matter whether they may be situated in busy thoroughfares or in the quiet of the forest. It is especially fond of Jack-trees, which are mostly found in the gardens of the natives, and again is very partial to the monarehs of the forest which surround the many romantic tanks of the interior. In these spots its perpetual little chirrup invariably discloses its presence when otherwise it would certainly be passed over in the lofty foliage which it frequents. It affects the leaves of trees more than the next species, and darts out from its place of concealment on various insects, after the manner of a Flycatcher. It is very lively in its actions, and is sociably inclined, for one or two of its fellows may usually be found in an adjacent tree, each answering the other with its cheerful little note. Its flight is swift, although its powers of locomotion are not much brought into play after it once locates itself in its winter quarters; it then merely darts from tree to tree, and often remains for a considerable time without moving out of its retreat. The powers of wing which these little *Phylloscopi* have are marvellous; that they should be able to make their way across such a chain of mountains as the Himalayas, as some of them undoubtedly do, is one of the greatest wonders connected with the migration of birds.

PHYLLOSCOPUS MAGNIROSTRIS.

(THE LARGE-BILLED TREE-WARBLER.)

Phylloscopus magnirostris, Blyth, J. A. S. B. 1843, xii. p. 966; Jerdon, B. of Ind. ii. p. 191 (1863); Brooks, Ibis, 1872, p. 26; Hume, Str. Feath. 1873, p. 439 (first printed record from Ceylon); Legge, Ibis, 1874, p. 22; Brooks, Str. Feath. 1875, p. 243; Seebohm, Ibis, 1877, p. 77; Hume, B. of Tenass., Str. Feath. 1878, p. 352.

Phyllopneuste magnirostris (Bl.), G. R. Gray, App. Hodgs. Cat. B. of Nep. p. 15 (1846).

Phyllopseuste magnirostris (Bl.), Hume, Str. Feath. 1874, p. 236.

Phylloscopus javanicus, Blyth, Cat. B. Mus. A. S. B. p. 185 (1849).

The Large-billed Willow-Warbler.

Adult male and female. Length 4·9 to 5·2 inches; wing 2·5 to 2·75; tail 1·85 to 2·0; tarsus 0·7 to 0·8; middle toe and claw 0·55; bill to gape 0·5 to 0·6.

Iris light or yellowish brown; bill dark horn, with the base and tip of lower mandible fleshy; gape pale; legs and feet bluish grey or dusky bluish.

Above dusky olive-greenish, paling on the rump; wings and tail brown, edged with a pale greenish hue, and the latter tipped with the same; greater coverts with pale terminal spots, forming a wing-bar; a whitish supercilium from the nostril over the eye to the ear-coverts; lores and a moderately large space behind the eye dark brown; cheeks mingled brown and greenish white; beneath whitish, washed with flavescent greenish, with the flanks and sides of the chest cinereous brownish (in some the whole chest is overcast with dusky); under tail-coverts greenish white; under wing greenish yellow.

Obs. This Warbler is easily recognized from the last species by its stouter build and darker upper plumage, also by the dark head and space behind the eye, over which the rather conspicuous supercilium reaches; these are differences which prevent it being confounded for a moment with *P. nitidus*, where the larger bill might at first be overlooked, especially as this varies somewhat in size.

This Willow-Warbler is very closely allied to *P. lugubris*, another Indian species, the only reliable point of difference between the two being the proportion of the primary quills to one another. In the present species the 2nd and 8th primaries are subequal, whereas in *P. lugubris*, the 2nd primary is shorter than the 8th. In one of my skins from Ceylon, the 2nd primary is somewhat shorter than the 8th; but it is so exactly identical with the rest of my series that it is not advisable to separate it. Mr. Seebohm has examined it and is of the same opinion. On the whole, I think, the wing of *P. lugubris* is shorter than in the present species; several specimens from Sikkim I have examined measure as follows:—2·6, 2·55, 2·4, 2·6, ♀ 2·5 inches, and they are, as a whole, a trifle darker on the upper surface than *P. magnirostris*. I have not procured a female of this latter with the wing less than 2·5 inches, and one specimen measures 2·6, although I see that Mr. Seebohm, in his excellent paper on the *Phylloscopi* already referred to, gives a minor limit of 2·23. Two examples from India measure 2·83 and 2·5 inches in the wing.

There is no reason to infer why *P. lugubris* should not occur in Ceylon; and I commend the subject of its discovery there to those who may hereafter pay attention to this genus in the island.

Both these species much resemble the Willow-Wren of Europe, *P. trochilus*; but this latter has no wing-bar, is slightly greener on the back, and the throat, chest, and under wing-coverts are washed with a brighter greenish yellow; the bill is smaller and legs longer. An example in my collection measures:—length 5·1 inches, wing 2·65, tail 2·1, tarsus 0·85, bill to gape 0·5. Iris brown; bill, upper mandible brown, lower fleshy; legs and feet brown.

Distribution.—Like the last species, this Tree-Warbler is migratory in the cool season to Ceylon, arriving and departing much about the same time as that bird. It is common in many parts of the island, particularly in the forest-region of the northern half and in the Eastern Province. I found it likewise in considerable numbers in some parts of the North-west Province, particularly on the Deduru oya and its tributaries, and also in the Ikkade-Barawe forest and other spots in the Western Province. In the Kandy country and in the upper hills it is likewise common. It was particularly abundant during the cool season of 1876–77; in January 1877, at

the Horton Plains, it was quite as frequent as the last-noticed bird. The first example recorded from Ceylon was shot by myself on the banks of the river in Lindula, in November 1870, and I have never detected it in any collections but my own. It is worthy of note that females are rare in Ceylon.

Jerdon writes as follows:—"It appears to be spread, but rare, over India. I obtained it at Nellore in the cold weather, and it has been procured near Caleutta and in Nepal." Its head-quarters, in the summer, seem to be the sub-Himalayan districts. Mr. Brooks found it in forest in Cashmere, and met with it in numbers in the valley of the Bhagarati river above Mussoori. In the winter it wanders down the eastern side of the Bay of Bengal, and is, according to Mr. Hume, a rare cold-weather visitant to the central portion of the province of Tenasserim. It likewise finds its way to the Andamans, where it was procured by Lieut. Wardlaw Ramsay, and also on Mount Harriet, above Port Blair, during Mr. Hume's expedition to the island in 1873.

Habits.—This Tree-Warbler frequents the upper branches of trees in jungle and forest, and does not affect the vicinity of human habitations like the last, preferring the retirement of the woods to the shelter of umbrageous trees in compounds, gardens, and other open places. It likewise does not seem to dwell so much among the leaves and boughs as *P. nitidus*. On hearing its sweet three-note whistle, which somewhat resembles the note of the Redbreast Flycatcher (*C. tickelliae*), if you look up you will see the little bird, whence it comes flitting from one bare branch to another, peering down for an instant on you, and at the next rapidly darting among the surrounding foliage at some passing insect, and then realighting at some little distance off. These actions are so much like that of a Flycatcher, and its note so unlike the chirrup of the last species, that the first time I procured it under these circumstances I was surprised to find I had killed a Willow-Warbler instead of a Flycatcher. It constantly repeats its note as it moves from tree to tree in search of insects, which form its entire food; and it generally hunts singly, notwithstanding that one of its companions may usually be heard not far off.

Blyth writes of its song, "My shikaree, who shot it, informed me that it sung prettily; and on my imitating the well-known note of *P. trochilus* (the Willow-Wren), he assured me that the song of this bird was quite different." Mr. Brooks, who has paid so much attention to the members of this genus, says that its song is peculiarly shrill and sweet, but is the most melancholy one that could be imagined. He further writes, concerning his observations of the species in the Mussoori district, "I frequently heard its song near Danguli, and again not far from Gangaotri. Also on the road from Sansoo to Kauriagalia, in a rocky wooded glen through which a small stream flowed. The conditions this bird requires are wooded cliffs or very steep rocky banks impracticable for man, and plenty of flowing water below. Above a roaring torrent it is in its element, and sings most vigorously It is very shy and of a retiring disposition, and the female is rarely seen. But for its song the male also would escape observation."

PHYLLOSCOPUS VIRIDANUS.

(THE GREENISH TREE-WARBLER.)

Phyllopneuste rufa, Blyth, J. A. S. B. xii. p. 191 (1842), *nec* Bodd.

Phylloscopus viridanus, Blyth, J. A. S. B. 1843, xii. p. 967; Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 263; Layard & Kelaart, Prodromus, App. Cat. B. p. 57 (1853); Jerdon, B. of Ind. ii. p. 193 (1863); Holdsw. P. Z. S. 1872, p. 457; Brooks, Ibis, 1872, p. 31; Henderson & Hume, Lahore to Yarkand, p. 220, pl. 19 (1873); Scully, Str. Feath. 1876, p. 148; Seebohm, Ibis, 1877, p. 73.

Abornis viridana, Bonap. Consp. Gen. Av. p. 290 (1850).

Phylloscopus plumbeitarsus, Swinhoe, Ibis, 1861, p. 330; Seebohm, Ibis, 1877, p. 73; Brooks, Str. Feath. 1878, vii. p. 505.

Adult male and female. Length "4·75 to 5 inches" (Jerdon); wing 2·2 to 2·4; tail 2·0; tarsus 0·7; middle toe 0·4, claw (straight) 0·15; bill to gape 0·5. These measurements are from two specimens in my collection from Futtoghur.

Dr. Scully gives the following complete measurements of a specimen killed in Turkestan:—Length 4·3 inches; expanse 7·15; wing 2·34; tail 1·8; tarsus 0·81; bill from gape 0·53; weight 0·35 oz.

"Bill, upper mandible dusky brown, lower mandible yellowish brown; irides dark brown; legs and feet brownish grey; claws brown horny." (Scully.)

Above dull olivaceous green, pervaded with a brownish hue, the rump greener than the back; primaries and secondaries brown, edged with the hue of the back; greater coverts tipped with whitish, forming a single wing-bar; tail brown, the feathers edged, principally near the base, with the colour of the upper tail-coverts; a dark spot in front of the eye; above it a rather wide yellowish supercilium passes from the nostril to above the ear-coverts, which are brownish; beneath from the chin to the under tail-coverts whitish, tinged slightly with greenish yellow; under wing-coverts washed with greenish yellow, brightest at the edge of the wing; shafts of the tail-feathers beneath white.

Obs. This species may be distinguished from *P. nitidus* by its browner upper surface and less yellow-tinged underparts; it is aptly named the *Greenish* while the latter is styled the *Green* Tree-Warbler.

Distribution.—The evidence on which this bird takes its place in our lists rests on the following statement of Layard's, who writes, in speaking of a Warbler which he calls *Phyllopneuste montanus*, Blyth:—"The present species is migratory, and abounds in low thick bushes in company with *Phyllopneuste viridanus*." There is some error here, as there is no such bird as *P. montanus*, Blyth, and it is strange that the present species should be said to abound. Perhaps it may visit Ceylon; and if its note is not to be distinguished from that of the very numerous species first noticed, it would naturally be supposed by Layard to be common after he had once procured it. It is to be hoped that naturalists will pay particular attention to this point.

The Greenish Tree-Warbler, as hitherto considered, inhabits Cashmere, according to Mr. Brooks, in the breeding-season; and Jerdon procured it at Darjiling. It ranges, however, north of the Himalayas, as Dr. Scully procured it in Kashgharia, and Dr. Henderson found it common in Hill Yarkand at the Arpalak river. In the cool season it migrates to the plains, Blyth stating that it is very common in Lower Bengal. It is not unfrequent in the North-west Provinces; and Jerdon obtained it in Southern India. It passes to the eastward of the Bay of Bengal on to Tenasserim, whence Mr. Hume records it from Thatone, river Salween, and Moulmein.

Concerning its habits Dr. Scully writes:—"This species was noticed among the tamarisk and willow bushes fringing the Sanju stream, and along the banks of the Karakash river. It seemed very restless, continually flitting from spray to spray, and its note was a weak sort of chirp frequently uttered. Blyth pronounces its voice to be very weak, and to be expressible by *tiss-yip*, *tiss-yip*, frequently uttered."

Presuming, however, that the *P. plumbeitarsus* of Swinhoe is the same as *P. viridanus* (and Mr. Seebohm informs me that he believes in the identity of the two species, the former being the summer plumage of the latter), the range of this Warbler becomes enormously extended, and reaches "in the breeding-season the subalpine districts of the North-eastern Palæarctic Region from the Ural to the Pacific. Prjevalsky found it in the breeding-season in the pine-districts of Camsu. It passes through China on migration, and probably winters in Burma and the East-India islands" (*Seebohm*). The identity of this northern species with our Indian *P. viridanus* might account for the fact of a skin of the latter having been identified by Messrs. Brooks and Seebohm in a collection made in the month of August in the Ural. It has likewise been recently procured in Heligoland by Herr Gätke.

On the other hand, however, Mr. Brooks gives it as his opinion, in the last number of 'Stray Feathers' (vol. vii. pp. 508-10), that Swinhoe's species is distinct from the present. He points out, among other points, that *P. plumbeitarsus* has a stronger, differently shaped and coloured bill, two wing-bars instead of one, which are yellowish instead of white, and also a darker upper plumage than *P. viridanus*.

Mr. Brooks found its nest in Cashmere at an elevation of about 4000 feet; it was a domed structure, on the steep bank-side of a ravine full of small birch trees.

PASSERES.

Fam. PARIDÆ.

Bill short and conical, with the tip entire. The nostrils concealed by a tuft of feathers; gape furnished with bristles. Wings rather long; the 1st quill about half the length of the longest. Tail moderate. Legs and feet stout; the tarsus scaled.

Of small size and of arboreal habit.

Genus PARUS.

Bill typical in form, the margin of the upper mandible lobed; the tip slightly more curved than the rest of the culmen. Nostrils circular and concealed by the impending tufts; rictal bristles feeble. Wings with the 4th and 5th quills subequal and longest, the 2nd shorter than, or about equal to, the 8th. Tail moderately lengthened and slightly graduated. Tarsus exceeding the middle toe and claw, and shielded with broad scales. Lateral toes short; hind toe and claw large.

PARUS ATRICEPS.
(THE GREY-BACKED TITMOUSE.)

Parus atriceps, Horsf. Trans. Linn. Soc. xiii. p. 160 (1820), "ex Java"; Sykes, P. Z. S. 1832, p. 92; Tweeddale, Ibis, 1877, p. 304.

Parus cinereus, Vieillot, Tabl. Enc. Méthod. p. 506 (1823), *ex* Levaillant; Blyth, Cat. B. Mus. A. S. B. p. 103 (1849); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 267; Kelaart, Prodromus, Cat. p. 121 (1852); Jerdon, B. of Ind. ii. p. 278 (1863); Holdsworth, P. Z. S. 1872, p. 460; Ball, Str. Feath. 1874, p. 417; Legge, Ibis, 1874, p. 23.

Parus nipalensis, Hodgs. Ind. Rev. 1838, p. 31.

*Parus caesi*us (Tick.), Swinhoe, P. Z. S. 1871, p. 361; Hume, Nests and Eggs, ii. p. 405; Brooks, Str. Feath. 1875, p. 253; Hume & Davison, B. of Tenass., Str. Feath. 1878, p. 376.

Le Mésange grise à joue blanche, Levaillant, Ois. d'Afrique, pl. 139; *Le Mesange cap nègre*, *The Tit*, also "*Coffee-bird*," Planters. *Ramangra*, Bengal.; *Glate wingko*, Java.

Adult male and female. Length 5·3 to 5·8 inches; wing 2·6 to 2·9; tail 2·3 to 2·6; tarsus 0·7 to 0·75; middle toe and claw 0·6 to 0·7; bill to gape 0·48 to 0·55.

Some hill-birds are larger than those from the low country: a male from Horton Plains measures—length 5·8 inches, wing 2·9, tail 2·6; a male from Colombo—length 5·5 inches, wing 2·6, tail 2·2.

Iris dark brown; bill black, a slaty edge to the lower mandible; legs and feet dusky bluish or plumbeous; claws brown. Head, nape, sides of neck, chin, throat, chest, and down the centre of breast, belly, and under tail-coverts shining blue-black, enclosing a large white patch, which extends from the gape over the cheeks and ear-coverts; back, rump, and wing-coverts cinereous bluish, with a whitish patch adjacent to the black nape; wings and tail black, edged with bluish, the longer primaries with narrow, and the tertials with broad white margins: greater coverts broadly tipped white; outer tail-feather white, with a broad black inner margin, the next with a variable white streak running up from the tip; sides of the breast, belly, under tail-coverts, and the lower portion of the thighs whitish, tinged with bluish grey on the flanks.

The amount of white on the outer tail-feathers varies; in some examples the outer web of the penultimate is wholly white. This may be the result of age. The size of the white nuchal spot varies much, and the black at each side of it descends further down the hind neck in some specimens than in others.

Young. Iris as in the adult; bill dark horn-colour; margin and gape yellowish.

The back of the head and chest has less gloss than in the adult; the ventral stripe is narrower; the back dusky bluish, with a greenish tinge.

Obs. Examples from India are identical with our Ceylon bird, which I cannot likewise separate from the Javan and Malayan form, although individual specimens may be perhaps chosen from a series of the latter which would not, in all respects, correspond with some from our island. This is only to be expected, as it is a species subject to local variation. A West-Javan skin has the wing 2·6 inches, and corresponds entirely on the upper surface with one from Ceylon; another from the same district measures 2·4 only, and is slightly darker on the back; another from East Java measures 2·4, and is paler than most Ceylonese examples. A Lombok specimen has a wing of 2·6 in length and tail 2·6; it is also a very pale bird, but differs in no other way. Swinhoe remarks, in his "Catalogue of the Birds of China" (P. Z. S. 1871), that the Javan bird can be readily distinguished from the continental one by "the black of the head extending beyond the white nuchal spot, and separating it from the grey of the back," and accordingly he applied a name of Tickell's (*P. caesi*us) to the Chinese and Indian bird, which has been in vogue in 'Stray Feathers' ever since. I do not see this character exemplified in the British-Museum specimens, and I have, since my examination of them, asked Mr. Sharpe to look at them. He informs me, *in epist.*, that he cannot see the distinction here referred to, although, in some examples, the "black bordering the white nape-spot is carried a little further down the mantle." I have referred to this above as an individual peculiarity in Ceylonese

birds, and it is therefore not a character of sufficient value to justify a separation of the two varieties. If it were, however, the name of *P. caesi* would, in my opinion, be objectionable, as no one knows where Tickell first employed it, and he certainly never published it. Jerdon uses it as a synonym of *P. cinereus*; and this is our only authority for its employment at all. As to the latter title, it is three years junior to *P. atriceps*, and is therefore merely a synonym of it.

This Titmouse may be styled the Asiatic representative of the English "Great Tit," which has the distribution of the black on the head and throat and the white cheek-patch the same; but the back is greenish and the nuchal patch yellowish; the underparts are yellowish instead of greyish white.

Distribution.—The Grey Tit is very numerous in all the hill-districts of Ceylon, frequenting the highest parts of the main range and other forests above 3000 feet more abundantly than those of lower altitude. It is scattered over all the forest districts of the low country, but is not common near the sea. I met with it in most parts of the eastern side of the island and in the north-central jungles; and Mr. Parker informs me that it is common about Uswewa, in the Puttalam district. In the neighbourhoods of Colombo and Galle I have found it during both monsoons, but mostly in the cool season, and I believe that it is an occasional visitant only to those places. In the Morowak and Kukul Korales, and likewise in the Saffragam and Pasdun-Korale jungles it is common, and probably visits the coast region from these localities. I never observed it close to Trincomalie, although it is tolerably frequent further inland.

Jerdon writes of the Grey Tit's distribution in India:—"This Tit extends throughout the Himalayas from Nepal to Bhootan, Assam, and through Central India to the Nilghiris. I have procured it on the Nilghiris, and it extends all along the range of Western Ghâts north to Kandeish. I have also obtained it in the hilly regions of Nagpur and at Saugor, and Tickell got it at Chaibassa, in Central India, but it does not occur in Bengal." In Travancore it is, according to Mr. Bourdillon, not uncommon at higher elevations. It is, in fact, chiefly found in hilly wooded tracts of country: at Mt. Aboo, for instance, Captain Butler records it as occurring sparingly, though very rare in the plains, where he procured it once in the month of June, about 18 miles from Deesa; and Mr. Hume writes that it is found in the Gir and Girwan districts, in Kattiawar, and the Koochawun and Marot jungles north of the Sambhur Lake, but nowhere else in the entire region. An exception to this rule, however, is found in Dr. Armstrong's notes on the Birds of the Irrawaddy delta, in which he writes:—"This species was met with abundantly in the open tidal jungle bordering portions of the coast between Elephant Point and China-Bakeer, and also in similar localities along the margin of the Rangoon river at Eastern Grove." It is found in various parts of Burmah, and is a rare straggler to the central portions of the province of Tenasserim. It is likewise, no doubt, an inhabitant of the Malay Peninsula, which forms a link between its Indian and Malayan habitat. It was first described from Java by Horsfield; to the east of that island it is found in Lombok, and to the west in Sumatra. A region quite as remote as these islands is the east coast of China, to the avifauna of which Swinhoe added this Tit; he found it in the island of Hainan, and writes that his specimens thence procured were identical with those from India.

A notice of this bird's distribution would not be complete without referring to Levaillant's remark on it as a South-African species; he says, "It was the only species" (of Titmouse?) "I saw in the vicinity of the Cape or in the colony!"

Habits.—This interesting little bird, like its European congeners, possesses a restless and inquisitive disposition, and is a most diligent worker when in search of its insect food. It consequently frequents a variety of situations, and intrudes itself upon the notice of the most casual observer. In the hills it is found in pairs, or two or three together, in forest, thick jungle, and patna-woods; it is likewise common on estates, the well-grown coffee-bushes affording it such a welcome shelter that it appears to live permanently among them; thence it makes casual raids upon the neat little gardens attached to so many bungalows, and deals destruction to the buds and young shoots. In the low country it resides chiefly in forest; but its wandering disposition brings it often into the vicinity of habitations, where it locates itself for the time being in the shady compounds and pleasant groves among which the villagers pass their existence. There it frequently resorts to the heads of cocoanut-trees, searching among their flowers and at the bases of the broad fronds for the numerous insects which affect these favourite situations. On the Horton-Plain woods, where it is common, it delights in the

moss-covered trunks and limbs of the rather stunted timber-trees of that elevation, and attentively scrutinizes every nook and cranny in quest of its morning meal. While hopping about the branches of trees, it gives out a sharp two-note whistle, and repeats it for a considerable time, after the manner of its European relative. I am not aware whether it has the interesting habit of tapping branches in the same style which must be familiar to all who have observed our Great Tit in England during the autumn and winter. No little bird can possess a more thoroughly busy and at the same time contented air than this one, when he is diligently working away at the branch of some fine old apple-tree, making his well-directed blows heard at a considerable distance from his perch.

Jerdon says of the Grey Tit, "it is a very familiar and abundant bird on the Nilghiris, with the usual habits of the tribe, entering gardens, and feeding on various small insects and also on seeds." Dr. Armstrong observes that it is very active, "moving from one bush or tree to another, and frequenting alike the highest *Sonneratia*-trees and the lowest mangroves."

Nidification.—In the Central Province this species breeds from March until July. It usually selects a hole in some moderately-sized tree, perhaps one which has been cut by a Barbet or a Woodpecker, and at the bottom of this retreat forms a large and slovenly nest of moss, feathers, and hair. It lays from four to six eggs, broad ovals in shape, pure white, openly spotted with well-defined marks of purplish red, which often form a zone round the large end. It often chooses a hole in a bank, and has been known to build on a branch of a tree, Mr. Hume citing an instance of a nest so situated in a "Banj" tree, 10 feet from the ground.

This author states that they rear two broods in India, the first in March, the second in June, while in the Nilghiris they lay as late as September and October. Miss Cockburn, who has made so many interesting notes on the nidification of birds at Kotagherry, remarks that they show great affection and care for their young, and that they bite savagely at the hand of an intruder, puffing out their throats and hissing like a snake. The average size of a number of eggs taken in India is stated to be 0.71 by 0.54 inch.

PASSERES.

Fam. CERTHIIDÆ.

Bill variable, either straight or much curved, but always compressed and with the tip entire. Tail variable, rather long in some, with the shafts rigid and pointed, in others short and even at the tip. Legs short; feet very large; toes in many syndactyle, the hind toe and claw larger than the rest.

Of scansorial or climbing habit.

Subfam. SITTINÆ.

Bill straight and rather short. Tail shorter than the wings and even at the tip.

Genus DENDROPHILA.

Bill straight, widened at the base; the culmen gently curved from the base to the tip. Nostrils oval and lateral; a few weak rictal bristles. Wings long, pointed; the 1st quill exceeding the primary-coverts by about 0·2 inch, the 4th the longest, and the 2nd shorter than the 6th. Tail very short, slightly exceeding the closed wing. Tarsus short, scaled, exceeding the middle toe, which is shorter than the hind; outermost toe much exceeding the inner and syndactyle; hind claw very large and much curved.

DENDROPHILA FRONTALIS.

(THE INDIAN BLUE NUTHATCH.)

Sitta frontalis, Horsf. Trans. Linn. Soc. xiii. p. 162 (1821).

Sitta corallina, Hodgson, J. A. S. B. 1836, v. p. 779; Gray's Zool. Miscell. p. 82 (1840).

Dendrophila frontalis (Horsf.), Jerdon, Madr. Journ. 1839, xi. p. 218; Blyth, Cat. B. Mus. A. S. B. spec. B & C, p. 190 (1849); Kelaart, Prodromus, Cat. p. 120 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 176; Jerdon, B. of Ind. i. p. 388 (1862); Holdsw. P. Z. S. 1872, p. 435; Hume, Nests and Eggs, i. p. 161 (1873); Legge, Ibis, 1874, p. 16; Bourdillon, Str. Feath. 1876, p. 393; Fairbank, ibid. 1877, p. 399; Hume and Davison, B. of Tenass., Str. Feath. 1878, p. 201.

Dendrophila corallina (Hodgs.), Hume, Str. Feath. 1875, p. 89; Sharpe, ibid. 1876, p. 436.

The Velvet-fronted Nuthatch, Jerdon; *The Tree-creeper*, *The Blue Creeper*, Europeans in Ceylon.

Adult male and female. Length 5·1 to 5·2 inches; wing 2·9 to 3·15; tail 1·8; tarsus 0·65 to 0·7; middle toe and claw 0·75; hind toe 0·5, its claw (straight) 0·35; bill to gape 0·67 to 0·73.

Iris pale golden yellow, eyelid greenish leaden, orbital skin dusky yellowish; bill coral-red, the tip of upper mandible nearly always blackish; legs and feet wood-brown, claws pale horny, soles dull yellowish.

Male. Above cerulean blue, somewhat deeper on the upper tail-coverts and shoulder, and changing at the edge of the frontal band into lazuline blue; lores, a broad band across the forehead, and a streak over the eyes to the nape deep velvety black; quills and most part of tail dull black; secondaries edged with the hue of the back; several of the primaries with a whitish-blue margin; central tail-feathers dull blue, and the tips and outer edges of the remainder bluish, the under surface of the feathers being greyish; just below the eye a slight wash of blue; cheeks, ear-coverts, and the neck just beneath them lilac; chin and upper part of throat whitish, changing into the brownish- or fulvous-lilac of the whole under surface; tibia and under tail-coverts washed with bluish grey.

Female. Wants the black superciliary stripe, and has the lores edged with bluish. In most specimens I have seen there is a series of one or two dark spots across the shaft of the centre tail-feathers, which seems peculiar to this sex.

Young. The bird of the year has the terminal portion of the upper mandible blackish, and the sincipital stripe, in the male, smaller than in the adult.

Obs. Mr. Sharpe, on the evidence of a small series of skins in the British Museum, has recently pointed out that the Javan bird is distinct from the Indian, inasmuch as it has the throat concolorous with the chest and not white as in the latter, and also the under surface richer in colour. I have examined the series in question, and also some skins of the late Mr. A. Anderson's collecting, and find that 3 Malayan examples from Java, Sarawak, and

Palawan do differ in the above respects from the continental Indian and the Ceylonese specimens. The series, however, is too small, it appears, to form a correct conclusion from; for I find that Mr. Hume, commenting on this subject in 'Stray Feathers,' 1878, vol. vii. p. 459, states that he has "numerous Indian and Burmese specimens exhibiting in a marked degree the alleged characteristics of both forms,"—that is, that both white and lilac-coloured throats exist in continental birds. This being the case, I do not think it advisable to place the Ceylonese birds at present under Hodgson's name, as, although all my specimens exhibit the white-throated character, I have not enough of them to base a safe conclusion on. As regards size, there is but little to choose in either of the alleged races. Mr. Oates gives the wing-measurements of four males from Pegu as 2·75 to 3·0 inches; and the wings of those I have examined are as follows:—*D. corallina*: ♀, Burmah, 2·75 inches; ♂, Nepal, 2·9; ♀, Nepal, 2·7; ♀, N.W. Himalayas, 2·85; ♂, Pegu, 2·95. *D. frontalis*: ♀, Sarawak, 2·8; ♀, Palawan, 2·8; Java, 2·9. I must remark that these examples from the Malay region seem to be slightly more purple on the back than the Indian birds; and I do not think the matter can be definitely settled until a large series is procured from Java and the fact is ascertained satisfactorily whether the Javan birds have or have not white throats *occasionally*. Hodgson bestowed his title on a Nepalese skin; and Gray subsequently applied it to birds from Nepal, Ceylon, and Pegu, placing the Burmese form with the Javan as *D. frontalis*, his distinction being that the latter was smaller and had a darker bill than *D. corallina*. The latter character is peculiar to immature birds.

Distribution.—This pretty little Creeper is numerous throughout all the hill-zone, inhabiting the upper ranges to their summits, and is likewise common in the forests and fine tree-jungle of all the low country. In various parts of the northern forest tract wherever the trees are large and lofty it is numerous; and this is likewise true of the Eastern Province and the forest regions of the south-east, along the rivers of which, as well as in the country between Pollanarura and Anaradjapura, I have found it almost as abundant as in the hills. It frequents the timber-jungles between the southern ranges and Galle, and is common in the Pasdun Korale and in the timber-forests of Saffragam. It occurs sometimes, during the north-east monsoon, on the sea-board between Colombo and Galle.

On the continent this Nuthatch is found in the wooded and hilly districts of India, from the extreme south to the Himalayas, and extends south-eastwards through Burmah and Pegu to Tenasserim. It appears to be very abundant in the hills of the south of the Indian peninsula. Jerdon speaks of it being numerous in the Nilghiris, and further remarks:—"I have found it on the Malabar coast, . . . in Central India, in Goomsoor, and also in the Himalayas. It is also found in Assam and Burmah. On the Himalayas I only found it in the warmer valleys." Mr. Bourdillon says it is a common species in the hills of Travancore, "frequenting the margins of clearings in the forest;" and on the Palanis it is, according to Dr. Fairbank, found wherever there are trees, both at the top and bottom of the range. He likewise obtained it on the Goa frontier. Tickell procured it in Dholbhúm, and it has been obtained all along the sub-Himalayan region from the north-west to Darjiling. It is recorded from Assam by McClelland, and from Arrakan by Messrs. Barry and Anderson. Mr. Oates writes that it is very common in the Pegu hills. In Tenasserim it is noted by Messrs. Hume and Davison from many localities; and these gentlemen consider it to be common everywhere throughout the province up to 5000 feet, though it is not as numerous, according to the latter gentleman, as in the Nilghiris. Its range through the countries to the south, in common with that of all birds in these imperfectly explored regions, is not so well known. It is believed to be found all down the Malay peninsula to the very south, and probably occurs in Sumatra, as it is found in the next island, Java, and further east still in Borneo, whence it has been sent from the province of Sarawak.

Habits.—This pretty little species, which recalls to the wanderer in the wilds of Ceylon the familiar little Nuthatch of England, lives in small troops of half a dozen or so, and is in its habits one of the most active birds imaginable. It is ever on the move, nimbly running up and down and round the trunks of trees, traversing and retraversing the huge boles which protrude from the giant pillars of the forest, or tripping along beneath the massive limbs which grandly overhang the solitary sylvan tanks of Northern Ceylon. It does not remain long in one tree, but darts quickly on from one to the other, followed by its companions, and when it alights gives out its trilling little note, which, although comparatively weak, is audible at a considerable distance. In the tall timber-forests of the Central Province which grow on steep inclines this little note may be heard far overhead, as one is toiling up the face of the mountain, although it is often scarcely possible to

discover the tiny little birds, so difficult are they to discern in the gloom against the sombre-coloured bark. While searching for its food it frequently runs *down* the bark as well as up and across it, locomotion in any direction being alike easily performed by it; it may likewise just as often be seen running along fallen logs or over small dead wood lying on the ground; and in this situation I have not unfrequently observed it near paths and cart-tracks in the forest. It must, during some portion of the day, rest from its labours; but I have never succeeded in finding it in a state of quiescence.

Mr. Davison writes of it as follows:—"They are always busy working up and down and round and round the branches of trees, standing and fallen, sometimes even foraging in brushwood, always, like the rest of the *Sittas*, coming down head foremost, never tail foremost, as some Woodpeckers will; feeding exclusively on insects; often hammering away at the bark and constantly uttering a sharp *chick, chick, chick*, rapidly repeated as they work about, but not as they fly."

Besides this well-known sound in the Ceylon forests I have heard the males utter a short little warble, with which they answer one another while feeding.

Nidification.—I am unable to give any particulars of this bird's nesting in Ceylon. In India Mr. Thompson notes it as breeding in the Kumaon forests, where it is common in May and June. Mr. Davison has found its nest at Ootacamund in April, and Miss Cockburn at Kotagherry as early as the 10th of February. It builds in a small hole in a tree, a natural cavity in itself, but with the entrance, according to Mr. Hume, trimmed by the bird. The nest, a compact structure, is made of moss and moss-roots, and lined with feathers and hair.

Miss Cockburn has an interesting note, in 'Nests and Eggs,' on the finding of one of these nests, in which, among other details, she describes the manner in which the parent bird entered its nest; she writes to Mr. Hume, after describing an inquisitive visit of a Titmouse to the opening, which he found too small and soon flew away from:—"I continued to watch, and was quite repaid by seeing a Velvet-fronted Nuthatch fly to the top of a tree containing the nest [the italics are mine] and descend rapidly down the trunk, which was about 12 or 13 feet high, knowing well where the nest-hole was, and disappear into it."

The eggs are three or four in number, white, "blotched, speckled, and spotted, chiefly, however, in a sort of irregular zone round the large end, with brickdust-red and somewhat pale purple." An egg taken by Miss Cockburn measured 0.68 by 0.55 inch.

PASSERES.

Fam. CINNYRIDÆ*.

Bill slender, lengthened, compressed and curved throughout, very acute at the tip, which is entire. Nostrils linear, placed in a capacious membrane. Gape smooth. Wings more or less pointed, with the 1st quill exceeding the primary-coverts. Tail of 12 feathers, usually rather short, the central feathers in some genera elongated. Legs and feet stout. The tarsus strongly scaled; hind toe and claw large.

Of small size; mostly of brilliant metallic plumage. Tongue lengthened and bifid.

Subfam. NECTARINIINÆ.

Bill typically curved and slender. Wings with the 1st quill slightly longer than the primary-coverts. Tail even, or with the central feathers attenuated and much longer than the next pair.

Genus CINNYRIS.

Bill variable in length and curvature, much compressed, the margins of both mandibles inflected towards the tip. Nostrils overlapped by the membrane. Wings with the 3rd and 4th quills the longest, the 2nd either equal to or shorter than the 7th, and the 1st not half the length of the 2nd. Tail *short and even*. Tarsus longer than the middle toe and claw; the outer toe not much shorter than the middle, and joined to it at the base; hind toe equal to the middle, its claw large.

CINNYRIS LOTENIUS.

(LOTEN'S SUN-BIRD.)

Certhia lotenia, Linn. Syst. Nat. i. p. 188 (1766).

Cinnyris lotenius (L.), Cuv. Règne An. i. p. 412 (1817); Bonap. Consp. Gen. Av. i. p. 408 (1850); Shelley, Monog. Cinnyr. pt. v. (1877); Fairbank, Str. Feath. 1877, p. 399.

Nectarinia lotenia (L.), Jard. Monogr. Sun-birds, pp. 220, 263, pl. 23 (1842); Blyth, Cat. B. Mus. A. S. B. p. 224 (1849); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 175; Gould, B. of Asia, pt. viii. p. 3, pl. 3 (1856).

Nectarinia letonia (apud Layard) (*errore*), Kelaart, Prodromus, Cat. p. 119 (1852).

Arachnechthra lotenia (L.), Horsf. & Moore, Cat. B. Mus. E. I. Co. ii. p. 743 (1856-58); Jerd. B. of Ind. i. p. 372 (1862); Walden, Ibis, 1870, p. 23; Holdsw. P. Z. S. 1872, p. 434; Swinhoe, Ibis, 1873, p. 229.

* I follow Captain Shelley in using the oldest *family* title for this group, although it has been usually styled Nectariniidæ, after the genus *Nectarinia*, the first established, I believe, for any of the Sun-birds.

Purple Indian Creeper, Edw. Glean. pl. 265 ; *Le Soui-manga pourpre*, Buffon ; *Loten's Creeper*, *Polished Creeper*, *Green-gold Creeper*, Latham ; *The Large Purple Honeysucker*, Jerdon ; *Humming-bird*, *Long-billed Sun-bird*, Europeans in Ceylon.
Ran sutika, *Modara sutika*, *Gewāl kurulla*, Sinhalese ; *Tahn-kudi*, Ceylonese Tamils ; *Tutika*, Portuguese in Ceylon.

Adult male. Length to forehead 4·2 to 4·3 inches ; bill along the culmen about 1·2, from gape across the arc to tip 1·1 to 1·13 ; wing 2·2 to 2·4 ; tail 1·8 ; tarsus 0·6 ; middle toe and claw 0·5 ; hind toe 0·3, claw (straight) 0·15. Iris brown, variable in shade ; bill, legs, and feet black.

Breeding plumage. Head, upper surface, lesser wing-coverts, and cheeks deep metallic green, glossed with purple in a contrary light ; wings and greater coverts umber-brown ; tail black, the edges of the feathers glossed with purplish towards the base ; chin and centre of throat dull metallic purple, contrasting with the bright green of the cheeks, and deepening into metallic lilac on the chest, where it is bounded beneath by a narrow band of maroon-red ; breast and lower parts uniform smoke-brown ; a brilliant yellow tuft on each side of the breast, streaked in some examples with orange-red.

Winter plumage. After breeding the male bird moults, almost entirely assuming the plumage of the female, with the exception of a dark metallic stripe down the fore neck, and the lesser wing-coverts, which remain green ; during the change the plumage is mingled fantastically with feathers of both dresses : one specimen I have examined in change has the upper surface a darker brown than a female, the upper tail-coverts tipped with green and the breast and flanks striped with brown ; there is likewise a metallic purple band across the back.

Female. Length to forehead 3·8 inches ; bill from gape, across arc to tip, 1·0 ; wing 2·15 ; tail 1·6. Iris, bill, and legs as in the male.

Above glossy olive-brown, somewhat darker on the rump than on the back ; wings darker brown, the inner webs darker than the outer, which have fine pale edges ; tail black, the two outer pairs of feathers tipped deeply with dull white, the rest, with the exception of the middle pair, slightly less so ; beneath dull sulphur-yellow, darkening into greyish on the flanks, the yellow of the fore neck abruptly set off down the sides of the neck against the brown of the upper surface ; under wing-coverts yellowish white.

Obs. Ceylon birds of this species are a very little larger, have the bill slightly longer and more curved than, and have not the pectoral tufts so much striped with orange as the Indian race. Captain Shelley does not consider these differences of sufficient weight to entitle our bird to specific rank ; and in this I agree with him. A South-Indian male specimen which I have examined measures 2·18 in the wing and 1·06 across the bill from gape to tip, and the bill is straighter than in Ceylonese birds ; a female has it similarly shaped. The figure of the male bird in Captain Shelley's splendid monograph shows the orange markings of the pectoral tufts as they exist in Indian birds.

Distribution.—*Loten's Sun-bird* is very common in the Western Province, from Puttalam down the coast to Galle and Matara, and inhabits the interior of that side of the island as well in considerable numbers. It is fond of a damp climate, as on travelling round to the dry south-eastern district I found it much less common, it being mostly replaced in that part by the next species. It is found generally throughout the Kandyan Province up to about 3000 feet ; but in Uva ranges to a higher altitude, and ascends from the Fort-Macdonald patnas, in the north-east monsoon, as high as the Hakgala gardens, in which Mr. Thwaites tells me he has observed it. I have not heard of its being seen at Nuwara ELLIYA ; but if it has been rightly identified at Hakgala, it doubtless occurs there occasionally. It occurs on the Morowak-Korale hills. In the north it is much less numerous than *C. asiaticus* ; and Mr. Holdsworth remarks that he never saw it in the Aripu district.

Jerdon writes of this species, "It is common on the Malabar coast, and also tolerably so in the more wooded parts of the Carnatic, as about Madras and other large towns." Messrs. Hume and Davison write to Captain Shelley that it is not found north of lat. 15° in the Indian peninsula, and, further, that "it is a bird of the plains, and does not ascend the hills, but is common in localities such as Calicut, Trichinopoly, Salem, and Madras itself."

In common with several other species, this bird owes its introduction to the scientific world to Governor Loten, who sent home the type specimens from Ceylon, and after whom it was named.

Habits.—Its lively manners, powerful song, and perhaps its remarkably long bill render this species the most showy of the Ceylonese Sun-birds, though in plumage it cannot vie with either of its congeners. It is found in most situations but forest, and is very partial to open bushy land studded with large trees; its love of frequenting gardens and compounds, in the flowering trees of which it finds employment for its long and brush-like tongue, makes it a familiar bird to both European residents and natives; and it always seems to be an object of admiration to the half-clad Singhalese boy who often accompanies the collector in his morning excursions. Besides feeding on the honey and pollen of flowers, it catches spiders and other insects; and one which Mr. Swinhoe shot at Galle in April had a number of small *Pipulæ* (hairy long-legs) in its gizzard. Oleanders and hedge-rows of "shoe-flower" trees (*Hibiscus*) are a favourite resort of this Sun-bird, and it may often be seen, half-flying, half-clinging to the flowers of this fine shrub while it inserts its long bill into the petals and extracts the honey therefrom. The male has a very lively and (for such a small bird) powerful song, which it utters from the tip top of a tree or when seated on some outstretching lateral branch, which is a favourite perch with it. While thus engaged in serenading its soberly clad partner, the bill is pointed upwards, as if to give full vent to its love-song, and its wings are anon opened and shut to add still more to the attractions of an already gay plumage. In India Jerdon writes that it frequents both jungles and gardens, and that he has seen it frequently enter his verandah to feed on spiders.

Nidification.—The breeding-season of this Sun-bird in the south lasts from February until May; and the nest is a pear-shaped, purse-like structure, suspended from a hanging twig. A lime or orange-tree is frequently chosen, and the nest placed about 5 feet from the ground. It is composed of fine grass, interwoven and decorated with bleached leaves and small pieces of bark, which are sown to the exterior with grass split into fine threads, the whole structure measuring about 7 inches by 3; the interior is composed of cotton from the pod, mixed with spiders' webs, and formed into a compact mass. The eggs are two or three in number, of a greenish-grey ground-colour, speckled throughout with two shades of light brown or brownish grey, sometimes forming a zone round the obtuse end. Dimensions—axis 0·64 inch, diameter 0·45 inch.

CINNYRIS ASIATICUS.

(THE PURPLE SUN-BIRD.)

Certhia asiatica, Lath. Ind. Orn. i. p. 288 (1790).

Cinnyris asiaticus (Lath.), Lesson, Man. d'Orn. p. 36 (1828); Shelley, Monogr. Cinnyr. pt. iv. (1877); Fairbank, Str. Feath. 1877, p. 399.

Cinnyris mahrattensis (Lath.), Jerd. Cat. B. S. Ind., Madr. Journ. 1840, xi. p. 224.

Nectarinia mahrattensis (Lath.), Jard. Monogr. Sun-birds, pp. 222, 264, pl. 24 (1843); Kelaart (*Nectarina errore*), Prodromus, Cat. p. 49 (1852).

Nectarinia asiatica (Lath.), Blyth, Cat. B. Mus. A. S. B. p. 224 (1849); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 175; Gould, B. of Asia, pt. viii. pl. 2 (1856).

Arachnechthra asiatica (Lath.), Jerdon, B. of Ind. i. p. 370 (1863); Walden, Ibis, 1870, p. 20; Holdsw. P. Z. S. 1872, p. 434; Hume, Nests and Eggs, p. 151 (1873); id. Str. Feath. 1873, p. 174; Ball, Str. Feath. 1874, p. 396; Legge, Ibis, 1875, p. 285; Morgan, *tom. cit.* p. 315; Hume, Str. Feath. 1875, p. 87; Fairbank, *ibid.* 1876, p. 256; Armstrong, *tom. cit.* p. 313; Hume, Str. Feath. 1878, B. of Tenass. p. 190.

Arachnechthra intermedia, Hume, Ibis, 1870, p. 436.

Neectarinia brevirostris, Blanf. Ibis, 1873, p. 86.

Purple Indian Creeper, Edwards; *The Yellow-winged Creeper*; *Sugar-Creeper*, *Mahratta Creeper*, *Eastern Creeper*, Latham; *The Short-billed Purple Honey-bird*, Kelaart; *The Purple Honeysucker* of some; *Purple Humming-bird*, Europeans in Ceylon. *Jugi-jugi* at Bhagalpur; *Dunbarg* in Sindh, Blyth.

Gewäl kurulla, Sinhalese; *Tahn-kudi*, Ceylonese Tamils.

Adult male. Length to forehead 3·7 inches; bill along culmen 0·73 to 0·77; wing 2·2 to 2·3; tail 1·4; tarsus 0·55; middle toe and claw 0·5.

Iris deep brown; bill, legs, and feet black.

Breeding plumage. Head, back, scapulars, lesser wing-coverts, upper tail-coverts, and the sides of the neck and throat brilliant metallic green, glossed on the back and upper tail-coverts with purple, the basal portion of the feathers on all these parts being black, and the metallic hue confined to the terminal parts; wings dark brown, the greater coverts and secondaries edged with purple; tail black, glossed with purple, and the feathers edged towards the base with green; chin, centre of throat, and chest lilac-purple, glossed with green, and changing into metallic blue on the chest; across the breast a narrow dull maroon band; beneath this to the under tail-coverts black, glossed with purple, which is glossed in some lights with green; under tail-coverts broadly margined with purple; on the sides of the breast, concealed beneath the closed wing, a bright yellow tuft, streaked with orange-red.

In those specimens which have come under my notice in Ceylon the maroon pectoral band has always been present, but, as I have not examined a large series, it may be absent in some birds. Captain Shelley says that he has found it thus in about half the examples he has seen, irrespective of locality.

Non-breeding plumage. Head, back, scapulars, and upper tail-coverts mouse-grey, with a short yellowish-white supercilium; wing black, the lesser coverts edged with metallic green, the greater series and the inner secondaries with purple; tail black, edged with metallic green; under surface variable, in some rather bright yellow, in others whitish tinged only with yellowish; a broad stripe of purple from the chin down the fore neck and breast; thighs dark brown.

This plumage in Ceylon is acquired in November and December in the Western Province; and, while in a state of moult, specimens are procured with both upper and under surface mingled with summer and winter feathers; the broad throat-stripe becomes clearly defined before the breast loses the metallic feathers.

Adult female. Similar to the male in size. Above olive-brown like the last species, with a narrow supercilium of yellowish white; wings brown, edged with a paler line; tail blackish, the outermost feathers deeply tipped with white, and the rest successively less so towards the centre; beneath whitish, tinged with yellow on the chest.

Young. I have no specimens; but Blyth describes the young as being dark olive-green above and tolerably bright yellow on the underparts; wings dusky, with brownish margins to the tertials; tail black and its exterior feathers tipped with whitish.

Obs. Although I have not detected any difference in the size of the bill in different individuals in Ceylon, this species is subject to considerable variation on the continent in this respect, as well as in the colour of the gloss on the upper parts. In Ceylon this is undoubtedly green and not purple. In birds from Rangoon, according to Mr. Hume, the purple hue is chiefly developed; whereas it would appear that in the Baluchistan variety, described by Mr. Blanford as *C. brevirostris*, the upper surface is very green; but here, again, Mr. Hume remarks that many Indian examples are absolutely inseparable from Mr. Blanford's. As regards size, the type of the Persian or western variety quite equals Ceylon birds. Mr. Blanford's measurements are:—Total length 4.5 inches; wing 2.2; bill to gape 0.67; but, notwithstanding, it is stated to be smaller than typical *C. asiaticus*. Mr. Hume once separated the birds from Tipperah and other eastern parts, as well as those from the south of the peninsula, as *C. intermedius*, as he considered them to have larger bills and to be more brilliantly coloured; but neither he nor Captain Shelley now consider these species distinct from the true *C. asiaticus*, which may be said simply to vary in size of bill and colour according to locality. Mr. Hume gives it as his opinion that western birds from the dry-plains country run smaller and greener, while those from the well-watered eastern and southern regions run, as a rule, larger and purpler. To this I would add, as already stated, that Ceylon birds are also characterized by their green upper surface.

Distribution.—This Sun-bird is perhaps more local in its distribution than the last species. It is common in certain districts in the Western Province wherever the country is open and bush-covered, and is accordingly an inhabitant of the environs of Colombo. In the south-west it occurs rather sparingly; but in the scrubby country beyond Hambantota, as well as in many parts of the Eastern Province and in the north generally, it is common in spots which suit its habits. Near Trincomalie and in the Jaffna peninsula I found it more numerous than the last; along the west coast, and in the island of Manaar, as well as in the islands of Erinitivoe, I likewise found it. Mr. Holdsworth records it as common at Aripu, and he procured it at Nuwara Eliya in October. It inhabits the eastern parts of the Kandyan Province, and finds its way to Hakgala and Nuwara Eliya from the Fort-Macdonald district.

On the mainland it has a very wide range. Captain Shelley thus epitomizes its habitat on the continent:—"India, northward to the Himalayas; westward it extends through Sindh and Baluchistan to the confines of Persia, and is possibly to be found in Southern Arabia. To the eastward it ranges through Assam, Tipperah, Chittagong, Arrakan, Burmah, and Tenasserim, but in this direction has not been collected southward of the river Yé."

As regards its *locale* in the Himalayas, Mr. Hume has obtained it far into the range "in the valley of the Beas, almost at the foot of the Rohtung pass, in the valley of the Sutlej as far as Chini, in the valley of the Ganges, or rather Bhagirati, to within four or five marches of Gangotri;" but eastward of this he did not observe it at any distance from the plains. Blyth states that it arrives at Calcutta in the cool season, and leaves that district before breeding-time; he considered it (J. A. S. B. xii. p. 978) to be only a summer visitant to Nepal. Mr. Hume found it common all over Sindh; and in Kattiawar it is, according to Capt. Lloyd, abundant. In the Mount-Aboo district Capt. Butler found it common both on the hills and in the plains. Mr. Ball gives the like testimony concerning Chota Nagpur. Dr. Fairbank found it abundant in the vicinity of Khandala, and "common at the base of the Palanis and on the plains." In the Nilghiris it is numerous, and breeds, according to Mr. Morgan, as high as 6000 feet. In open jungle near the foot of the Travancore hills it, according to Mr. Bourdillon, "occurs abundantly." It is found in Ramisserum Island; and I may here remark that in perusing Mr. Hume's article on the avifauna of that group ('Stray Feathers,' 1876, p. 458), Captain Shelley has misread this locality for the Laccadive Islands, in which it does *not* appear to occur.

Mr. Blanford met with his short-billed variety near the Mekran coast, and remarks that "it is very

probably confined to Baluchistan and the low portion of Fars, in Southern Persia, perhaps ranging along the north-east coast of the Persian Gulf; but it has not been obtained in the neighbourhood of Bushire or Shiraz." He goes on to say that near Maskat, in Arabia, he saw a *Nectarinia* which may have been this species. In Tenasserim Mr. Davison says it occurs from Pahpoo to about Yea, the most southerly point where he ever observed it being about a day's march north of the river Yea.

Habits.—This beautiful species has very similar habits to the last; but it does not seem to frequent large trees as much. It is very lively in its actions, fluttering and poising itself over flowers while it extracts the nectar from them, and is constantly giving out its sharp but not unpleasant little chirping notes; its song in the breeding-season is not so loud nor so varied as that of its larger relative. It feeds on small flies and insects, especially spiders, as well as honey; and it is constantly opening and closing its wings, both when flitting about the branches in search of food and when singing in a state of rest on some prominent twig. Blyth remarks that he has taken so large a spider from its stomach that he wondered how it could have been swallowed.

Out of the breeding-season I have observed that the male birds associate together in little troops, and they may be seen in a variety of different plumages while moulting.

Nidification.—In the south of the island the Purple Sun-bird breeds in April, May, and June, but in the north it nests as late as August. In this month Mr. Holdsworth writes of a nest being constructed in the verandah of his bungalow at Aripu:—"It was fastened," he says, "to the end of an iron rod hanging from the roof and once used for suspending a lamp. The birds showed very little fear, although I was for several days sitting within a few feet of the nest, engaged in the preparation of specimens." The nest is generally suspended from the outspreading branches of a shrub or from the lateral down-hanging boughs of small trees; it is, like the last described, made of grass interwoven with hairs and covered often with spiders' webs; it is pear-shaped, tapering to the point of suspension, and with the opening near the top and shaded with a little hood which projects slightly; the interior is lined with cotton and feathers. Layard, in referring to the nest being artfully concealed with cobweb, writes that he has "seen the spider still weaving her toils, having extended the web to the surrounding branches, thus rendering the deception still more effective; and it would seem that the birds were aware of it and left their helper undisturbed." In his exhaustive article on the nesting of this Sun-bird Mr. Hume thus describes the construction of the nest:—"A little above the centre of the oval a small circular aperture is worked, and just above it a projecting cornice, 1 to 1½ inch wide, is extended; then—on the opposite side of the oval—the wall of the nest, which is ready some days before the eggs are laid, is pushed or bulged out a little so as to give room for the sitting bird's tail. The bulging out of the back of the nest is one of the last portions of the work, and the female may be seen going in and out, trying the fit, over and over again. When sitting, the little head is just peeping out of the hole under the awning." Nests which are not built in a perpendicular direction appear not to be provided with this hood or awning. We gather from the article in question that the nest is constructed in the most varied situations, as, indeed, Mr. Holdsworth's experience in Ceylon proves. In India verandahs seem to be frequently chosen; and consequently, being so much under observation, few birds have had so much written concerning their nesting habits. Mr. Adam observes that they are very fond of tacking on pieces of paper, light-coloured feathers, &c. to the outside of the nest, and that, in one instance in which he watched the construction of a nest, the male "never assisted the female in the slightest degree; he seemed exceedingly happy, fluttered every now and then about the nest, and after each careful inspection he was so seemingly pleased with the handiwork of his mate that he perched on an adjoining branch and poured forth a joyous strain, flapping his wings and making his axillary feathers rotate in the most extraordinary manner." Two is the usual number of eggs, but sometimes three are laid; the ground-colour is greenish white, and they are closely marked with small specks of brownish and greyish brown; these markings are generally almost confluent at the large end. Mr. Hume gives the average size of fifty eggs as 0.64 by 0.46 inch.

CINNYRIS ZEYLONICUS.

(CEYLONESE SUN-BIRD.)

Certhia zeylonica, Linn. Syst. Nat. i. p. 188, "Ceylon" (1766).

Cinnyris zeylonicus (L.), Bonap. Consp. Gen. Av. i. p. 409; Shelley, Monogr. Cinnyr. pt. i. (1876); Hume, Str. Feath. 1877, p. 270; Fairbank, *t. c.* p. 398.

Nectarinia zeylonica (L.), Jard. Monogr. Sun-birds, pp. 213, 261, pl. 20 (1843); Blyth, Cat. B. Mus. A. S. B. p. 226 (1849); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 174; Gould, B. of Asia, pt. xix. pl. 4 (1867).

Leptocoma zeylonica (L.), Horsf. & Moore, Cat. B. Mus. E. I. Co. ii. p. 740 (1856); Jerdon, B. of Ind. i. p. 368; Hume, Nests and Eggs, i. p. 147 (1873); Ball, Str. Feath. 1874, p. 396; Legge, Ibis, 1875, p. 275.

Nectarophila zeylonica (L.), Walden, Ibis, 1870, p. 37; Holdsw. P. Z. S. 1872, p. 434; Morgan, Ibis, 1875, p. 315.

Cinnyris zeylonica, Davidson & Wender, Str. Feath. 1878, vii. p. 79.

Ceylonese Creeper, Latham; *The Amethyst-rumped Honeysucker*, Jerdon; *Humming-bird* of Europeans.

Mal sutika, lit. "Flower Honey-bird," Sinhalese; *Than-kudi*, lit. "Honey-feeder," Ceylonese Tamils.

Adult male. Total length 4.1 to 4.5 inches; wing 2.05 to 2.15; tail 1.35; tarsus 0.6; middle toe and claw 0.45 to 0.48; bill from gape across to tip 0.64 to 0.7. Some hill-specimens are more robust than those I have obtained in the low country, but do not measure larger in the bill.

Iris red and variable in tint from brick-colour to vermilion; legs and feet black.

Head above to the nape, together with the point of wing, brilliant metallic green; hind neck and its sides, upper back, scapulars, and a band across the chest deep maroon-red, the feathers at the origin of the scapulars metallic bronze; lower back, rump, and upper tail-coverts brilliant amethystine purple; wings brown, edged, except on the outer primaries, with dull ferruginous red; tail dull black, the lateral feathers with pale tips; chin, throat, and cheeks metallic purple-bronze; beneath, from the maroon pectoral band, primrose-yellow, paling to white on the flanks and under wing-coverts; under tail-coverts washed with yellow.

Some specimens have the green of the head tinted with amethystine (the centre portion of the feather being of this colour), and the amethystine of the rump glossed with brilliant metallic steel-blue; some specimens, again, have the two outer tail-feathers tipped whiter than others.

Female. Total length 3.95 inches; wing 2.0; bill, gape to tip (straight) 0.65.

Iris brick-red, in some as intense as in the male; bill, legs, and feet blackish brown.

Upper surface greyish brown, washed with greenish on the back; wings edged with duller rufous than in the male: a pale supercilium; chin and throat greyish white; breast washed with yellow; two outer pairs of rectrices tipped white.

Young (nestling: coll. Shelley, India). Bill 4.6 inches across arc to tip; wing 1.65.

Head and back olivaceous brown; a faint light supercilium; wings plain brown, the secondaries faintly edged with yellowish brown; longer upper tail-coverts and tail blackish, the outermost feathers smoky white, the next two tipped with the same colour; beneath primrose-yellow, tinted with greenish; the throat albescent.

Young male. "Similar to the adult female, excepting that it is less ashy above and slightly more olive-brown in colour; the eyebrows yellowish; chin, throat, and under tail-coverts sulphur-yellow." (Shelley, Monogr.)

Obs. I much neglected the collecting of these beautiful birds while in Ceylon, their lovely plumage, as far as I was concerned, generally ensuring their safety! I therefore procured no very young birds; but, in addition to the fact

that Jerdon affirms the throat of the young male to be more yellow than that of the female, Captain Shelley states, in his excellent article on this species, that the specimen labelled "Juv. ♂, Malabar," from which he took his description, had "one metallic-coloured feather on the throat, indicating that it would have assumed the adult male plumage." It is certainly a very interesting character in its plumage that the young male should only differ from the female in the colour of the throat being yellow. I myself obtained a specimen in August which had a metallic throat mingled with yellow feathers; the plumage of the head and back was mixed with dove-grey feathers, but the amethyst rump was not. I take this bird to have been changing to the adult stage from immature plumage. Indian birds have the bill longer, and are slightly larger than Ceylonese, but do not differ from the latter in the character of their plumage.

Males in Captain Shelley's collection measure 2.15, 2.2, 2.23, 2.25 in the wing; bill from gape across to tip 0.72, 0.75, 0.65, 0.68. In some the bills are more eurved than in my specimens, in others slightly straighter.

Distribution.—The "Ceylonese Sun-bird" is a very abundant species with us; it is found throughout the whole island, but is particularly numerous in the western, southern, and lower parts of the Kandyan Province. About Colombo it is one of the most familiar of Ceylon birds, but it likewise frequents the forests of the interior, and its numbers do not seem to diminish towards the north. I found it tolerably plentiful in the Jaffna peninsula; but Mr. Holdsworth did not meet with it at Aripu, the country, perhaps, there being of too arid a nature for it; it occurs, however, in the south-east of the island, a district inhabited by other typical northern-province birds—*Pyrrhuloxia grisea*, *Munia malabarica*, *Merops swinhoii*, and others; and it is, no doubt, only locally absent from the neighbourhood of Aripu. It inhabits the Trincomalee and Batticaloa districts, and is found throughout the northern forest tract. At Uswewa, in the Puttalam forests, Mr. Parker says it is common; and adjoining this section of country I have met with it in the Seven Korales. In the north-east monsoon season it ascends to the vicinity of the Nuwara-Eliya plateau, occurring not unfrequently in the Hakgala gardens. I did not see it at Nuwara Eliya; but I have no doubt that it may occasionally be seen, as a cool-season visitant, in the gardens of the residents there.

Concerning its distribution in India I cannot do better than subjoin here Mr. Hume's note on the subject which he published (Str. Feath. 1877, p. 270) in reference to Capt. Shelley's article (*loc. cit.*):—"It may generally be stated that this species is confined to Southern and Eastern India. It does not occur, as far as we know, in Sindh, Kutch, Kattiawar, Rajpootana, the Punjab, the North-west Provinces, Oudh, Behar, the Central Indian Agency, nor in the major portion of the Central Provinces, though in these latter it has been observed occasionally near Chanda, and is common in the Raipoor and Sumbulpoor districts. It does not extend to any part of British Burmah. It is normally a bird of the heavier rainfall and better-wooded provinces, though it certainly occurs in the comparatively dry uplands of the Deccan. It never ascends any of the mountain-ranges, to the best of our belief, to any considerable elevation, but is essentially a bird of the plains country. With this reservation its range may be said to include Travancore, Cochin, the whole Madras Presidency, Mysore, Hyderabad, the Bombay Presidency south of 20° N. lat., the southern portions of Behar, and the Central Provinces to about the same latitude, Raipoor, and the eastern states of these provinces, Orissa, the tributary Mehals, Chota Nagpur, and Lower Bengal, west of the Burrumpooter. I have never seen it from any of the districts east of this, *i. e.* Chittagong, Cachar, Tipperah, or Sylhet, though at Dacca, immediately west of this river, it is common. Nor have I seen it from Assam, though said to occur there, and though Godwin-Austen records a specimen from the Khasya hills."

Mr. Bourdillon does not appear to have noticed it in the Travancore hills, and the Rev. Dr. Fairbank only obtained it at the eastern base of the Palanis; yet it is common at no inconsiderable elevations in Ceylon.

Habits.—There is no more beautiful occupant of the bungalow-grounds, which make the environs of Colombo so pretty, than this lovely little creature. Attired in a plumage rivalling in splendour the gorgeous dress of the Humming-birds of South America and the West Indies, it may well be styled a "Humming-bird" by European residents in Ceylon. On almost every fine morning of the year it may be seen coming to the verandahs of the houses in the cinnamon-gardens, where it gathers nectar from the flowers which hang from the trellis-work, or snaps up the ill-starred spider as he diligently draws out his silken web in the rays of the morning sun; in other grounds equally pleasant, but not provided with such a favourite resort as these luxuriant creepers, it may be observed darting about among the handsome *Hibiscus*-shrubs, its metallic-plumaged

head and back glistening in the powerful sunlight, and exciting, perhaps, the warm admiration of some "new arrival" from England, who, rising from the morning tea-table, seeks the luxury of a pipe in the welcome long chair of eastern climes. But it frequents a variety of situations; it may be found in the tallest primeval forest or on the borders of isolated woods hung with creepers, in the flowers of which it finds the same sustenance as in the bungalow compound. Besides feeding on nectar it is very partial to small insects of all sorts; and, out of the breeding-season, flocks of young birds, and perhaps females, may be seen searching among the branches of forest-trees for food, unaccompanied by a single metallic-plumaged bird. At such times I have more than once, when I had left behind my binoculars, dropped specimens with a charge of dust-shot from the upper boughs of some noble keena-tree in the southern forests, or from an equally magnificent "koombok" overhanging the broad sandy bed of an eastern-province stream, and, expecting to pick up either of the much-sought-after "Flowerpeckers" of the island, been disappointed at finding that the little troop consisted of nothing but these Sun-birds. Had I taken the trouble to carry home some of these examples, my collection would have doubtless been enriched by the acquisition of birds in immature plumage. The song of this species is a lively pretty little chirping, which it constantly utters with a raising and shutting of its wings.

The males are most pugnacious; and, bearing on this point, Layard has an interesting note on the habits of this and the other Sun-birds of Ceylon; he writes (*loc. cit.*), after speaking of their visits to his verandah, "they would then betake themselves to the trellis supporting the passion-flowers, or to the branches of a pomogranate close by, where they pruned themselves and uttered a pleasing song. If two happened to come to the same flower, and from their numbers this often occurred, a battle always ensued, which ended in the vanquished bird retreating from the spot with shrill piping cries, while the conqueror would take up his position upon a flower or stem, and swinging his little body to and fro, till his coat of burnished steel gleamed and glistened in the sun, pour out his note of triumph. All this time the wings were expanded and closed alternately, every jerk of the body in *Nectarinia asiatica* and *N. lotenia* disclosing the brilliant yellow plumelets on either side of the breast."

Nidification.—The breeding-season lasts from November until July, during which time probably two broods are raised. I have taken the eggs in the north in November and in the south in December. The nest is a beautiful little structure, purse-shaped, and about 5 inches in length by 3 in breadth, and is attached to a pendent twig of a thorny shrub, generally about 4 or 5 feet from the ground. The exterior is composed of various materials, nests differing much in external appearance. They are generally constructed of fine grass or moss, decorated with small pieces of twig, bark, or decaying wood, which are fastened on with cobwebs and interlaced with lichens, white mosses, and such like—one nest, found near the shore of a salt lake, being covered with small pieces of bleached weed collected from the dry mud on the shore. The opening into the interior, which is composed of fine cotton, and sometimes strengthened with very fine grass, is just above the centre and shaded with a tiny hood; the depth of the egg-chamber is about 2 inches, and the diameter $1\frac{1}{4}$. The eggs are usually two, but sometimes three in number; large for the bird, rather stumpy ovals in shape, and of a dingy whitish or pale greenish or greenish-white ground, freckled with fine spots of greenish or olive-brown, which are often confluent round the obtuse end, and underlaid with small blotches of a lighter hue. The average dimensions are about 0.63 inch in length by 0.48 inch in breadth.

From 'Nests and Eggs' we glean that in India the breeding-season lasts from February until August, and that two broods are reared. The nest is constructed of the same materials as in Ceylon—vegetable fibres, cobwebs, chips of bark, dry petals of flowers, moss, cocoons, &c., and the interior felted with cotton-down. It is built sometimes as high as 30 feet from the ground.

The average size of the eggs is stated to be 0.65 inch by 0.47.

CINNYRIS MINIMUS.

(THE TINY SUN-BIRD.)

Cinnyris minima, Sykes, P. Z. S. 1832, p. 99; Jerdon, Cat. B. S. India, Madr. Journ. 1840, xi. p. 226.

Nectarinia minima (Sykes), Blyth, Cat. B. Mus. A. S. B. p. 226 (1849); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 175.

Nectarinia minuta, Jard. Mongr. Sun-birds, pp. 224, 265, fig. titlepage (1843).

Nectarinia minuta (errore), Kelaart, Prodromus, Cat. p. 119 (1852).

Nectarophila minima (Sykes), Walden, Ibis, 1870, p. 40; Holdsw. P. Z. S. 1872, p. 434.

Leptocoma minima, Horsf. & Moore, Cat. B. Mus. E. I. Co. ii. p. 472; Jerdon, B. of Ind. i. p. 369 (1863); Hume, Nests and Eggs, i. p. 150 (1873); Fairbank, Str. Feath. 1876, p. 265; Bourdillon & Hume, *t. c.* p. 392.

Cinnyris minimus, Shelley, Mongr. Cinnyr. pt. iv. (1877); Fairbank, Str. Feath. 1877, p. 398.

The Tiny Honeysucker, Jerdon, B. of India.

Adult male (Travancore). "Length 3·5 to 3·7 inches; wing 1·8 to 1·81, expanse 5·37 to 5·62; tail 1·0 to 1·1; tarsus 0·48 to 0·5." (*Hume.*)

Iris brown (light hazel, *Fairbank*); bill, legs, and feet black.

Adult male. "Forehead and crown metallic green; lores, cheeks, and ear-coverts black; back and sides of the neck, upper back, scapulars, and least and median series of wing-coverts dark red; lower back, rump, and upper tail-coverts bright red, strongly glossed with steel-blue, making these parts in certain lights appear rich metallic lilac; remainder of the wings and tail brownish black; chin and throat metallic lilac; crop and front of the chest dark red; remainder of the breast, abdomen, thighs, and under tail-coverts yellowish white; pectoral tufts sulphur-yellow; under wing-coverts and inner margins of the quills white." (*Shelley.*)

In *non-breeding plumage* Messrs. Hume and Davison state that the males assume the garb of the female, except that they "retain invariably the amethystine-glossed rump, and usually a little red about the shoulder of the wing." A male in this stage in Captain Shelley's collection measures:—wing 1·9 inch; tail 1·2; tarsus 0·5; middle toe with its claw 0·4; bill across arc to tip 0·52.

Head, hind neck, and interscapular region brownish olive, brightest on the forehead and crown; lower back, scapulars, tips of lesser wing-coverts, and rump rich maroon-red; upper tail-coverts the same, but brighter and illumined with metallic lilac; wings deep brown; tail black-brown; beneath from the chin to the under tail-coverts primrose-yellow, with a dusky wash across the chest.

Adult female. Wing 1·75 inch.

Above with the wing-coverts olive-brown, like the male in non-breeding plumage; wings dark brown; the primaries edged pale; rump and upper tail-coverts dull maroon-red; tail blackish brown, edged with fulvous-brown; beneath pale yellowish.

Young male. "Differs from the adult male in having the upper half of the head and neck olive, and the entire underparts very pale yellow." (*Shelley.*)

Obs. I quote the following interesting information from Messrs. Hume and Davison's notes to Capt. Shelley respecting the change of the male to the non-breeding dress, and from which it will appear that the female attire is donned for a short time only:—"About April some of the males begin to doff the brilliant nuptial plumage; early in May some may be obtained in full non-breeding plumage; but during May some may still be obtained in the nuptial garb. In June most of the birds have assumed the complete non-breeding dress; but a few will still be found that have only partially moulted. After the first of July not a bird is to be seen in the nuptial dress. During September they begin to assume their wedding garb; by the end of that month a good many males are in perfect plumage; and by the middle of October every bird is in the gay nuptial attire."

Distribution.—The only records which we have of the occurrence of this lovely little bird in Ceylon are contained in the catalogues of Messrs. Layard and Holdsworth. The former says *Nectarinia zeylonica* is replaced in the north by *N. minima*, and the latter states that it “is occasionally seen about Colombo.” For my own part I searched diligently for it the whole time I was in the island, but never saw it and never met with any one who was acquainted with it. It does not certainly occur in the Trincomalie district, and on two visits to Jaffna I failed to observe it; so that I am led to believe that Layard, when he used the word north, referred to Pt. Pedro, where he resided. I have not visited Pt. Pedro; but in other parts of the Jaffna peninsula I found the last species common enough. My friends Messrs. F. Gordon and W. Murray, who have both collected much in Jaffna, have never met with it to my knowledge; and up till the receipt of my latest advices it had not been obtained at Colombo by any one since I left the island in 1877. It is therefore strange that Layard found it so common as to replace *C. zeylonicus* in the north. Its occurrence in Ceylon is one of the many points which require attention at the hands of naturalists in Ceylon.

Messrs. Hume and Davison state that it is common in all the hilly tracts of the peninsula, in the Ghâts, as at Matheran (above Bombay), and Mahabaleshwar, all over the Nilghiris, in the Wynaad, and the hills of South Travancore. In this latter locality Mr. Bourdillon found it common at the edges of forest; and Dr. Fairbank observed it from 4000 feet to the top of the Palanis; he likewise records it from the western slopes of the Ghâts at Khandala, Mahabaleshwar, and the Goa frontier.

Habits.—From the writings of naturalists in India we gather some information of considerable interest touching the economy of the Tiny Sun-bird. Mr. Bourdillon remarks as follows:—“It is slightly gregarious in habit, three or four hunting about together amongst the boughs of some gamboge-tree, which is a tree they seem particularly to like. They are not at all shy, and when sitting quiet in brushwood I have seen them perch inquisitively within a few feet of my face.” The following interesting account is from the notes supplied to Capt. Shelley by the writers already mentioned:—

“Though not strictly migratory, this species moves about a great deal; and though there are places in the Neilgherries, at elevations of 5000 or 6000 feet, where some may be seen at all seasons of the year, the mass of them move higher in summer, and descend a great deal lower in the winter. Thus in the Chinchona plantations at Neddivuttum, at an elevation of about 6000 feet, some specimens may be seen at all seasons; but it is not till the first burst of the south-west monsoon, between the 10th and 15th of June, that a single bird is to be seen higher up at Ootacamund. After this they swarm in every garden where there are flowers, and especially about the apple-blossoms of the orchards. By the end of October they have all left Ootacamund, and have descended to a lower level, while, again, in January and February they abound at the base of the hills, as in the Moyar valley, in the Wynaad.

“They are very restless, active little birds, hopping about ceaselessly from twig to twig and flower to flower, and using their legs probably more than their wings, keeping up all the time a soft uninterrupted *chip, chip, chip*; very rarely, if ever, are they seen poised Humming-bird-like in front of any flower. So far as our observations go they always perch to feed, and probably feed quite as much on insects as on nectar. They may be often found in low brushwood, especially in the thickets of the wild raspberry and along the outskirts of all the sholas, or strips of jungle which run down every ravine on the hill-side. About the Chinchona plantations they are so numerous when the trees are in flower in November, you might probably shoot a dozen specimens any morning off a single tree.”

Nidification.—Mr. Davison writes to Mr. Hume (‘Nest and Eggs,’ 1874, p. 150) that the Tiny Honey-sucker breeds on the slopes of the Nilghiris in September and during the early part of October. “I have seen,” he says, “young birds only just able to fly about the middle of October. The nest is suspended to a twig about 4 or 5 feet from the ground; it is similar both in shape and materials to that of *Leptocoma zeylonica*, but considerably smaller. They lay two eggs.” Mr. Hume describes the eggs as “perfect miniatures of some of the eggs of *Arachnechthra asiatica*; in shape they are somewhat elongated ovals, a good deal compressed towards one end. They have scarcely any gloss. The ground-colour is dull greenish or greyish white, and it is thickly speckled and mottled all over, mostly so towards the larger end (where the spots have a tendency to become confluent and form a zone), with dull greyish white and olivaceous brown. The eggs measure 0.62 by 0.42 inch.”

PASSERES.

Series B. TANAGROID PASSERES.

Wing with 9 primaries, the 1st of which is fully developed and very long.
(Cf. Wallace, Ibis, 1874, p. 410.)

Fam. DICÆIDÆ.

Bill variable, moderately short and wide at the base; curved and compressed in some, in others very thick and triangular, with the lower mandible inflated at the gonys. Wings pointed, with the 1st quill long. Tail of 12 feathers, usually very short, always less than the wings. Legs and feet strong. Tarsus scaled.

Of small size and of arboreal and mostly gregarious habit.

Genus DICÆUM.

Bill high and wide at the base, suddenly compressed beyond the nostrils, the upper mandible curved throughout, tip entire and very acute; gonys straight. Nostrils basal, oval, and placed close beneath the culmen. Wings with the 1st, 2nd, and 3rd quills nearly equal and longest. Tail very short and even at the tip. Tarsus longer than the middle toe and claw, and shielded with broad transverse scales; outer toe slightly longer than the inner; hind toe and claw large.

DICÆUM MINIMUM.

(TICKELL'S FLOWERPECKER.)

Nectarinia minima, Tickell, J. A. S. B. 1833, ii. p. 577.

Dicæum minimum (Tick.), Blyth, Cat. B. Mus. A. S. B. p. 227 (1849); Jerdon, B. of Ind. i. p. 374 (1862); Beavan, Ibis, 1865, p. 416; Holdsw. P. Z. S. 1872, p. 434; Hume, Nests and Eggs, p. 155 (1873); Ball, Str. Feath. 1874, p. 397; Legge, Ibis, 1875, p. 275; Fairbank, Str. Feath. 1876, p. 256.

Dicæum tickellie, Blyth, J. A. S. B. 1843, xii. p. 983.

Dicæum tickelli, Kelaart, Prodromus, Cat. p. 119 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 175.

“*Parasite-bird*,” Europeans in Ceylon. *Sungti-pro-pho*, Lepchas (Jerdon).

Adult male. Length 3·4 inches; wing 1·85 to 1·95; tail 0·95; tarsus 0·45 to 0·5; middle toe and claw 0·4; bill to gape 0·45.

Female. Length 3·3 inches; wing 1·7 to 1·75.

Iris yellowish brown or brown; bill dark brown above, the lower mandible fleshy; legs and feet brownish slate. Above olivaceous brown, slightly greenish on the rump; wings brown, the coverts and tertials with slightly paler margins; tail blackish brown; lores and cheeks albescent, darkening on the ear-coverts; beneath whitish, with a

dusky wash on the sides of the chest, and becoming flavescent on the centre of the breast and belly; flanks cinereous.

In some examples the secondaries are edged with olivaceous.

Young. Iris darker brown than in the adult, with a slaty outer circle; upper mandible tinged with yellowish, and its margin, together with the under mandible, yellowish.

Above more olivaceous than old birds; quills and wing-coverts edged greenish; throat and fore neck duskier than in adults.

Obs. I have not been able to compare Ceylonese examples with many from the mainland. A specimen in the national collection, marked "India," measures 1.95 inch in the wing, and 0.41 from gape of bill to tip. It is somewhat more olive-coloured on the back and rump than my specimens, but corresponds otherwise with them.

An allied species to this is *D. concolor* from South India, an inhabitant of the Nilghiris and other peninsular ranges. It is larger than *D. minimum*, and is, according to Jerdon, more albescent beneath. Dr. Fairbank remarks that it frequents a parasitical *Loranthus* which grows on the Australian Blackwood (*Acacia melanoxylon*), and gives the measurements of a female as follows:—Length 3.6, wing 2.1, tail 1.0, tarsus 0.55, bill from gape 0.5. This species might possibly occur in Ceylon. These Flowerpeckers are seldom shot, and it may have been passed over.

I should perhaps likewise notice another species described of late years from the Andamans, belonging to the subgroup containing the two species already referred to here. This is *D. virescens*, Hume (Str. Feath. 1873, p. 482). It "differs from *D. minimum* in its somewhat longer bill, which is very differently coloured, in the much greener hue of the upper surface, and in the olive-yellow tinge of the rump, upper tail-coverts, and abdomen. It is considerably smaller than *D. concolor*, is of a purer and lighter olive-green, and differs from that, as from *D. minimum*, in the rump and upper tail-coverts. Length 3.1 to 3.4 inches, wing 1.75 to 1.85."

Distribution.—This tiny bird is very numerous in Ceylon, and inhabits the whole island, irrespective of climate or elevation. It seems as much at home in the damp cool jungles of the Horton Plains as in the hot forests of the Northern Province or the warm humid "Mukalaney" of the south. It is found as plentifully near the sea as in the interior, and is very common in the cinnamon-gardens of Colombo.

It occurs, according to Jerdon, "throughout lower Bengal and the jungles of Central India, extending to the Himalayas, Assam, and Arakan. Blyth observed it in extreme abundance in the hill-jungles about Moulmein. It is also found, though rarely, in Southern India, being there replaced by *D. concolor*."

As it is so abundant in Ceylon, it is strange that it should be rare in the adjoining part of the mainland; but in this respect it, after all, only forms one of the many curious instances of the affinity of the avifaunas of Ceylon and Northern India. The Rev. Dr. Fairbank found it common on the western slopes of the Sahyadris, and near Bombay and Poona it is, according to Mr. B. Aitken, very numerous. Mr. Ball remarks that it is found in Sal-jungle in most parts of Chota Nagpur, though it is not very common anywhere. Captain Beavan recorded it as plentiful near Maunbhoom in the breeding-season.

Habits.—This Flowerpecker, which is the smallest of Ceylon birds, frequents the parasitic plants (*Loranthus*?) which grow on various trees throughout the island, none of which are so infested with this singular vegetable growth as the Cadju (*Sarcoclinium longifolium*). It may consequently always be met with where there are many of these trees, about the leaves and smaller branches of which it flits when it is not gorging itself on the berries of the parasite. In the forests it affects the various creepers, some of them of the *Pandanus* tribe, which entwine the trunks of large trees. It is usually a solitary bird; I have sometimes seen more than two in the same tree, but such is an exception to the rule. It is very active, springing from branch to branch of the thick bunches of parasitic plants, and then darting off to another tree with a quick dipping flight, uttering its sharp little monosyllabic chirp while on the wing. It appears, from personal observation, to be entirely frugivorous; and feeding so gluttonously on its favourite berries, it becomes stupefied to such an extent that it may sometimes be almost taken with the hand before flying off. Its bill is generally stained with the juice of some sort of berry or fruit whenever it is shot; and I have never detected any trace of insect-food in the crop of those I have procured. It is, however, said by Indian writers to be insectivorous; for Beavan writes (*loc. cit.*), "It has a weak piping note, and is met with in heavy jungle, in thick trees, busily engaged seeking amongst the leaves for insects."

Nidification.—The breeding-season in the Western Province, as well as I can ascertain, is in July and August; but the nests are so rarely found (Mr. MacVicar, of the Survey Department, and a very successful egg-hunter, being, I believe, the only person who has discovered it) that it would not be safe, with so little evidence in the matter, to restrict the season to any particular month. This gentleman, who found one nest in August containing three young birds, described it to me as being a beautiful little cup-shaped structure, suspended, about 7 or 8 feet from the ground, to the twig of a Cadju-tree, constructed of wild cotton, mingled with cobwebs and lichens, and about $1\frac{1}{2}$ " in interior diameter. Subsequently he writes me of having found another, which was hanging to the branch of a wild cinnamon-bush growing in a fence. This one was formed outside of "some soft substance like tow, with a few pieces of bark and some spiders' webs; the inside was entirely lined with white 'cotton.' It measured 4 inches in length and $2\frac{1}{4}$ in breadth, external dimensions." It contained an egg, on which the bird was sitting when the nest was found, and which is stated to be white, speckled with minute brownish specks. In India, Messrs. Beavan and Aitken have both taken the nests and eggs, and describe the latter as white. I am, notwithstanding, sure that my informant, who knows the bird too well to mistake it, is right in his identification of the speckled egg just noticed. Mr. Hume thus speaks of the nest found by Mr. Aitkin, "It is a beautiful little 'egg,' suspended by the pointed end (which is slightly, and only slightly, extended) from the point of junction of three slender twigs. The length of the nest is exactly 3 inches, the greatest breadth 1.7 inch. In front, from near the point of suspension to the middle of the nest, is an oval aperture 1.25 inch in length and nearly 1 inch in breadth. The whole nest is composed of the silky pappus of some asteraceous plant, or it may be of the silky down of the *Calotropis*, held together by a slender irregular webwork of vegetable fibres, in which here and there a very few minute fragments of the excreta of caterpillars and tiny pieces of bark and fine grass have been, perhaps accidentally, intermingled. The whole interior is soft, silky, felted down." Captain Beavan remarks that three pure white eggs brought to him measured 0.6 by 0.4 inch.

Genus PACHYGLOSSA.

Bill short and very stout, both high and wide at the base; culmen curved considerably; tip faintly notched, but not serrated; gonys deep and curved up to the tip. Nostrils linear, in a capacious membrane, and partly protected by a tuft; gape with minute bristles. Wing long; the 2nd quill the longest, the 1st slightly shorter and subequal to the 3rd, 4th slightly shorter than the 1st. Tail short and even. Legs and feet stout; the tarsus covered with obsolete transverse scales; anterior toes joined at the base, the outermost syndactyle; inner toe slightly shorter than the outer; hind toe and claw large.



PACHYGLOSSA VINCENS. ♀, ♂.
ZOSTEROPS CEYLONENSIS.

PACHYGLOSSA VINCENS.

(LEGGE'S FLOWERPECKER.)

(Peculiar to Ceylon.)

Prionochilus vincens, Slater, P. Z. S. 1872, p. 729; Holdsw. *t. c.* p. 483; Legge, J. A. S. (Ceylon Branch) 1873, p. 13; Slater, Ibis, 1874, p. 2, pl. 1; Legge, *t. c.* p. 23; Holdsw. *t. c.* p. 126; Hume, Str. Feath. 1875, p. 493 (redescription).

♂ *ad.* suprà plumbeus indigotico nitens, uropygio clariùs plumbescenti-cinereo: tectricibus alarum secundariisque nigris, dorsi colore marginatis: remigibus rectricibusque nigris, his (duabus mediis exceptis) albo terminaliter maculatis, externis latius: facie laterali totà et colli lateribus pilco concoloribus: gulà et praepectore albis: corpore reliquo subtilis flavo, hypochondriis vix olivaceo lavatis: tibiis et subcaudalibus albis, flavo lavatis: subalaribus albis: remigibus infrà nigris, intùs albo marginatis.

♀ *ad.* mari similis, sed pallidior et suprà minùs nitens: dorso olivaceo lavato: tectricibus alarum quoque nigricantibus, olivaceo vix marginatis.

Adult male. Length 4.1 to 4.2 inches; wing 2.3 to 2.4; tail 1.2; tarsus 0.5; middle toe and claw 0.52; bill to gape 0.45. Iris reddish; bill black, lower mandible pale at the base; legs and feet blackish brown.

Head, hind neck, back, rump, and lesser wing-coverts dull steel-blue, palest on the rump, and with the concealed portion of the feathers dark; wings and tail blackish, the coverts and tertials edged with the hue of the back, the secondaries edged faintly towards the tips with bluish green; terminal portion of the three outer tail-feathers white, tip of the next pair the same; throat and chest white, changing into saffron-yellow on the breast and lower parts, and paling to yellowish on the under tail-coverts; under wing-coverts and basal portion of the inner webs of the quills white. In specimens in abraded plumage the rump assumes a whitish aspect.

Female. Length 3.9 to 4.1 inches; wing 2.15 to 2.3; bill somewhat lighter than that of the male; iris not so intense: legs and feet slightly paler.

Head and hind neck bluish ashen, changing into the olivaceous brown of the back, which is overcome with dark olivaceous green on the lower back and rump; wings paler than in the male, coverts edged with olivaceous; tail brownish black, the terminal spots less deep and confined to the three outer pairs of rectrices; breast much less bright than in the male, with the flanks cinereous.

Young. Males of the year are very similar to adults; the breast not so yellow. Iris brown or red-brown. Females have the iris in nestling plumage olive-brown, changing when older to reddish brown; bill with the base of lower mandible yellowish fleshy. Above dull greenish brown, changing to dull brown on the sides of the neck and face, the white of the chin and throat confined to the centre; sides of chest cinereous, under surface washed with yellow.

Obs. This species was classed by Dr. Slater as a *Prionochilus*, a genus of Strickland's, instituted for the reception, as this gentleman tells us ('Ibis,' 1874, p. 1), of the birds described and figured in the 'Planches Coloriées' of Temminck as *Pardalotus percussus*, *P. thoracicus*, and another Malayan species, *P. maculatus*. This group is characterized by minute serrations on the upper mandible, and hence the name—*πρίων*, a saw, and *χείλος*, a lip. They have likewise, as Mr. Wallace states in his note on the genus ('Ibis,' 1874, p. 411) and also writes me recently, a minute 1st primary. On again examining the Ceylonese bird and carefully comparing it with a closely allied congener from Nepal, *Pachyglossa melanoxyantha* (Jerdon, B. of Ind. i. p. 378), I find that these serrations are not present in either, and in addition to this they possess but *nine primaries*, which at once precludes their being placed with the *Prionochili*. This latter genus, according to the system of classification followed in this work, would be located in the Sturnoid Passeres, while *Pachyglossa*, to which the Ceylonese form belongs (it being a congener of the Nepal species), must be placed among the Dicæidæ in the Tanagroid or nine-primary section of the Passeres. I have lately sent my specimens to Mr. Wallace for examination, in order to obtain the benefit of his valuable opinion; and he writes me that my bird being a decided *Pachyglossa*, this genus will now consist of three species—*P. aureolimbata* (a beautiful species described by himself from Northern Celebes), *P. melanoxyantha* from Nepal, and *P. vincens* from Ceylon.

P. melanocephala (figured in 'The Ibis,' 1874, pl. 1) is a rare species and larger than *P. vincens*, measuring in the wing 2.80 inches: the proportion of the quills differs slightly from that of the Ceylonese bird, the 1st quill being slightly shorter. The coloration is much the same as regards its distribution; but the sides of the throat are blackish slate, contracting the white into a broad stripe; the under tail-coverts also are yellow, like the breast and abdomen.

Distribution.—When this little bird was brought to the notice of the scientific world by Dr. Selater in the 'Proceedings of the Zoological Society' in 1872, the credit of its discovery was given to myself, as the specimens which I had sent him from the south of Ceylon were considered to be the first ever procured. Mr. Hugh Cumming, however, a well-known collector of Ceylonese birds, had, as noticed by Mr. Holdsworth in 'The Ibis' for 1874, brought home a male of this species, which was, I conclude, overlooked among the skins acquired from him by the British Museum, and was not identified until after its rediscovery by myself nearly thirty years afterwards. I am glad, therefore, to be able to give the true history of its discovery to my Ceylon readers, and ensure the credit of it being given to Mr. Cumming.

It is, as far as we know, essentially a bird of the heavy rainfall districts. My first specimens were procured in 1871 in the Kottowe forest near Galle, where it is abundant. I subsequently found it in other jungles adjacent to this one, in the fine timber-reserves near Odogamma, on the south bank of the Gindurah, and in the Kukkul Korale, more particularly in the Singha-Rajah or Lion-king forest. Thence northward its range extends into Saffragam, where I obtained it in the Kuruwite Korale, in the lower Peak jungles, and saw it even as far north as Avisawella. Mr. Bligh shot, in 1873, a fair number of specimens in Kotmalie, to which district, lying at the base of the western slopes of the main range, it must extend through Maskeliya and Dimbulla, in both of which valleys it will doubtless some day be found. Its habitat is, I suspect, limited to the damp forest region, consisting of the south-west of the island, the southern coffee-districts, Saffragam, and the western portion of the Central Province as above indicated. It may perhaps be found in Uva, but will not, I should say, extend into the low country of the Eastern Province.

Habits.—I subjoin here the following extract from my notes on this Flowerpecker contained in the Journal of the Ceylon Branch of the Asiatic Society for 1873:—"It dwells exclusively in high jungle (the 'Mukalaney' of the Sinhalese), and affects the leaves and smaller branches of moderately sized trees, but more particularly the luxurious creeper *Freycinetia angustifolia*, a species of *Pandanus*, which grows so plentifully in the southern forests, entwining and clothing the stately trunks so completely that they have, in the distance, the appearance of ivy-clad columns. It associates in small flocks, which, when this plant is in fruit, may be seen feeding on its seeds. Its movements are most active, now hovering for an instant over a flower, now clinging 'tit-like' to the underside of some chosen sprig. . . . Although it usually takes but short flights in the jungle, from tree to tree, its powers of locomotion are considerable, and at times it may be seen darting across openings in the forest from one belt to another. Its note is a weak *tze-tze-tze*, somewhat resembling that of the Long-tailed Tit of Europe (*Acredula caudata*), and which is scarcely audible on a stormy day amidst the sighing of the wind through the forest trees. It is generally uttered in concert by the flock when searching together for food." I observed that in the Singha-Rajah forest it frequented the flowers of the Bowittiya plant (*Osbeckia virgata*), but whether in search of insects or not I was unable to ascertain. The stomachs of nearly all the specimens I have procured contained succulent matter, evidently extracted from fruit and seeds; and I therefore suspect that it is almost entirely frugivorous. It does not always confine itself to low situations in the forests, for I have met with it in flocks frequenting the tops of the loftiest trees in the Odogamma timber-jungles.

The breeding-season, I imagine, must be during the south-west monsoon, for the organs of examples killed in both June and August testified to their nidification being carried on during that period. It is probable that this bird builds somewhat similarly to its Nepalese congener, which, says Hodgson, "makes an ingenious pendulous nest."

The figures in the Plate accompanying this article are those of a male and female from the southern forests.

Genus PIPRISOMA.

Bill very short and wide at the base, triangular when viewed from above, compressed suddenly beyond the nostrils; culmen keeled and compressed between the nostrils, below which the margin is inflated; gonys very deep, ascending and keeled near the tip. Nostrils very small. Wings long; the 1st quill equal to or slightly less than the 2nd and 3rd, which are the longest; 4th equal to the 1st. Tail short, even at the tip, not exceeding the closed wing by more than the length of the middle toe. Tarsus longer than the middle toe and claw; toes rather slender, hind toe moderately long; claws stout and well curved.

PIPRISOMA AGILE.

(THE THICK-BILLED FLOWERPECKER.)

Fringilla agilis, Tickell, J. A. S. B. 1833, ii. p. 578.

Pipra squalida, Burton, P. Z. S. 1836, p. 113.

Piprisoma agile, Blyth, J. A. S. B. 1844, xiii. p. 314; id. Cat. B. Mus. A. S. B. p. 228 (1849); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 262; Jerdon, B. of Ind. ii. p. 376 (1863); Beavan, Ibis, 1865, p. 416; Blyth, Ibis, 1866, p. 365; Beavan, ibid. 1867, p. 430, pl. x.; Jerdon, Ibis, 1872, p. 18; Holdsw. P. Z. S. 1872, p. 434; Hume, Nests and Eggs, p. 158 (1873); id. Str. Feath. 1873, p. 434; Ball, ibid. 1874, p. 397, et 1878, vii. p. 209.

Chitlu-jilta, Telugu (Jerdon).

Adult male and female. Length 3·9 to 4·0 inches; wing 2·15 to 2·3; tail 1·1; tarsus 0·48; middle toe and claw 0·4 to 0·45; bill to gape 0·4.

Iris orange, with an inner golden circle; bill plumbeous brown, lower mandible bluish; legs and feet plumbeous.

Above olivaceous brown, greenish on the rump and upper tail-coverts, and with the margins of the wings and tail the same; centres of the feathers on the forehead slightly darker than the margins; wings brown; tail blackish brown, narrowly tipped with white on all but the two outer tail-feathers, which have a terminal white spot; lores greyish; face and ear-coverts brownish; a rim of minute pale feathers on the eyelid; fore neck and under surface white,

In Lesson's 'Century of Zoology' is figured (pl. 26) a very remarkable little bird, said to have been procured by a Dr. Reynard at Trincomalie, and named by Lesson *Prionochilus pipra*. The engraving certainly represents a bird belonging to this group of Flowerpeckers; but whether it is *Piprisoma*, *Pachyglossa*, or *Prionochilus* it is impossible to say. Lesson's description of this *rara avis* is in French, and could not be better translated than it has been by Blyth (notes on Ceylon ornithology, 'Ibis,' 1867, p. 306). I accordingly give it verbatim for the benefit of my readers:—"Upper parts brownish ashy; the wings and tail brown, with a russet tinge; throat and front of the neck rust-coloured; the rest of the lower parts brown, rayed (the feathers tipped in the figure) with whitish; vent and lower tail-coverts russet; *axillary tufts brilliant violet*; bill and tarsi black, the lower mandible whitish beneath. Length about 4 inches, the closed wing 2·25." The date given by the author for the publication of this note is April 1830. From that day to this the bird has never been heard of; and the extraordinary character of its plumage, exemplified in its possessing, in combination with an otherwise sombre dress, two brilliant axillary tufts like those of a Sun-bird, almost suggests the idea of a *made-up* bird!

The following is M. Lesson's note on the species:—"M. le Docteur Reynard a découvert cet oiseau à Trincomalie sur la côte de Ceylon. Ses mœurs sont inconnues, et ses caractères mixtes porteraient sans doute à en faire un petit genre intermédiaire à ces des *Pardalotus* et des *Pipra*, si le genre *Pardalote* n'était pas lui-même peu caractérisé."

the sides of the chest and breast with dull olivaceous mesial stripes to the feathers; flanks olivaceous; bases of the under tail-coverts dark.

Some examples are less conspicuously striated beneath than others; and one from the Uva district is greener than those from the Northern Province.

Young male. "Length 3.9 inches; wing 2.2; tail 1.1; bill at front 0.3. Iris differing from that of the adult, yellowish brown, darkest near the pupil, and without the bright 'thread' or circle round it; bill brownish horny, tip of upper mandible black, lower mandible paler; legs and feet dark leaden" (*Parker*, in epist.). Described as being like the adult; the orbital rim of feathers "dull white, and the outermost tail-feathers much paler than the rest; the forehead with indications of striæ."

In a *young female* the terminal white spots on the lateral tail-feathers are almost absent.

Obs. In his paper on Ceylon birds (*Str. Feath.* 1873, p. 434) Mr. Hume calls attention to certain characteristics of Ceylon examples of this species, concerning which he remarks that "they have a much more decided green cast on the upper surface, especially on the rump and upper tail-coverts; they are slightly smaller, and the bills are a little shorter and somewhat less compressed towards the point." I have carefully noted these remarks and endeavoured to get together as large a series as possible for comparison; but skins of this little bird are by no means plentiful. I have examined four skins in the British Museum, two of which are from the North-west Himalayas, six of Mr. Ball's, and one of Mr. Elwes. The latter is from Saugor, Central Province, and Mr. Ball's skins are from Sambalpur, Satpura, and Talchin. The comparison of this small series with four Ceylon specimens tends to show that low-country Ceylon birds are smaller than Indian; but a hill example almost equals a Himalayan one. Two from this latter locality measure 2.4 and 2.45 inches. A Logole-oya (Uva) specimen measures 2.4. Sambalpur examples are as follows:—♀, wing 2.29; ♀, wing 2.38; ♀, wing 2.3; ♂, wing 2.4; Satpura, ♂, wing 2.3; Talchin, ♂, wing 2.4. In all these the wing is *slightly* more pointed than in the Ceylonese bird, the 1st quill usually almost equalling the 2nd, and in the others being a trifle shorter than it; in the Satpura specimen it is about $\frac{1}{10}$ inch less than the 2nd. The Ceylon specimens all vary in this respect, this feather in two falling short of the 2nd by nearly $\frac{1}{16}$. Were there, therefore, no variation in the continental birds our race might stand as a subspecies. With regard to the colour, the green of the Indian birds on the rump and upper tail-coverts is of a more yellow tinge than in the island race, which is characterized by its more olive tint. Newly moulted specimens are much brighter than birds in old feather. Males are greyer than females on the head. These several differences would appear on paper to have some weight; but on laying the two series of skins side by side I have been unable to separate them, the Ceylonese birds merely differing in that slight manner which one expects in such a small bird isolated somewhat from its fellows of the mainland.

Distribution.—This curious little bird, as far as it has yet been observed, seems to inhabit principally the midland portion of the northern forest tract. Layard obtained it on the Central road, and Mr. Parker, from whom I have received specimens, informs me that it is not uncommon at Madewatchiya and about Anaradjapura, and he has lately procured it at Uswewa in the month of July. I met with it in Uva, and obtained a specimen on the Logole oya at about 3000 feet elevation. It occurs, I believe, in the Kandy district, and would therefore appear to be scattered sparingly over a considerable portion of the island.

Jerdon writes of this bird, "It is found over the greater part of India, from the Himalayas to the Malabar coast. most commonly in jungle-districts; but it is also seen occasionally in groves of trees in bare country. I have procured it at Goomsoor, on the Eastern Ghâts, in Malabar, and the Deccan. Blyth obtained it in the Midnapore jungles." Captain Beavan remarks, "This bird cannot be considered common in Maunbhoom, although it is certainly tolerably abundant during the breeding-season." In Kumaon it was observed by Mr. Thompson, who spoke of it also as breeding at Ramnuggur, which is on the borders of the sub-Himalayan range.

Habits.—The Thick-billed Flowerpecker frequents the tops of trees in forest, searching about among leaves and small boughs for insects, after the manner of *Dicaeum*. It is generally, according to my experience, solitary; but Mr. Parker shot one out of a troop of four or five in the Uswewa district. It feeds on spiders and minute insects; in Uva I noticed it frequenting small umbrageous trees overhanging a rocky stream in a glen. Jerdon remarks that it has a weak piping note and associates in small flocks; but Capt. Beavan testifies to the contrary, saying that he observed it alone, and says that its dull colours prevent its being seen. "Its note,"

he writes, "I should term a 'shrill' instead of a 'weak' piping, which can be heard at some distance, long before the bird itself is visible."

Nidification.—The present species breeds in India from the middle of February till the end of May, commencing, according to Mr. Hume, earlier in the plains than in the Himalayas. I imagine that in Ceylon it lays during the first three or four months in the year; but I have no certain data, beyond the fact of Mr. Parker shooting an immature specimen in June, and my own observations as to the old birds moulting in August. Its nest was beautifully figured in 'The Ibis' for 1867, together with the young birds, by Mr. Wolf, from specimens sent home by Captain Beavan. This naturalist writes ('Ibis,' 1865) as follows:—"The nest is very peculiar—a pocket-like structure suspended from a small bough which forms the roof, the entrance being from one side near the top. It is composed entirely of spiders' web and other silks, with which a pinkish-brown fluff (probably from some tree in flower) is felted together, making the nest look entirely of that colour. There is no lining; only the material employed is denser at the bottom than at the top of the nest. The great peculiarity is that the nest is as if woven in one piece, and, like a bit of cloth, can be shaken and compressed without doing it any injury. The length is 3 inches, breadth 2 inches; entrance-hole 1.5 inch long by 0.87 inch broad. The eggs are moderately elongated, of a light pink ground-colour, blotched indistinctly with pink spots, more frequent and massed at the obtuse end; they are large for the size of the bird, their length being 0.62 inch, and their breadth a little over 0.37 inch."

Mr. R. Thompson likewise writes to Mr. Hume:—"I obtained a nest of this bird at Ramnuggur, on the borders of the sub-Himalayan range, on the 12th May, which contained two eggs of a fleshy-white colour, thickly blotched with pinkish spots. The nest was a neat structure, pendent from a thin branch of a small leafless tree; it was entirely composed of the pubescent covering of the skins of a species of *Loranthus*, which the birds had scraped off, and, mixing with spiders' webs, had woven into a thin felt. The shape of the nest is that of a purse opening down the side." While taking another nest, he remarks that the old birds hovered about, and more than once perched close to his head. Writing from Modahpore, in March, he informs Mr. Hume that he "saw a couple fixing the foundation of their nest with cobwebs and the pubescent downy covering of the young shoots of *Butea frondosa*, which the birds bit off in small pieces and mixed with cobwebs, both birds at work alternating the time of arrival and departure with material."

From the above remarks it will be seen that this Flowerpecker constructs one of the most wonderful little nests known; indeed the editor of 'The Ibis' remarks that the one sent by Capt. Beavan was one of the most beautiful structures he had ever seen. Mr. Hume says two or three eggs are laid each time, and that he is inclined to believe that the birds have two broods at least in the year. The ground-colour varies from "rosy white to a decided pink, and the markings from brownish pink to claret-colour." They average in size 0.63 by 0.41 inch.

Genus ZOSTEROPS.

Bill somewhat curved, high and wide at the base, compressed towards the tip, which is obsoletely notched and very acute. Nostrils linear; a few rictal bristles. Wings with the 3rd quill exceeding the 2nd, which is longer than the 1st. Tail shorter than the wings, even at the tip. Tarsus longer than the middle toe and claw, and shielded with broad smooth scales; outer and middle toes slightly syndactyle, claws much curved. Eyes beset with a velvety fringe of white feathers.

ZOSTEROPS PALPEBROSA.

(THE COMMON WHITE-EYE.)

Sylvia palpebroza, Temm. Pl. Col. 293. fig. 2 (1824).

Zosterops nicobaricus, Blyth, J. A. S. B. 1845, xiv. p. 563.

Zosterops palpebrosus, Blyth, J. A. S. B. 1846, xv. p. 44; id. Cat. B. Mus. A. S. B. p. 220 (1849); Kelaart, Prodrumus, Cat. p. 121 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 267; Jerdon, B. of Ind. ii. p. 265 (1863); Legge, J. A. S. (Ceylon Branch) 1870-71, p. 52; Holdsw. P. Z. S. 1872, p. 458, pl. xx. fig. 1; Adam, Str. Feath. 1873, p. 384; Hume, Nests and Eggs, ii. p. 397 (1874); Ball, Str. Feath. 1874, p. 417; Legge, Ibis, 1874, p. 22; Walden, *t. c.* p. 143; Morgan, Ibis, 1875, p. 322; Hume, Str. Feath. 1875, p. 143; Brooks, *t. c.* p. 252; Butler & Hume, *t. c.* p. 491; Hume, *ibid.* 1876, p. 463; Fairbank, *ibid.* 1877, p. 407.

Zosterops nicobariensis, Hume, Str. Feath. 1874, p. 242, et 1876, p. 291.

The White-eyed Warbler, Latham; *The White-eyed Tit*, Jerdon; *The Zosterops* of some.

Adult male and female. Length 4.1 to 4.4 inches; wing 2.05 to 2.1; tail 1.5 to 1.6; tarsus 0.6 to 0.65; middle toe and claw 0.5; bill to gape 0.45 to 0.49.

Male. Iris (very variable) brownish olive or olive-grey, or grey mottled with brown, and often with a pale outer circle; bill blackish, bluish at base beneath; legs and feet slate-blue.

Above uniform yellowish green, slightly yellower on the upper tail-coverts and sides of neck, where it blends into the primrose-yellow of the chin, fore neck, and upper part of chest; wings and tail brown, edged with a slightly greener hue than the back; lores black, above which the feathers are yellowish; a deep orbital fringe of white feathers; beneath albescent, shaded with greyish on the sides of the upper breast and on the flanks; centre of belly with a faint yellowish wash; under tail-coverts and edge of wing yellow; under wing-coverts white; the loreal spot varies in intensity, being blacker in birds which are in new feather than in others.

Female. Iris often tinged with reddish. I have myself only noticed this peculiarity in this sex; it may exist in the other.

Obs. Mr. Holdsworth remarks (*loc. cit.*) that specimens from the low country vary in size; I have found this to be the case as regards bulk, but not in the wing to any extent. Indian specimens have the grey of the flanks spreading more over the under surface than Ceylonese; they vary, however, in this respect, and the exceptions to the rule correspond too well with our birds to admit of any separation of the latter. The coloration of the upper surface and the throat are the same in both forms. As regards size, six examples in the national collection from various parts of India vary in the wing from 2.0 to 2.1 inches; one from Nilghiris, wing 2.05, tail 1.6 (this is paler beneath than some of the above-mentioned, but darker above); one from Tenasserim, wing 2.1, slightly darker than the Ceylonese examples; one from Nepal, wing 2.0; one from Darjiling, wing 1.95; four from

North-west Himalayas, wing 2.1 to 2.25. These data show that the species varies in size somewhat, the largest specimens, as may be expected, inhabiting the Himalayas. A Nicobar-Islands example has the upper surface of a darker green than most Indian ones, and possesses a well-defined pale superloral stripe, with the black of the lores passing under the eye. There are several closely-allied species of this genus; among them *Zosterops simplex*, Swinhoe, from China, is not distantly related to *Z. palpebrosa*; and *Z. buxtoni*, Nicholson (Ibis, 1879, p. 167), from Java, is a miniature of our bird, the back greener, the tail darker, the black of the lores passing under the eye, and the wings tinged with grey; throat and under surface as in *Z. palpebrosa*; wing 1.9 to 1.95.

Distribution.—The Common Zosterops, or White-eye, is a very numerous bird in Ceylon, and is more or less scattered over the whole of the low country, ascending likewise into the hilly regions to an altitude of about 3500 feet. In the Western Province and south-west it is particularly numerous, both on the seaboard and in the interior; but in the northern half of the island it appears to prefer the inland districts, for I always found it less abundant along the north-east coast than in the central forests; in these latter, however, it is local, and, like most other birds, comes much more into notice in one part than in another. It is common in the woods of the Eastern Province and in the jungles to the south of the Haputale ranges. In the mountainous country formed by the Morowak and Kolonna Korales I noticed it chiefly at the borders of forests, and in the Kandyan Province it is partial to the sparsely-timbered patuas in the wide valleys which are drained by the affluents of the Mahawelliganga; thus in the Pusselawa, Hewahette, Deltota, and other districts, as well as in that of Badulla, it is fairly common.

On the mainland it has a wide range, being found in various localities throughout the whole of India to the sub-Himalayan regions, and extends thence into Assam, Burmah, and probably to Tenasserim, in which province its presence is doubtfully recorded in 'Stray Feathers' by Mr. Hume. In the extreme south it is a common bird, being found both at the base and the summit of the Palanis, and also on the tops of the Nilghiri hills, where Jerdon remarks that it exists in great abundance. It therefore ascends to a greater altitude in the peninsula than in Ceylon. It likewise occurs in the Northern Ghâts, is common throughout the wooded portions of the Deccan, sparingly distributed in Chota Nagpur, rare in the Sambhur-Lake district, where Adam says he has only once seen it, and further west still is locally diffused, being common at Mount Aboo, but not found in the plains adjacent to it. Mr. Hume writes, "I have never seen it in or from Cutch or Sindh, nor have I specimens from Kattiawar; but Captain Hayes Lloyd reports it as common there, probably as pertaining to the Girwar region." It is found near Mussoori, and along the slopes of the Himalayas eastward; in Pegu it is likewise well known. Its *universal distribution throughout the Laccadives* is singular. Mr. Hume writes, "The White-eyed Tit is the one resident land-bird of the group; it occurs in every inhabited island that we touched at." The Andaman and Nicobar islands also come within its range, the representatives of the species there being somewhat different from continental birds, inasmuch as they appear, as a rule, to have longer bills and to be of a somewhat greener shade on the upper surface (the peculiarities of one example are noticed above). They were originally separated by Blyth as *Z. nicobarica*; but Mr. Hume considers that though they might form a variety of the true *Z. palpebrosa*, they cannot well be separated entirely.

Habits.—This little bird is most sociable in its proclivities, frequenting the leafy boughs and tops of trees in woods and forests, either in large flocks or smaller parties of a dozen or more. It searches about the leaves and blossoms of trees in flower, and feeds on insects, seeds, and buds; it is restless in its manners, the whole flock moving about in consort and uttering perpetually a plaintive monosyllabic whistle. On windy days it is more on the move than at other times, and its tiny note is heard above the roar of the storm in the forest more plainly than the louder voice of other birds. It is partial to the jack, bread-fruit, "tulip," and other trees growing about native villages; and in the afternoon, after its appetite has been appeased, little troops of four or five may be seen sitting huddled together on dead branches of, or bare twigs in, those umbrageous trees. At certain times of the year I have seen it in the Suriah-trees in the fort of Colombo, to which it is no doubt attracted when they are in flower. Although this White-eye partakes of insects, its diet is, for the most part, frugivorous, the consequence of which is that it is very destructive to gardens, picking off the buds of fruit-trees, as well as attacking the fruit itself. I have known caged individuals in England feed with avidity on dried figs.

Mr. Ball writes of the pluck which he observed these little birds display in the Satpura hills in attacking the Rose-Finch, a vastly more powerful bird, and driving it away from the flowers of the Mhowa (*Bassia latifolia*), which, he remarks, forms a favourite hunting-ground of this "Tit." In the gardens on the Nilghiris, Jerdon says it may be seen elinging to the flower-stalks and "extraeting the minute insects that infest flowers, by the pollen of which its forehead is often powdered."

Nidification.—The White-eye breeds in June, July, and August, attaching its neat little nest to the horizontal fork of a small or moderately-sized tree, sometimes at a height of 20 feet from the ground, or suspending it between the twigs or branches of a small bush at a few feet from the soil. It is a frail but seemingly strong little work, made of fine tendrils of creepers, moss-roots, thin grass-stalks, and a little moss, carefully interwoven, and at the upper edges worked round the supporting twigs; the exterior is often mixed with pieces of seed-down, cotton, cocoons, &c., some of which substances are generally used for the lining of the interior as well; this is about $1\frac{3}{4}$ inch in diameter and is rather shallow. Mr. Morgan writes that it builds in the south of India a pretty little cup-shaped nest of golden-coloured moss and thistle-down lined with silk-cotton; he describes the eggs as being two or three in number and of an exceedingly pale blue colour, measuring in length 0.71 inch and in breadth 0.51. Some that I have examined were pale greenish blue and pointed at the small end.

In Mr. Hume's 'Nests and Eggs' will be found much interesting matter concerning the nesting of this White-eye in India, among which Captain Hutton tells us that the little oval cup is so slight and so frail "that it is astonishing the mere weight of the parent does not bring it to the ground; and yet within it three young ones will often safely outride a gale that will bring the weightier nests of Jays and Thrushes to the ground." The majority of the nests taken by him were composed of "little bits of green moss, cotton, and seed-down, and the silk of the wild mulberry-moth torn from the cocoons."

ZOSTEROPS CEYLONENSIS.

(THE CEYLONESE WHITE-EYE.)

(Peculiar to Ceylon.)

Zosterops annulosus, Kelaart, Prodrumus, Cat. p. 121 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 267; Legge, J. A. S. (Ceylon Branch) 1870-71, p. 29.

Zosterops ceylonensis, Holdsw. P. Z. S. 1872, p. 459, pl. xx. fig. 2; Swinhoe, Ibis, 1873, p. 228; Layard, P. Z. S. 1873, p. 205; Legge, Ibis, 1874, p. 22; Holdsw. *t. c.* p. 123; Legge, Ibis, 1875, p. 410.

The Mountain Bush-creeper, Kelaart; *The Hill White-eye*, Europeans in Ceylon.

Suprà flavicanti-viridis, loris et plumis supra- et infraocularibus saturatè cinereis: annulo ophthalmico albo: tectricibus alarum dorso concoloribus: remigibus et rectricibus nigricanti-brunneis, dorsi colore marginatis: gutture toto et præpectore latè flavis: corpore reliquo subtùs albido, pectore flavicanti-viridi lavato, lateribus hypochondriisque delicatè cinerascens: tibiis, crisso subcaudalibusque latè flavis: rostro nigricante, ad basin schistaceo: pedibus plumbeis: iride brunnescenti-flavâ.

Adult male and female. Length 4.5 to 4.7 inches; wing 2.1 to 2.3; tail 1.6 to 1.75; tarsus 0.7; middle toe and claw 0.5 to 0.55; bill to gape 0.57 to 0.63.

Iris yellowish brown, or reddish brown, or pale brownish yellow (as variable as the last species); bill blackish, with the base beneath bluish or pale slaty; legs and feet bluish or pale leaden.

Above dusky olive-green, somewhat infuscated on the forehead and pale on the rump; wings and tail brown, edged with the hue of the back; a close, white, orbital fringe, as in the last species; lores, just beneath the eye, and from the gape down the side of the throat blackish; this gular streak varies in size and intensity; throat and fore neck pale greenish yellow, shading off into the green of the side neck; breast and lower parts albescent, shaded with greyish on the sides, and with a wash of yellowish down the centre of the breast; thighs and under tail-coverts greenish yellow; under wing-coverts whitish.

Females have the yellow of the throat greener, as a rule, than males, and appear, as in the common species, to have the eye reddish at times.

Obs. Although this species has long been known as a Ceylonese bird, it is only lately that it has been discriminated as new to science. Kelaart and Layard assigned to it the specific appellation of *annulosus*, which in reality was the name given by Swainson to an African species figured in his 'Zoological Illustrations.' The former, in writing of it as a Nuwara-Elliya bird, said ('Prodrumus,' p. 102), "We fear that the Nuwara-Elliya *Zosterops* is wrongly identified: it is of a darker green than the common *Zosterops palpebrosus*;" he accordingly styled it, in his catalogue, by the above-mentioned name, which was likewise used by Layard*, who, however, doubted its distinctness from the low-country bird. In 1869 Mr. Holdsworth and myself examined specimens in the Asiatic Society's Museum, which he had presented to that institution, and but little doubt remained in our minds that it was a good species: in November of the following year I read a note on it at a Meeting of the Ceylon Branch of the Asiatic Society, and had the intention of giving it a name in my paper to be published in the Journal, p. 29 (1870-71); in the mean time, however, Mr. Holdsworth, who had taken up the subject more fully, informed me that he had worked it out, and was about to call it *Zosterops ceylonensis* in his paper in the 'Proceedings of the Zoological Society,' and I accordingly expunged my description from the Asiatic Society's Journal. It has been maintained by some that there is a *Zosterops* inhabiting the Nilghiris, which might be identical with the present species. Mr. Blanford called attention to this matter in the Journal of the Asiatic Society of Bengal, 1869, p. 170, in which he says that the Nilghiri race is "a little larger and appears to be darker in colour" than *Zosterops palpebrosa*. Mr. Swinhoe likewise writes, in 'The Ibis,' 1873, that he had a specimen from Captain Bulger's collection, marked "Madras,"

* Layard writes me to correct a mistake which occurred in his note on this species (P. Z. S. 1873, p. 205). The last sentence should read:—"I have *not* collected in Nuwara Elliya."

which he had shown to Dr. Jerdon, and pointed out the differences between it and *palpebrosa*, and further remarks that it appeared close to *Z. ceylonensis* in size and colour, but had no more yellow on the neck than the ordinary species. Nothing, however, seems to have been further noted of this supposed species; and whatever it may be, I doubt not that it is different from our bird.

Distribution.—This White-eye is a very abundant species in the main range, especially on the Nuwara-Elliya plateau; it is, however, numerous in all the circumjacent coffee-districts, down to about 3000 feet, and likewise in the Haputale, Badulla, and Madulsima ranges; beyond the valley of Dumbura it frequents the upper parts of the Knuckles and the east and west Matale hills. In Maskelya it is common, and in the Peak forests I met with it in great abundance down to an elevation of 2000 feet. On the south side of the great valley of Saffragam it reappears and inhabits the coffee-districts of the Kolonna, Kukkul, and Morowak Korales, and ranges thence into the subsidiary hill forests between the upper part of the Gindurah river and Galle. Here I found it, as recorded in 'The Ibis,' 1874, on the summits of the Opaté and Odogamma hills, as low down as 1500 feet, which is the least elevation at which I have observed it. It would be interesting to know whether it inhabits the isolated Muneragala range, which stands out in the low country beyond the slopes of the Passara and Lunugala hills, and is quite disconnected from them.

Habits.—The Hill White-eye frequents both the interior and the edges of forest, patna-jungle, underwood, and low bushes in open places near woods and so forth, affecting the lateral branches of tall trees, the tops of smaller ones, and the foliage of shrubs and undergrowth. It has no partiality for any situation in particular, but consorting in very large flocks, where insect life abounds, the birds composing them may be found both high up and low down in their leafy haunts, little parties clinging to the twigs of the smallest bushes, others searching the branches of sapplings, while the foliage of the monarchs of the forest high overhead teems with dozens more, the whole concourse moving on by twos and threes in quick succession as the leaves are cleared of their insect-pests and all the tempting buds eagerly nipped off. It is seen much about the edges of paths in the jungle; and in such localities it exhibits an utter fearlessness of man, allowing so near an approach that I have often stopped to watch the movements of a pair feeding close to me, and been able to admire the handsome white eye-fringe as well as if I had had its tiny owner in my hand. Its principal note is a sparrow-like chirp, which it is particularly energetic in uttering when in large flocks.

Mr. Holdsworth writes of it:—"As these birds are very common, and constantly flying in small parties from bush to bush, uttering their lively chirp, they attract attention; and the little White-eye is familiar to most Europeans who visit Nuwara-Elliya. In the winter the males associate in flocks of fifteen or twenty; and it is then rare to find a female in their company. I believe the latter are for the time solitary, as, with one exception, the numerous specimens I have shot from different flocks have proved to be males." In the months of December and January I have seen *hundreds* in a flock in the Nuwara-Elliya jungles.

Nidification.—This species breeds from March until May, judging from the young birds which are seen abroad about the latter month. Mr. Bligh found the nest in March on Catton Estate. It was built in a coffee-bush a few feet from the ground, and was a rather frail structure, suspended from the arms of a small fork formed by one bare twig crossing another. In shape it was a shallow cup, well made of small roots and bents, lined with hair-like tendrils of moss, and was adorned about the exterior with a few cobwebs and a little moss. The eggs were three in number, pointed ovals, and of a pale bluish-green ground-colour. They measured, on the average, 0.64 by 0.45 inch.

On the Plate accompanying my article on *Pachyglossa vincens* will be found a figure of the present species.

PASSERES.

Fam. HIRUNDINIDÆ*.

Bill short, very broad at the base, triangular when viewed from above; flattened, straight, the culmen gently curved at the tip, which is entire; gape smooth and very wide. Wings long and pointed, the first two quills longer than the third; the secondaries very short. Tail of 12 feathers, variable in shape and length. Legs and feet weak; tarsus short, generally bare, and covered with smooth scales, in some feathered.

Genus HIRUNDO.

Bill typical in shape, compressed near the tip. The nostrils basal, elongated and exposed, placed in a depression near the culmen. Wings with the 1st quill equal to or longer than the 2nd. Tail long and deeply forked. Tarsus equal to the middle toe, and shielded in front with *smooth* broad scutes. Middle toe much longer than the lateral ones, which are subequal; hind toe moderately large.

HIRUNDO RUSTICA.

(THE COMMON SWALLOW.)

Hirundo rustica, Linn. Syst. Nat. i. p. 343 (1766); Blyth, Cat. Mus. A. S. B. p. 197 (1849); Jerdon, B. of Ind. i. p. 157 (1862); Sharpe & Dresser, P. Z. S. 1870, p. 244; Holdsw. P. Z. S. 1872, p. 418; Shelley, B. of Egypt, p. 120 (1872); Hume, Nests and Eggs, i. p. 72 (1873); id. Str. Feath. 1874, p. 154 (Andamans); Salvadori, Ucc. Born. p. 125 (1874); Dresser, B. of Europe, pt. 39 (1875); Irby, B. of Gibraltar, p. 103 (1875); Legge, Ibis. 1875, p. 275.

Hirundo panayana, Gmel. Syst. Nat. i. p. 1018 (1788); Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 91 (1854).

Hirundo gutturalis, Scop. Delic. Flor. et Faun. Insubr. ii. p. 96 (1786); Kelaart, Prodrömus, Cat. p. 118 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 170; Swinhoe, P. Z. S. 1871, p. 346.

* The Swallows are classed by Jerdon and other naturalists (Van der Hoeven, Kaup, &c.) with the Swifts; and, on account of their outward similarity to them, it is the popular belief that the two families are closely allied. No greater error, I think, could exist, although, as Mr. Wallace pithily remarks in a letter to me on the subject, "*they constitute the most remarkable case known of outward resemblance and real diversity.*" The Swallow, in the formation of its sternum, legs, and foot, and in the structure of its wing, as also in the number of the tail-feathers, is strictly a *Passerine* bird. The Swift is a *Picariform* bird in its sternum and foot, which latter is most remarkable, all the toes being either directed forward, or the hind toe being reversible to the front. The bill is unlike that of a Swallow, resembling those of the Nightjars. Blyth, Huxley, and others hold the Swallow to be *Passerine* in all respects; the former, who took strong exception to what he styled Jerdon's antiquated notion of associating the two families, remarks (Ibis, 1866, p. 230):—"The *Hirundinidæ* illustrate and exemplify, even to the minutest detail, the special *passerine* type of conformation, which is merely modified externally to confer extraordinary vigour of wing." The hind toe, in some of the Sand-Martins, is said to have a tendency to reverse; this feature is not exemplified in the case of the two English species.

Hirundo jewan, Sykes, P. Z. S. 1832, p. 83.

The Panayan Swallow and *Javan Swallow* (Lath.); *The Chimney-Swallow*, popularly in England; *Golondrina*, *Oroneta*, Spain (Saunders); *Andorinha*, Portuguese; *Zwaluw*, Dutch; *Ababil*, Hind.; *Talli illedi kuravi*, lit. "Bird without a head," Tamul; *Wauna Kovala*, Telugu; *Paras pitta* of the Mharis (Jerdon); *Üi Karloghach*, Yarkandis (Scully); *Khotaiifa*, Moorish (Irby); *Tämm pādy*, Tamil; *Füsti Fecske*, Transylvania. *Wæhælaniya*, lit. "Rain-fowl," Sinhalese.

Adult male (winter, Ceylon, 3 examples). Length 6·8 to 7·0; wing 4·5 to 4·7; tail 3·5 to 3·8; tarsus 0·4; middle toe and claw 0·6; bill to gape 0·55 to 0·6; depth of tail-fork 2·0 to 3·0.

Iris brown; bill, legs, and feet black.

Head and upper surface glossy blue-black; wings and tail dull black, the quills with a bluish tinge on the inner webs; the longer tail-feathers with a greenish lustre, and the shorter with a bluish one; all but the central rectrices with a large white spot, which, on the lateral pair, runs out to a point; forehead, chin, throat, and upper part of chest ferruginous chestnut, bounded beneath by a black interrupted pectoral band of variable width; under surface, under tail and under wing-coverts white, tinged on the sides of the breast and at the vent strongly with rufescent.

Female. Wing about 4·5 inches; lateral tail-feathers about 0·75 inch shorter than in the male.

Iris, bill, legs, and feet the same.

Differs from the male in having the under surface almost pure white.

Young (Krasnoyarsk, Siberia, July). Head brown, glossed with metallic green; front of the forehead sienna-red; back and rump blackish green, with a greyish hue; wings dark greenish brown, coverts glossed with green; chin and throat pale sienna, beneath which is a broad brown pectoral band, well defined above, but washed in the centre with sienna; beneath white, suffused with delicate reddish buff, the centre of the breast less so than the sides; flanks dusky; outer tail-feathers 0·9 longer than the central pair; wing 4·9 inches.

On growing older the sienna colour of the forehead fades, and is encroached upon by the black, and also the reddish hue of the under surface vanishes, while the red throat changes to buffy white. On arriving in Ceylon in October the yearling bird has the edge of the forehead only *rufescent greyish*, the throat rufescent white (specimens often exemplifying the change of colour in the feathers by patches of red and whitish), and the under surface whitish, with the pectoral band brown; the lateral feathers are still short and rounded at the tips. When leaving the island during the spring moult, the forehead and throat become rufous, the pectoral band becomes black, and the under surface in the males is suffused with buff.

Obs. The above descriptions relate to the Asiatic race of the Common Swallow which visits Ceylon. Old birds arrive in the island in much the same plumage in which they leave England in October, the under surface in the males being only tinged here and there with buff. A Hampshire specimen in my collection corresponds in this respect with one shot at Galle in October. I do not know whether, as a rule, they arrive at their breeding-haunts, after leaving Ceylon, with the under surface as much suffused with reddish as is the case with the males on their arrival in England; some Central-Asiatic summer examples I have seen exhibit this character, so that it is probable that the spring plumage on both continents is the same.

As the Swallow ranges eastward from Europe it has a tendency to become smaller, and to acquire a pectoral band more or less interrupted at the middle by the rufous colour of the throat, thus approaching the American form, *H. horreorum* (found, according to Mr. Dresser, beyond Lake Baikal), which is closely allied to the European species, and has the band merely in the form of a black patch on the sides of the chest, and the underparts rufescent or yellowish brown.

This incomplete banded and usually small Asiatic form is the *H. gutturalis* of Scopoli; and it is customary to class most Indian specimens of the Common Swallow under that name. Chinese specimens, as a rule, are typical, and so are those from Tenasserim (Hume, Str. Feath. 1878, p. 41). Seven adults in the Swinhoe collection vary in the wing from 4·4 to 4·6, and have the pectoral band incomplete. Our Ceylon birds belong to this form, but they are intermediate in size between it and the true *rustica*. I state this with reserve, as I have only a small series; but one young female measures nearly 4·5, and this is about the average size of Swinhoe's adults.

On the other hand it must not be supposed that all Asiatic specimens can be strictly classed with this smaller race; they vary exceedingly, some being large, with the characteristic European black pectoral band, and some equally

so, with the rufous-marked band; and it is this fact which prevents my considering *gutturalis* a good species; at the same time it cannot be denied that birds from certain districts do run small. Whether these are all bred in the same locality it would not be possible to say. The results of my examination of a series of skins are as follows:—I find some Siberian skins, and one from Amoy, with the band quite as black as some from England; and, as regards size, a Hampshire specimen, one from Siberia, and one from as far east as Formosa measure 4·85, 4·8, and 4·75 respectively, and all have the same black pectoral band. Several examples from Central Asia (Kardatchino, Sargashino, &c.) are very large (wing 5·0), and have the black band much interrupted by the rufous colour of the throat. These latter have longer tails than any others which I have seen, the outer feathers in one example being 3·5 inches longer than the centre pair. Finally, Mr. Hume finds that in Sindh and Western India the Swallows are of the true *rustica* type, with a wing of 4·8 to 5·0 (many English specimens do not reach 4·8) and the tail 4·7 to 5·0. The inference, therefore, to be drawn from these data is that in Asia the Common Swallow varies in size and colouring in different districts of the continent, and that its several races either intermix or contain here and there birds typical of each other in such a manner that the Asiatic form cannot be considered a good species.

In Palestine and India there is a resident and closely allied species to the common Swallow, viz. *Hirundo savignii*, Stephens. This bird (which is the *H. cahirica*, Licht., of Canon Tristram, and *H. riocourii*, Audouin, of Shelley, 'Birds of Egypt') differs from the present species in having the under surface from the band downwards chestnut-red instead of whitish or buff as in the latter; the spots on the tail are rusty white instead of pure white. Canon Tristram remarks that this colour is constant, "neither fading nor intensifying" at any time of the year. "Specimens shot at all seasons are precisely similar" ('Ibis,' 1867, p. 361). This bird is reported to visit Europe and to breed with *H. rustica*; but Mr. Dresser is of opinion that brightly coloured examples of the latter species in spring plumage have been mistaken for it. Canon Tristram, in the same article, says that the two never interbreed in Palestine.

Hirundo tytleri (Jerdon, App. vol. iii. B. of India, p. 870) is an Indian member of this group of Swallows. It appears to be scarcely distinguishable, as regards its plumage, from *H. savignii*. The original description is, "Glossy black above, beneath dark ferruginous chestnut; form and size of *H. rustica*." It was discovered at Dacca, and appears to migrate to Pegu and Tenasserim, affecting the first-named province from July till May.

From Messrs. Sharpe and Dresser's researches (P. Z. S. 1870, and 'Birds of Europe') it would appear that the European Swallows undergo, as immature birds, the same changes which I have described above; they state that the sienna frontlet entirely disappears when the bird is in its winter plumage in South Africa, and that there is a mere indication of it by the presence of a few pale buff-coloured feathers. This is just as it is in Ceylon with our birds.

Distribution.—The Swallow arrives usually in the north of the island about the second or third week in September, the young birds coming in first. The period of its arrival is, however, somewhat irregular, and perhaps depends upon the break up of the south-west monsoon to some extent. Its numbers are increased considerably in about a fortnight after its first appearance, and it then begins to spread southward, but does not do so always as regularly as might be expected. Mr. Parker has observed it at Puttalam as early as the 20th September one year, when my earliest date noted down at Colombo was not till after the 1st of October. At other times I have seen it at Colombo in the middle of September, and I observed it at Galle in 1872 on the 15th of that month. It inhabits the whole of the low country, and likewise ascends into the hill-districts to a considerable elevation, but does not inhabit the higher regions in any abundance. It leaves the island completely about the second week in April, quitting the southern districts a week or two prior to that date. It is, I think, commoner on the west coast than on the east.

About the first week in August, according to Captain Butler, the Swallow arrives in the Mount-Aboon district, and leaves again as early as February; it soon spreads throughout India, but does not seem to visit all districts at the same time, for Captain Beavan writes that they visit Maunbhoom in January and leave quite by the end of February. In the Andamans, according to Messrs. Hume and Davison, they do not disappear until May, from which I gather that the birds inhabiting those islands (although Mr. Hume, when writing of them in 1874, considered them identical with the English bird) must belong to the *gutturalis* type which visits Tenasserim, and which migrates in a different direction to those which inhabit Western India. Not a few breed along the Himalayas from 4000 to 7000 feet, while still more remain in Cashmere for that purpose, and Captain Hutton found them nesting abundantly at Candahar. On the plains of Eastern Turkestan Dr. Seully says they arrive (from the south I conclude) about the middle of April, breeding there

in May and June. Thence northward it is found throughout the vast extent of Central Asia and Siberia from west to east (except perhaps in the north-east of Siberia and Kamtchatka), and ranges above the 60th parallel of latitude. It inhabits all China and Formosa in summer; and Mr. Dresser says that there is a specimen in the Cambridge Museum from the Philippines, thus extending its range very far to the eastward. Dr. Meyer, in his "Field-notes from Celebes," records it from Menado, Tello (South Celebes), and likewise from the Togian Islands. It also visits Java, Sumatra, Borneo, Batchian, and Morty Island.

Migrating to the north from Africa it spreads in the spring through the whole of Europe, passing through Egypt, according to Captain Shelley, from the south in April. Further west, however, its advent in Europe is much earlier; for we find Col. Irby recording it as passing over from Tangier, where some remain to breed, in January and February; and Mr. Howard Saunders was informed that it usually arrived at Malaga on the 25th of the former month. It must remain, however, in Spain for some time before venturing into more northerly climes, as we seldom see it in England before the middle of April. The migratory stream from the south of Africa, where the Swallow winters in great numbers, continues to flow for some months after these Tangier birds commence to move. I saw it in considerable force at St. Vincent on the 15th of April, 1877; and Governor Ussher ('Ibis,' 1874, p. 62) obtained specimens in complete plumage in February and March at Cape Coast, Western Africa, and noticed that it left the Gold Coast before the 1st of May. Mr. Godman found it breeding abundantly in Madeira and the Canaries, but is unable to say whether it is stationary there; other observers remark that it only occurs on passage in the Canaries. In Teneriffe it arrives after the Swift. In Sardinia, according to Mr. A. B. Brooke, "it arrives in small numbers about the end of February or early in March, from which time they keep gradually increasing in numbers. Young birds were hatched about the 29th of May." Not content with overspreading the temperate parts of Europe, it perseveres in its onward journey to the very northern coasts, and thence further even to the shores of Nova Zembla, and even to Spitzbergen, it having been seen there by Mr. Arthur Campbell's exploring party in 1874. It is a rare straggler to Iceland, and has never yet been known to occur in Greenland.

Concerning its return to winter quarters in Africa, we find that some remain throughout the season in the northern part. Mr. Tyrwhitt Drake says that it is seen all the year round in Tangier and Eastern Morocco, so that it both breeds and winters there. Captain Shelley likewise considers that it may be resident in Egypt to a small extent, as he obtained an immature specimen on the 28th February; but the fact that it was abundant in Nubia in May is, I think, still more conclusive that it breeds in North-eastern Africa and doubtless remains throughout the year. Some examples would appear to remain in South Africa during the winter, or to return very early from breeding-grounds in the north of the continent; for Layard saw one on the 27th of July at Cape Town, and again another on the 30th August; this latter, he remarks, was probably a new arrival from the north.

Habits.—Much might be written concerning the habits of the favourite harbinger of our English spring; but they are well known to the most casual observer, and my space will not permit of any lengthened dissertation on the economy of this interesting bird. Of late years, since the climate of old England has undergone such changes, the saying that "one Swallow does not make a summer" is disagreeably true; but, nevertheless, the first welcome sight of the sweet bird, its shining plumage illumined by the fitful sunbeams of a chilly April day, conduces to the hope that soon the bitter east wind will have blown itself out, and that Nature must speedily array herself in that joyous verdant attire which makes the warm English May-day so inexpressibly lovely. To the resident in Ceylon the Swallow brings no such pleasant prospect; it arrives in the midst of the wind and rain with which the south-west monsoon dies out, and foretells nothing but the usual dry Christmas weather of this part of the tropics. Yet its presence on the Galle Face at Colombo, as it skims along just above the turf on a bright though windy morning, or sits in rows of a dozen or more twittering its winter notes on the telegraph-wires at noon, is not without a charm, and reminds one of the home that has been left behind far beyond the western horizon. The time and place, however, in which to see the Swallow to perfection is when it is careering over a beautiful English lawn on a bright June morning, sweeping round the handsome conifers and beneath the spreading oaks; or when, glancing out of some rustic barn, it darts like a polished arrow down the tiny brook or round the village green in search of a mouthful for the little brood so snugly housed against yonder beam. In Ceylon we miss the pretty little chattering song of the male in the

breeding-season, although it does commence it before leaving in March. Scores of these birds may be seen perched on the telegraph-wire crossing the "Lotus-pond" at Colombo, a spot which furnishes a never-failing supply of insects; and they may frequently, as in other countries, be observed seated on roofs or on some little eminence on the ground. As is the case in England, before leaving the island they collect in flocks, but of much fewer numbers, as there are no young birds to congregate together. Few birds enjoy such an immunity from persecution as the Swallow; it is rarely shot except by those who are really in want of skins for scientific purposes. Favier has an interesting note with reference to the Moors and the Swallow; he says "the Moors believe it offends God to kill these birds; in the same way they believe it pleases or soothes the Evil One to kill the Raven. The stories on which this superstition is founded are too long to relate; but I was informed by one person that the Swallow and White Storks were inspired by Allah to protect the harvest and the country from noxious insects and reptiles, and that the birds themselves (knowing the benefits they confer on man) ask in return protection for their offspring by building their nests on the walls of towns and houses."

Nidification.—In India and on its northern confines (the only region we have to do with, as regards its nesting, in this work) the Swallow breeds during May and June. To the south of the Himalayas it breeds along the whole chain, from Cabool to Assam, at from 4000 to 7000 feet; it has been known to nest at Simla, Murree, Darjiling, Dhurumsalla, and at Asaloo on the Naga hills, in which latter place Col. Godwin-Austen observed it. In Turkestan, according to Dr. Seully, it makes a mud nest on the roofs of houses, the number of eggs laid being three or four.

The Swallow's nest is familiar to every Englishman; made of little pellets of mud brought by the birds in their mouths from the neighbouring brooks, ponds, or muddy roads, and fixed to the side of a beam or rafter, or against a wall, generally below the eaves, it is quite a work of art. It is very strong and durable; the very bottom foundation (as is only right and proper in architecture) is commenced first, the sides are then proceeded with, and then the bowed out part commenced and carefully worked at till the semicircle is complete. The interior is lined with a little grass and then with feathers, on which the eggs repose. The number of eggs is usually four, pure white, spotted all over with moderately sized specks, blotches, and spots of brownish red. Mr. Hume describes some taken in the Himalayas, where the bird builds in the corners of verandahs, as freckled and mottled all over with small specks of pale brownish red. The average size of seventeen eggs taken in India was 0·76 by 0·53 inch.

The subjoined woodcuts of the bill, wing, and foot of the Swift and of the Swallow will, I hope, illustrate to my non-scientific readers the distinguishing characters I have alluded to in this article. The wings are reduced, but the heads and feet are of the natural size.



Swift (*Cypselus affinis*).



Swallow (*Hirundo rustica*).

HIRUNDO HYPERYTHRA*.

(THE CEYLON SWALLOW.)

(Peculiar to Ceylon.)

Hirundo hyperythra (Layard), Blyth, J. A. S. B. 1849, xviii. p. 814; id. Cat. B. Mus. A. S. B. p. 198 (1849); Kelaart, Prodrömus, Cat. p. 118 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 170; Blyth, Ibis, 1867, p. 306; Gould, B. of Asia, pt. xx. (1868); Holdsw. P. Z. S. 1872, p. 419; Legge, Ibis, 1874, p. 13, et 1875, p. 280.

Cecropis hyperythra, Jerdon, Ibis, 1871, p. 352; Hume, Str. Feath. 1877, p. 266.

The Red-bellied Swallow, Kelaart; *The Red-breasted Swallow*.

Wahælaniya, Sinhalese.

♂ *ad.* suprà purpurascenti-niger, interscapulio paullo fulvo vario, plumis basaliter et marginaliter fulvis: uropygio lætè castaneo: alis caudæque cum supracaudalibus purpurascenti-nigris: loris pileo concoloribus, infrà castaneo variis: facie laterali et regione parotica saturatè castaneis, plumis obscurè purpurascenti striatis: corpore subtùs castaneo, gutture et pectore angustissimè nigro striolatis: subcaudalibus longioribus, purpurascenti-nigris: subalaribus pectori concoloribus: rostro nigro: pedibus vinascenti-brunneis: iride brunneâ.

Adult male and female. Length 6·5 to 6·8 inches; wing 4·6 to 4·9; tail 3·1 to 3·3, centre feathers 1·4 shorter than the external; tarsus 0·5 to 0·6; middle toe and claw 0·6; bill to gape 0·6.

Iris sepia-brown; bill deep brown, in some blackish, base of lower mandible reddish; legs and feet vinous brown.

Head, hind neck, back, scapulars, wing-coverts, and longer upper tail-coverts glossy blue-black; the bases of the feathers of the back bright buff; wings and tail dull black, glossy near the tips of the feathers; the inner margins of the primaries brown; entire under surface, including the sides of the neck and a band from $\frac{1}{2}$ to $\frac{3}{4}$ inch wide across the rump, light, glossy, chestnut-red, each feather, except on the belly, vent, and rump, with a *plainly defined* black shaft-streak; the ear-coverts with a broader but less plainly defined blackish-brown shaft-stripe, and their bases black; lower portion of loreal region obscure chestnut; longer under tail-coverts blue-black; under wing-coverts paler chestnut than the breast, bases of the feathers along the edge of the wing black; shafts of primaries whitish beneath, brown above.

Young. Immature birds have the hue of the under surface paler than adults, and the shaft-streaks not so clear.

Obs. This Swallow, for years after its discovery in the island, was considered peculiar to it. The late Lord Tweeddale received a red-bellied Swallow from Malacca, which he considered identical with ours; and consequently *H. hyperythra* became a Malaccan bird, and, as such, appears in Mr. Holdsworth's excellent catalogue. Mr. Hume has, however, lately obtained Malaccan specimens, and finds that the peninsular bird is much larger, "wing 5·55 against 4·75 to 5·0" (my largest specimen measures 4·9), has a proportionately smaller bill, the chestnut rump-band much wider (1·2 against 0·8), and the shafts of the earlier primaries black instead of brown; the colouring of the underparts and the rump-band is likewise deeper than in our bird. I have examined a specimen in the British Museum, and it is clearly a good subspecies or local race of *H. hyperythra*. The upper surface is much more brilliant, and the deep chestnut underparts, which are devoid of stræ, are at once noticeable. Mr. Hume has named it *H. archetes* (Str. Feath. 1877, p. 266), but it was previously named *H. budia* by Cassin (Gray, Hand-l. B. i. p. 69).

Distribution.—This fine Swallow was discovered by Layard, who met with it in 1849 near Ambepussa. It is widely distributed throughout all the low country, with the exception of the extreme north, where I have

* This Swallow is often placed under the subgenus *Cecropis* (Boie), which was established for the reception of certain species which have the underparts streaked and often rufous, as well as the head or rump, or both. I shall, however, retain all the Swallows under the one genus, and point out the characters upon which the different *subgenera* have been founded. These have either reference to plumage or to shape of tail—the first not always, in my opinion, of generic worth; and the latter a character of but little value in the Swallows, for it is unaccompanied by any corresponding structural variation, such as shape of bill or wing.

not noticed it. In the forest-districts lying between Dambulla and the latitude of Manaar it is local, being chiefly confined to small tracts of cultivation in the vicinity of tanks; in the Eastern Province, which is equally wild, it is restricted to similar localities, and in the Western Province is found principally in the interior. So plentiful is it, however, in the south-west of the island, that it is the common Swallow of the town of Galle, and seems to affect the sea-coast quite as readily as the interior, except during the wet windy weather of the south-west monsoon, when it retires for shelter to the secluded vales away from the sea-board. About Kandy, and in the Central Province generally up to 3000 feet, it is common, and in Uva and Haputale is found much higher than that elevation, for I have known it to breed at 4000 feet in the latter district. Mr. Bligh has seen it once at Nuwara ELLIYA; but it is rare on that elevated plateau, although in many of the coffee-districts it may be seen hawking at higher altitudes than that of the Sanatorium. In the Morowak-Korale district it is not uncommon.

Habits.—Our Ceylon Swallow frequents towns and villages alike with the country. In the latter, marshes and paddy-fields, open glades in secluded valleys, and lonely tanks in the wilds of the jungle are the places to which it is partial. It is found in the Central Province a great deal about estate-stores and bungalows, and often consorts there with the little Bungalow-Swallow, breeding in cattle-sheds and outhouses and permanently frequenting their vicinity. It is a characteristic bird of the wild village tanks in the Vanni, and its cheerful chirrup is often one of the first bird-sounds which meets the ear, on the sportsman suddenly emerging from the forest and finding himself standing at the brink of one of those interesting places. Several have perhaps been resting on a dead log, half covered with weeds and water, or sitting on the dried mud of the bed of one of these small reservoirs, and finding the solitude of their retreat suddenly invaded, glide off on the wing, uttering their curious guttural notes, at the same time that, from the same cause, half a dozen lazy-looking but watchful crocodiles rush, with a mighty splash, into the muddy pool. Such haunts as these literally teem with insect-life; and I have seen scores of these Swallows hawking about a small water-hole of about half an acre in extent, which was all that remained of what was, in the wet season, a fine sheet of water. Its flight is slower than that of most Swallows, and it often sails along on outstretched wings, now and then making a sort of circle in its course. In the south it is fond of frequenting paddy-fields made in the narrow glades lying between the low wooded hills characteristic of that part.

Nidification.—The Red-bellied Swallow breeds in the north, west, south, and centre of the island from March until June, constructing a Martin-like nest in outhouses, open dwellings, or under culverts and bridges. The nest is composed externally of mud and lined with feathers; it is large, and the entrance is situated usually at the end of a spout, running from 3 to 6 inches along the planks at the top of the nest; some have merely a circular orifice at the top. One which I frequently observed during the course of its construction was built in a merchant's office in Galle, the familiar little architects taking no notice whatever of the clerks who wrote at their desks just beneath; it was completed in about three weeks, the spout being added last, and after this was finished, one of the pair took up its position inside the nest and received the feathers brought by its mate to the entrance. The eggs are either two or three in number, and some brought to me as belonging to this bird were pure white and pointed lengthy ovals in shape, much resembling those of *Cypselus affinis*; they measure 0·85 inch by 0·56 inch. I have not taken the eggs myself.

The figure of this species in the Plate accompanying my article on *Munia kelaarti* is that of a male shot at Pan-kulam tank, Trineomalie.

HIRUNDO ERYTHROPYGIA*.

(THE LESSER MOSQUE-SWALLOW.)

Hirundo erythropygia, Sykes, P. Z. S. 1832, p. 83; Jerdon, Madr. Journ. 1840, xi. p. 237; Adam, Str. Feath. 1873, p. 370; Aitken, *ibid.* 1875, p. 212; Butler, *t. c.* p. 451; Cripps, *ibid.* 1878, vol. vii. p. 257.

Hirundo daurica, Blyth, Cat. B. Mus. A. S. B. p. 198 (1849, in part); Layard and Kelaart, Prodromus, Appendix, Cat. p. 58 (1853); Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 92 (1854, in part); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 170; Jerdon, B. of Ind. i. p. 160 (1862, in part); Holdsw. P. Z. S. 1872, p. 419.

Cecropis erythropygia, Jerdon, Ibis, 1871, p. 352.

Lillia erythropygia, Hume, Nests and Eggs, ii. p. 76 (1873); *id.* Str. Feath. 1877, p. 255.

The Red-rumped Swallow, Jerdon. *Masjid ababil*, lit. "Mosque-Swallow," Hind.

Adult male and female. (Specimens in the British Museum.) Wing 4.4 to 4.5 inches; tail 3.0 to 3.3, centre feathers 1.1 to 1.4 shorter; tarsus 0.5; middle toe without claw 0.48; bill to gape 0.5 to 0.55. Females seem to be shorter in the tail than males.

Mr. Hume, in his valuable monographic notice of the subgenus *Lillia*, gives the length at from 6.5 to 7.0, average 6.75 inches; wing from 4.1 to 4.5. Weight 0.62 oz. (*Cripps*).

Iris brown; bill, legs, and feet black.

Head, nape, hind neck, back, scapulars, lesser wing-coverts, and longer under tail-coverts glossy blue-black; greater wing-coverts, primaries, secondaries, and tail-feathers brownish black, glossed chiefly on the outer webs with greenish; a superloral streak passing above the eye, spreading out over the ear-coverts, and running thence beneath the nape dark ferruginous chestnut; rump and shorter upper tail-coverts paler chestnut than the cheeks, forming a band about $\frac{3}{4}$ inch or more wide; in some specimens there are a few black-shafted feathers among the upper tail-coverts; a black spot immediately in front of the eye, between which and the bill the lores are whitish; entire under surface, with the under wing- and under tail-coverts, buffy white, palest on the throat, and most strongly washed with buff on the flanks, each feather, except on the belly, with a fine brown shaft-streak; terminal portion of the under tail-coverts black.

Young. A specimen from Behar has the inner secondaries tipped with rufescent, and is very strongly tinged with buff on the flanks and under wing-coverts. Another from the Godaveri River has the chestnut colour of the cheeks and ear-coverts of less extent and very pale; inner secondaries tipped with buffy white; stripes of the under surface bolder than in the adult; chestnut rump-band very pale, and with one or two *dark stripes*; a pale spot on the inner web of the outer tail-feathers.

The just-flown nestling, according to Mr. Hume, has hardly any trace of striations.

Obs. This Swallow was confounded by Layard with the larger northern form, *H. daurica*, Linn., = *H. alpestris*, Pallas, *apud* Hume, or rather with some one or other of the Himalayan birds, which were then considered identical with the Central-Asian species. Specimens of *H. alpestris* from Mongolia, Assam, and other parts of Central Asia, which I have examined, have the wing 4.8 to 5.1 inches and the tail 4.1 to 4.6; the striations of the under surface are bolder and the uropygial band wider than in *H. erythropygia*, and streaked in some specimens with dark shaft-stripes; a whitish spot on the inner web of the outer tail-feathers is present in some skins.

H. nipalensis belongs to this group, with the well-marked striations on the under surface. Wing 4.6 to 4.8 inches; no white on tail; wings and tail brown; rump-band 0.8 to 1.0; ears dingy yellowish white or pale dingy rufescent, densely striated with dusky. Its larger size and bolder striations distinguish it, too, from the subject of the present article.

* This species and its allies are placed by some in the subgenus *Lillia*, characterized by the rufous or pale underparts either striated or unstriated, and by the rufous rump-band striated in most.

H. intermedia, Hume, is another and a new species from the hilly regions of Northern India. Mr. Hume has received it from Assam; it is a large bird; wing 5·0 to 5·2 inches. It has no rufous nuchal collar, and the rump-band is uniform.

H. striolata, Temm., inhabits the Indian archipelago. A specimen from Flores has the wing 4·1 inches; outer tail-feathers 3·6; stripes of under surface much bolder than in a Mongolian example of *H. daurica*; the upper tail-coverts have broad stripes. An allied form, if really distinct, to the latter exists in Mr. Hume's new species, *H. substriolata* (Str. Feath. 1877, p. 264). It has the underparts more richly coloured, a less massive bill, and longer tail.

Distribution.—This little Swallow only finds a place in the avifauna of Ceylon as a straggler, and but two instances of its occurrence in the island have been brought to my notice. Layard, the first to get it in Ceylon, writes thus concerning it:—"I found one of these birds in the village of Pt. Pedro in December: it had probably been driven over from the opposite coast by stress of weather: it was hawking about the street. I fired at and wounded it, but it flew away. Next day it was again in the same place, and I succeeded in killing it." At this season of the year the north wind, styled at Colombo the "longshore wind," brings many Indian birds to our shores, and doubtless was the means of driving the present species southward of its natural habitat; but as it is an inhabitant of the Nilghiris and other parts of the south of India, it is strange that it does not more frequently visit Ceylon. In the second instance it was procured by Mr. Bligh on the Catton Estate in April 1877.

This Mosque-Swallow is found throughout India; it is recorded from the Nilghiris, Mysore, the Deccan, Mount Aboo, Deesa, and Cashmere, as far up as Chungus on the Tawi river, where Mr. Brooks observed it. Jerdon says that he has seen it in every part of India, from the extreme south to Darjiling, which remark, however, does not hold good as to its distribution in every respect, as the latter locality is inhabited by the larger species, *H. nipalensis*, not then discriminated by Jerdon from the present. Captain Butler remarks that a few birds remain at Deesa the whole year round, but most return to the hills during the hot weather, or between the 30th April and the 25th June. Mr. Adam writes that it is not very common at the Sambhur Lake, but that it breeds there notwithstanding. In Furreedpore Mr. Cripps found it abundant. At the eastern side of the Bay of Bengal it is replaced in Tenasserim by the Himalayan race, *H. nipalensis*. From some portion of the mainland it may perhaps stray across to the islands of the Bay, for Mr. Hume mentions seeing one between Preparis Island and Calcutta when out of sight of land.

It may not be out of place to mention here that the Swallow alluded to under the name of *H. daurica* by Swinhoe as breeding in Northern China, and which Jerdon refers to in his article on this bird ('Birds of India'), really belonged to another allied species, *H. striolata*, Temm. & Schlegel, mentioned above.

Habits.—This little Swallow in India is fond of frequenting mosques and other buildings, as well as the vicinity of walls or bridges, under which it hawks in search of the insects which affect the proximity of water. Mr. Aitken writes of it as follows:—"This is one of those birds which seem highly to appreciate the advantages of civilization, and to think, like Cowper's cat, that men take a great deal of trouble to please them! In Berar they have almost discarded the mosques which gave them their name, and have betaken themselves to the culverts of the roads which are now being constructed all over the country. Wherever a road is made some of the culverts are sure to be taken possession of, as soon as the rains commence, by pairs of these Swallows, which may be seen darting in at one end and out at the other, or hawking about for flies over the pools of water at the roadside. Their flight has, however, nothing of the extreme rapidity of that of the Swifts or Wire-tailed Swallows. During the cold season the young often assemble in large flocks; but these all disperse or perhaps migrate as the weather gets warmer, and only a few pairs remain to breed during the monsoon." I conclude that the numbers of these birds seen by Col. Sykes were young; he says "it appeared for two years in succession in countless numbers on the parade-ground at Poona; they rested a day or two only, and were never seen in the same numbers afterwards."

Nidification.—The breeding-season of this species is said to last from April to August. The nest, writes Mr. Hume, "which is usually affixed to the under surface of a ledge of rock or the roof of some cave or building, and which is constructed of fine pellets of mud or clay, consists of a narrow tubular passage like a

white-ant gallery on a large scale, some 2 inches in diameter and from 4 to 10 inches in length, terminating in a bulb-like chamber from $4\frac{1}{2}$ to 7 inches in diameter externally." The interior is lined with feathers or grass. These retort-shaped nests vary in the extent to which the tube is constructed, and some think that the larger ones are intended as roosting-places or residences. The following account of Mr. Davison's experience of one of these nests seems to confirm the idea, borne out by the anecdote in the next article, that Swallows have a peculiar instinct for immuring their enemies! While examining some of these nests at Ootacamund he came upon one which "had the tubular entrance walled up and the mud perfectly hard and dry. On breaking away a part of the nest I found a dead bird in it, which had come quite to the sealed end of the tubular neck and had there died. The nest contained three old eggs, of which the contents had partially dried up. I can only account for this walling up of the entrance to the nest by supposing that some of the other birds had coveted and failed to obtain this site for their nest. It is only natural to suppose that more than one pair were concerned in the business, as it would have taken at least one bird to keep the inmate from leaving the nest and another to keep its mate away from it, and probably another or several other pairs to close the entrance." The eggs, which are pure white, are long ovals in shape and sometimes a little pyriform; they have, says Mr. Hume, little or no gloss, and average in size 0.78 by 0.55 inch.

HIRUNDO JAVANICA*.

(THE BUNGALOW-SWALLOW.)

Hirundo javanica, Sparrm. Mus. Carls. fasc. iv. t. 100, "Java" (1789); Bourdillon, Str. Feath. 1876, p. 374; Fairbank, ibid. 1877, p. 392; Tweeddale, Ibis, 1877, p. 316.

Hirundo domicola, Jerdon, Cat. B. S. India, Madr. Journ. 1874, xiii. p. 173; Blyth, Cat. B. Mus. A. S. B. p. 198 (1849); Kelaart, Prodrumus, Cat. p. 118 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 170; Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 384 (1854); Jerdon, B. of Ind. i. p. 158 (1862); Blyth, Ibis, 1866, p. 336; Gould, B. of Asia, pt. xx. pl. 13 (1868); Jerdon, Ibis, 1871, p. 351; Holdsw. P. Z. S. 1872, p. 418; Morgan, Ibis, 1875, p. 313.

Hypurolepis domicola, Hume, Nests and Eggs, p. 73 (1873); id. Str. Feath. 1874, p. 155.

The Nilgherry House-Swallow, Jerdon, B. of India; *The Hill-Swallow* in Ceylon.

Wahelaniya, Sinhalese.

Adult male and female. Length 4·9 to 5·0 inches; wing 4·0 to 4·1; tail 1·8; tarsus 0·35; middle toe and claw 0·4 to 0·5; bill to gape 0·47 to 0·51; wings exceeding the tail by 0·5 when closed.

Tail short and slightly forked.

Iris deep brown; bill blackish, base of lower mandible reddish; legs and feet brown, the edges of the tarsal scales whitish; claws black.

Head, upper surface, scapulars, and lesser wing-coverts glossy greenish black; wings and tail black, with a slight greenish gloss; the upper tertials tipped white; a bar-shaped white spot on the inner webs of all the rectrices but the middle pair; lores and ear-coverts black; forehead, chin, throat, and chest ferruginous, darker on the forehead than beneath; under surface cinereous brown, paling to whitish down the centre of the breast, the adjacent feathers being tipped whitish; under tail-coverts black, tipped white, the longer feathers glossed with greenish.

Young. The nestling when fledged does not differ much from the adult, its chief characteristic being the unglossed upper surface. The forehead is edged with pale rufous, the tertials the same; tail with the spots smaller than in the adult, and the rufous of the throat not so dark, paling to rufescent white on the breast; under tail-coverts tipped with rufescent.

Obs. The Swallow of the Nilghiris, with which the Ceylonese bird is identical, was described by Jerdon as *H. domicola*, but it has of late years been found that the Malayan species, *H. javanica*, cannot be separated from it. Lord Tweeddale ('Ibis,' 1877, p. 316), in speaking of a Lampong (south-east Sumatra) specimen, says, "Nilgherry examples (*H. domicola*, Jerdon) cannot be separated." Messrs. Hume and Davison likewise consider the Tenasserim birds identical with South-Indian. Jerdon, in commenting on Gould's plate ('Birds of Asia,' pt. xx.) of *H. domicola*, remarks that it appears to be very close to the true *H. javanica*, but that is said to be a good deal larger bird. As regards this, I have compared the Ceylonese race with specimens from Sumatra, Sarawak, Bouru, Lombok, Sula Islands, East Timor, West Java, Labuan, Penang, and find that the balance is slightly in favour of the eastern race. A Sarawak example measures 4·2 inches in the wing; a Bouru 4·35; a West-Javan 4·2; but others do not exceed my specimens; one from Timor has a wing of 4·0 only, two from Penang 4·15. I observe, however, that all these examples, except those from Labuan and Lombok, are conspicuous for the bluer tinge of the upper plumage, the two exceptions mentioned being green, like the Ceylonese, all of which present the same character. The outer tail-feathers also are more pointed than those of my specimens, the under tail-coverts are not so dark, and the rufous on the ear-coverts is brighter. I have not had the advantage of comparing my birds with a South-Indian series, and I therefore state these facts, as they may be of use to those who wish to investigate the matter. In any case this could only be looked upon as an interesting local variation of no importance.

* This Swallow has been placed in the subgenus *Hypurolepis*, as differing from true *Hirundo* in its shorter and subfurcate tail.

Distribution.—The familiar little Hill-Swallow is a resident inhabitant of the mountains of Ceylon, and is, as in the south of India, restricted to high elevations. Though common as low down as the valley of Dumbara, it appears resolutely to decline any descent into the hot regions round the base of the mountains, for I have never seen it, or heard of it being observed, in the low country. It is found in the open districts formed by the great valleys in the Central Province, about estates, and on the plains of the upper regions, being very common at Nuwara Eliya and in the neighbourhood. I observed it at Horton Plains, and in the southern ranges met with it in the Morowak and Kukkul Korales; and throughout the high tract formed by these and the adjoining Korales it is found down to the same altitude as in the Kandy country.

This little Swallow is found in the south of India on the Nilghiris, Palanis, and Travancore hills. It frequents the higher parts of these ranges, being recorded from the Palanis at 5500 feet elevation. Mr. Bourdillon remarks that they persistently remain about the same ravines and do not travel much. Jerdon writes that he saw some Swallows at Bangalore and observed their nests in the verandah of a house there, and that in all probability they belonged to this species. I find no recent observation of it at that place, but I have no doubt Jerdon was correct in his surmise. Its range extends eastwards from the south of the peninsula into the Andamans, Tenasserim, Malacca, and thence south into Borneo and Java, and furnishes an important instance of the affinity between the South-Indian, Ceylonese, and Malayan avifauna, which is exemplified in more than one species dealt with in this work. To the Andamans it is a monsoon visitant, being common there from the beginning of June to the end of September. In Tenasserim it is "rare and probably confined to the more southern portions of the province" (*Hume*); in fact Mr. Davison only met with it at Mergui in June. Judging from these dates it would appear that it migrates with the south-west monsoon from South India or Ceylon across to the last-mentioned localities, not straying above 13° or 14° N. latitude. It was procured in Borneo by Mr. Mottley and in Lampong by Mr. Buxton, and there are examples in the national collection from Lombok and Bouru. Dr. Meyer records it from Celebes (Tello, near Makassar).

Habits.—To the resident in the beautiful mountains of Ceylon this little bird has much the same interest as that which the Common Swallow possesses for the occupants of the many English homes to which it is so welcome a visitor; with this difference, however, that it is a constant attendant about the Ceylon bungalow throughout the year, flitting in and out of the rose-covered and trellised verandah, gliding over the spacious barbecues bestrewn with the rich produce of the estate, or settling on the roofs of the pulping-houses, from the tops of which it utters its merry little twitter while it prunes its glossy plumage in the rays of the morning sun. No wonder, then, that it is a general favourite with the planter, reminding him of scenes far away, and bringing back to him recollections of those from whom he is so widely removed. In the mind of the author this interesting bird is connected with pleasing memories, not easily forgotten, of much kindness received, and, moreover, of the glorious mountain prospects viewed from the verandah of many a hospitable bungalow, round which he has often seen it flying while resting after the exertions of a long toil up the zigzag

? COTYLE OBSOLETA.

(THE PALE CRAG-MARTIN.)

Cotyle obsoleta, Cabanis, Mus. Hein. i. p. 50 (1850); Dresser, B. of Europe, pt. 37 (1875).

Ptyonoprogne pallida, Hume, Str. Feath. i. p. 1 (1873).

"Upper parts very pale greyish sandy brown, darkest on the head and palest on the rump; lores blackish brown; underparts creamy white; on the chin and upper throat almost pure white; flanks, lower abdomen, and under tail-coverts washed with dull rufous brown;" wings and tail brown; tail-feathers with a large white spot on the inner web of all but the central and outermost pair.

"Length 5·2 to 5·5 inches; wing 4·5; tail 2·1.

"Bill black, inside of mouth dirty yellow; tarsus dark brown, soles whitish; iris dark brown." (*Dresser*.)

paths of the estate. It is found about the villages of the Kandyans, and hawks for its food over patnas and cleared hill-sides, as well as round the stores and buildings of the estates. On some bare spot or on a pathway in the open it may sometimes be seen resting, and I have occasionally seen it perched on a dead branch or stake; but its favourite post is the eave of some building. Its flight is very buoyant but not at all swift, and its twitter is not unlike that of the Common Swallow.

Nidification.—The breeding-time of the Hill-Swallow is in April, May, and June; it nests in the verandahs of bungalows and outbuildings of estates, and under the eaves of native houses, building sometimes beneath the ceilings of rooms without evincing any fear of the inmates. Such a nest I once observed in the sitting-room of the old Banderawella Resthouse. It is usually placed against the side of a beam or projecting baulk of timber, and resembles in its construction that of the last species, though somewhat smaller. It is composed of mud and lined with feathers, threads, small pieces of rag, and such materials as it may pick up about its adopted residence. The eggs are usually three in number, stumpy ovals in shape, and of a white ground-colour, spotted pretty evenly with brownish red. In Southern India its nesting-habits are much the same; and it appears from the following interesting anecdote which I subjoin, from the notes of Miss Cockburn, that its domicile is sometimes invaded by the truculent Sparrow. Her remarks, as quoted by Mr. Hume in 'Nests and Eggs,' are as follows:—"They are fond of returning to the same places in which they build every year, and appear to prefer erecting their little nests in verandahs and eaves of outhouses. Many years ago I remember watching a battle between a Cock-Sparrow and a pair of House-Swallows. The latter had finished their neat nest in our verandah when the Sparrow discovered it, and never left it except for the purpose of satisfying his appetite. The poor Swallows saw they could do nothing, so they disappeared and told their friends the sad tale in Swallow language, and (as in the multitude of counsellors there is wisdom) some time after, to our surprise, we saw a number of House-Swallows each with a wee lump of clay in its bill. They flew up to the nest and succeeded in building up the sides, the Sparrow inside doing his utmost to stop the work, but they, being accomplished artisans in their own masonry, did not take a second to fix each piece of clay. It became a most exciting scene, and we fully expected the Sparrow would have been imprisoned for life; but no, he was much too crafty to allow that; with one effort he burst through the very small hole that was left unclosed and escaped, being attacked by all the Swallows at the same instant; and this conflict ended by the rightful owners having possession of their nest." This extraordinary feat is, I think, an instance of the most wonderful instinct on the part of birds that it is possible to conceive.

Both in South India and Tenasserim it commences to build in April, continuing in the former place until June. Mr. Morgan has found the nest on rocks and cliffs, and remarks that it is very firmly cemented to the object against which it is placed. I once found a Swallow's nest in a small cavern or recess in the face of a cliff in Haputale, and it no doubt belonged to this species. In some eggs there is a tendency in the markings to form a zone at the large end. They measure about 0·77 by 0·5 inch.

We have the authority of my friend and correspondent Mr. Bligh, Catton Estate, for the interesting occurrence of a Martin in Ceylon. The birds have been seen by him on several occasions during the north-east monsoon in the beautiful Kandapolla valley in the Haputale range; but he has been unable to procure a specimen so as to identify the species satisfactorily. I accordingly suggest, in this footnote, the possibility of it being the Pale Crag-Martin, and have given Dresser's description for the guidance of any who may hereafter procure specimens in Ceylon.

Possibly it may be the Cashmere House-Martin, which is very like the English Martin, but has the flanks brownish and the axillaries dark brown; but as Mr. Bligh mentions the dusky under surface of his bird, I have thought it more likely to be the species here indicated.

Mr. Bligh, in writing to me in March 1876, speaks of his discovery and remarks:—"I have seen several but could not obtain a specimen; it is not, I feel sure, the English bird, as it looks much darker underneath, or rather the white is not so pure." In the cool season of 1877-8 he again saw several, but had no gun with him at the time; and just as I am going to press with this I receive a letter in which he says:—"I saw a Window-Martin as late as April this year; it came within five yards of me; it is a smaller species than *C. urbica* and duller in colour."

This species is an inhabitant of Palestine and North-east Africa, and has been found in Beluchistan and in Sindh.

PASSERES.

Fam. FRINGILLIDÆ.

Bill short, thick at the base, conic, tip acute and entire; culmen more or less flattened. Nostrils round, basal, placed near the culmen; gape smooth. Wings moderately long, the first three quills nearly equal. Tail of 12 feathers, not longer than the wing, even or forked. Legs and feet stout. Tarsus covered with transverse scutes; hind toe of medium size.

Of small size.

Genus PASSER.

Bill very short, compressed towards the tip, tumid at the base; the culmen flattened. Nostrils small, round, placed in a membrane, partly concealed by tufts. Wings with the first three quills subequal, the 1st either shorter than, or equal to, the 2nd. Tail shorter than the wings, even at the tip. Tarsus longer than the middle toe and claw, protected by stout transverse scales; lateral toes subequal and much shorter than the middle one; hind claw moderately large.

PASSER DOMESTICUS.

(THE COMMON HOUSE-SPARROW.)

Passer domesticus, Linn. Syst. Nat. i. p. 323 (1766); Shelley, B. of Egypt, p. 148 (1872); Dresser, B. of Europe, pt. 48 (1876); Irby, B. of Gibraltar, p. 119 (1875); Seebohm, Ibis, 1876, p. 114; Newton's Ed. Yarr. B. Birds, vol. ii. p. 89 (1876).

Passer indicus, Jardine & Selby, Ill. Orn. pl. 118 (1848); Blyth, Cat. B. Mus. A. S. B. p. 119 (1849); Kelaart, Prodromus, Cat. p. 126 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 258; Horsf. & Moore, Cat. B. Mus. E. I. Co. ii. p. 499 (1856); Jerdon, B. of Ind. ii. p. 362 (1863); Blyth, Ibis, 1867, p. 41; Holdsw. P. Z. S. 1872, p. 464; Hume, Nests and Eggs, ii. p. 457 (1874); id. Str. Feath. 1873, p. 209; Adam, *t. c.* p. 387; Ball, *ibid.* 1874, p. 421; Tweeddale & Blyth, B. of Burm. p. 93 (1875); Oates, Str. Feath. 1875, p. 156; Brooks, *t. c.* p. 254; Butler & Hume, *t. c.* p. 496; Fairbank, *ibid.* 1877, p. 408; Hume & Davison, B. of Tenass., Str. Feath. 1878, p. 406; Ball, *ibid.* vii. p. 222; Cripps, *t. c.* p. 294.

Pyrgita domestica (Linn.), Hodgs. Zool. Miscel. 1844, p. 84.

Philip Sparrow, Old English; *The Indian House-Sparrow*. *Gorrion*, Spanish; *Bertal*, Moorish (Irby); *Haussperling*, German; *Musch*, Dutch; *Pardal*, Portuguese; *Gouriya*, Hind. in North; *Churi*, *Khas churi*, Hind. in South; *Charia*, *Chatta*, Bengal.; *Uri-pickike*, Telugu; *Adike lam kuruvi*, Tam. (Jerdon); *Pastro pardal* or *Pardan*, Ceylon Portuguese; *Addikalan*, lit. "Sheltering bird," Tamils in Ceylon.

Gewâl-kurulla, lit. "House-bird," Sinhalese; also *Geh-kurulla*, Layard.

Adult male (Ceylon). Length 5·6 to 5·8 inches; wing 2·95 to 3·1; tail 2·3 to 2·4; tarsus 0·65 to 0·7; middle toe 0·6, claw (straight) 0·19; bill to gape 0·52.

Female. Length 5·6 inches; wing 2·7 to 2·8; bill to gape 0·5; tail 2·1 to 2·2.

Male. Iris olive-brown, greyish brown, or brown; bill black; legs and feet fleshy brown or reddish brown. Some specimens have the culmen abnormally ridged, and the contour of the bill varies somewhat in different individuals.

Breeding-plumage. Centre of the forehead, crown, and nape ashy grey; lores, upper part of cheeks and ear-coverts, chin, down the centre of the throat, chest, and upper breast black; this colour extends more or less over the eye (in some specimens hardly traceable) and also past the gape, uniting the black of the lores with that of the chin; cheeks, ear-coverts, and sides of throat just below the ears whitish, more or less faintly tinged with greyish, and bounded beneath by the black of the chest, which spreads out; a few white feathers occasionally above the eye, above which, extending down the sides of the nape upon the neck and uniting across the back of it, is a long patch of deep chestnut; lesser wing-coverts and upper part of back the same, the latter region striped broadly with black; median coverts deeply tipped with white, which is surmounted by a black patch on the inner webs of the feathers; greater coverts and tertials black, at the centres of the feathers broad margins of chestnut-brown; primaries and secondaries dark brown; primary-coverts blackish brown; the whole narrowly edged with fulvous, which encroaches on the web just beyond the primary-coverts, and also near the centre of the longer primaries, forming two patches on the closed wing; lower back and rump brownish grey, marked generally on the rump with fulvous; tail greyish brown, the feathers finely margined with tawny grey; beneath from the breast to under tail-coverts impure white, darkened with greyish on the flanks; shafts of the under tail-coverts dark; under wing whitish, the edge marked with black.

Winter plumage. After the autumnal moult the black throat-feathers are tipped with white, deeply on the chest and narrowly on the throat; the upper-surface feathers are tipped with yellowish brown, giving a tawny appearance to the head, and almost obscuring the chestnut of the hind neck; the greater wing-coverts and tertials are much more deeply edged with chestnut of a more fulvous hue than the breeding-colour. The chestnut patch just behind the eye is less obscured than other parts, but even there the feathers are tipped with fulvous.

As the breeding-season approaches these margins wear off and leave the black and chestnut pure, but at the lower part of the chest where they are deep they mostly do not quite disappear.

Female. Iris brownish olive; bill olive-brown; margin and base of tarsus fleshy; legs and feet fleshy.

Head, hind neck, and lower back greyish brown, with often a tawny tinge; back striped with black on one web of the feathers as in the male, the other webs being dusky tawny; wings brown, with the markings distributed as in the male, but of an obscure tawny colour, the white tips of the median coverts not so deep; tail pale brown; a buff-white stripe above and behind the eye, between which and the ear-coverts there is a brown stripe; ear-coverts grey; chin and throat sullied white; under surface whitish, washed with grey on the chest and the flanks; feathers at the sides of the breast with dusky shafts, under tail-coverts with blackish ones.

Young. Iris dark olive-brown. Above greyish brown, obscurely banded on the head, hind neck, and rump with a darker shade; the interscapular feathers fulvous, the inner webs blackish; wing-coverts and tertials tipped and broadly margined with buff-white, above which the web is blackish; secondaries very broadly edged with buffy; tail very pale brown; eye-stripe and ear-coverts as in the adult female; cheeks faintly barred with brownish; chin and throat pale isabelline grey; under surface whitish, tinged with buff.

Obs. The Ceylon House-Sparrow belongs to that normally somewhat smaller and, as regards the female, *slightly* differently coloured race which inhabits India, and which has been separated by Jardine as *P. indicus*. Seeing, however, that the Sparrow has evidently, from the region in which the species was first installed by a creative Providence, followed the march of those classes of the human race which dwell in permanent habitations, it cannot have been otherwise as regards India, if, indeed, it was not there that it was originally located. It has been found to vary in size and coloration in certain districts which it has perhaps, at no very remote period, invaded. Mr. Seebohm remarks on the extremely bright colouring of the males he procured on the Lower Petchora, in Northern Russia, as compared with any thing he has seen; the Sparrow, therefore, in that region might be said to constitute a local race. In Siberia (whither, according to Professor Newton, it has wandered since the Russian conquest) it occasionally attains a very large size: an example from Krasnoyarsk measures 3·25 inches in the wing, showing that the climate of that region is conducive to robustness. I contend, therefore, that the difference in size of

Indian birds, which is chiefly apparent in the females, and the slight alteration in colour, is owing entirely to food and climatic influence.

Indian and Ceylonese examples are identical. A male from Madras in my collection measures in the wing 3·05 inches, and has the white cheek-patch and the under surface as much tinged with grey as in European birds. Specimens from Ceylon, and, as far as I have seen them, from India, have only a trace of the little white spot above and behind the eye and of the white edging above the lores; it is always more or less present, which, inasmuch as it is such an obscure characteristic even in the European bird, more than any thing, I think, tends to prove the identity of the two races. In England I find that the Sparrow varies in size, depending to a certain extent, as it would appear to me, on conditions of food. The largest birds I have seen are from farmyards in the country, where an abundant sustenance is afforded them. Five males in my possession measure from 2·9 to 3·05 inches in the wing, and females from 2·9 to 3·0.

Mr. Dresser, in his great work on European birds, unites the two forms, and Messrs. Hume and Blanford are likewise of opinion that the Indian bird cannot correctly be specifically separated.

Distribution.—As in other countries, the House-Sparrow is found about human habitations in almost every town and village in Ceylon. It evidently was formerly only an inhabitant of the maritime and large inland cities and villages of the natives, and probably affected the settlements in the valleys of the Kandyan province; thence it continued to follow the march of Europeans into the hills, during the opening up of the mountain forests from one elevation to another, until it has now established itself at Nuwara ELLIYA and is common there. Mr. Holdsworth remarks, in his catalogue, that old residents at the Sanatorium remember the time when “the now common Sparrows and Musquitos were unknown at that elevation.” I have no doubt that when the solitudes of the Horton Plains are invaded, and the many allotments now marked out are studded with bungalows, the Sparrow will make itself as much at home there as he has done in the somewhat lower plain of Nuwara ELLIYA. I have visited villages in the interior of the northern forest tract where there were no Sparrows; but it is found at Anaradjapura, and I think all along the Northern road. Mr. Parker tells me it inhabits the villages in the Uswewa district.

It is generally diffused all over India, from the extreme south to the Himalayas, where Mr. Brooks found it above Mussouri, not differing at all from its companions of the plains. It is abundant in Sindh, and throughout the Kattiawar, Kutch, Guzerat, and Sambhur-Lake districts. In the Deccan it is, of course, common, and found everywhere around human habitations; it occurs on the Nilghiris and in the villages in the Palanis up to 5000 feet elevation (*Fairbank*). It is of course very numerous throughout Bengal, but gradually gets more local in its distribution as we travel to the eastward. In Cachar Mr. Inglis did not notice it; but it is found throughout Pegu, according to Mr. Oates, and Mr. Blyth says it is not uncommon at Akyab in Arracan. At Rangoon Mr. Hume says it is as common as *Passer montanus* (which replaces it to the south), and occasionally strays over to Moulmein in the Tenasserim province; but south of this it has not been procured or seen by Mr. Davison and others collecting in the province. Crawford is said to have procured it in Siam.

At some distant period it has, if not originally indigenous to the country, perhaps invaded India from Beluchistan and Persia, which it inhabits plentifully, although it is not universally distributed through Western Asia to Europe; it is, however, says Professor Newton, the common species of the Levant. As regards Palestine, Canon Tristram remarks, “The Sparrow of the Syrian cities is our own *P. domesticus*, which in his westward migrations has acquired neither additional impudence, assurance, nor voracity.” Severtzoff records it from Yarkand, though Dr. Seully did not see it there or anywhere in Eastern Turkestan. In Siberia, as I have observed already, it is found, but only in certain localities: on the river Ob, Dr. Finsch observed it only near cattle-stations; in the town of Berezhoff it occurred, but not in Obdorsk. Further east, Mr. Seeböhm states that it abounds in all the towns and villages as far as Yeneseisk, and he met with it once at Kooray-i-ka, within the arctic circle, although it had entirely disappeared about latitude 60°. Beyond the Yenesei it ranges as far east, according to Dr. von Middendorff, as Ust Strelka, the confluence of the Chirka and Argun rivers, which there join to form the Amour. Between this point and the Chinese Empire (the very place, above all others, suited for it) the solitudes of Mongolia must present a bar to its advance. It is found near Lake Baikal, straying thence to the island of Olchon (*Dresser*).

In Northern Africa it is resident in Egypt and Nubia, and is abundant there; Mr. E. C. Taylor found it

swarming in Cairo, and says that it breeds in Upper Egypt in holes in the mud banks of the Nile. Further east it is locally distributed in Algeria and Morocco, *Passer salicicola* being, according to Mr. Taylor, the Sparrow of the country. On both sides of the Straits of Gibraltar it is common, and is spread similarly throughout Spain. In Italy it is partly replaced by an allied species, *P. cisalpinus*; but in Turkey it is common, being the Sparrow of the district round Constantinople. It is spread commonly throughout Central and Northern Europe, including Russia, in which empire it is found as far north as Archangel. To the westward it is generally distributed throughout Finland. In Sweden we learn, from Professor Newton's edition of Yarrell, that it follows the settlers into the forest wilds, and the most northern point recorded for it is Karesuando; in Norway it occurs in most of the settlements "along the coast to the Loffodeus and Alten," but further north it is only occasionally seen. From the same authority we learn that the only places in which it does not exist are the Outer Hebrides and the hill-farms in Ayrshire, and that there is also a certain moorland village in Devon, called Shepstor, in which it is never seen. There are, likewise, places in the highlands where it is very rare, but everywhere else in Great Britain it is to be found. As regards Ireland it is apparently universally distributed throughout the country, although the information concerning it is not so full as might be wished. It occurs in Madeira occasionally, according to Mr. Godman, but is not recorded from any other of the Atlantic isles.

Habits.—In common with the Crow, which is an equally familiar feathered citizen in the East, the Sparrow is possessed of an extraordinary amount of domesticity and utter disregard of the human dwellers in the buildings which afford him shelter. His impudence and assurance are charming, and he by far exceeds his European relations in this respect. If he is not making his nest in your verandah, littering the whole place with straw, grass, rags, and a miscellaneous variety of building-materials, he is flying in and out of your breakfast-room, where he feasts on the crumbs beneath the table; and when he cannot supply himself from that source, he thinks but little of flying up and levying contributions, after the manner of the Crow, on the loaf, the moment the Appoo's back is turned. The Sparrow is seldom seen away from houses, except when the corn near villages is in ear; and then he may be found in the paddy-fields, feasting on the grain in common with Munias. In England, the hedgerows in early spring are resorted to, and it wanders away from its accustomed haunts, returning, however, at nights to roost; but in Ceylon it is not much found about isolated houses in the country, and has not the same opportunity of ruralizing as at home. The males are just as pugnacious as they are in colder climes; and during the breeding-season many a good sparrow-fight is carried on in the bungalow verandah, several neglected suitors sometimes setting on a coveted female and administering a most unmerciful chastisement; and it is a question whether, in the excitement of the fray, she does not receive an equal punishment at the beak of her favoured lord.

Owing to the open nature of buildings in Ceylon, the Sparrow comes more under human observation than he does in Europe, and is often voted a great nuisance; even the sanctity of the church is not the means of repelling his inroads, for he frequently disturbs a congregation by his loud chirpings underneath the tiled roof and by flying about in the most casual manner, as if the building were empty and he had a perfect right to do as he liked.

The general habits of the Sparrow are too well known to require recapitulation; and I have merely taken up room to say what I have on the subject in order to give my European readers some idea of its behaviour in the East. Its diet is both insectivorous and granivorous; and I have no doubt that the quantity of insects which it destroys counterbalances the evil which it is said to do in its attacks on grain.

Nidification.—As in England so in Ceylon, the Sparrow breeds all the year round; but the greater number of nests are built between the months of May and October; and during this period, in the Western Province at any rate, August is, I think, the favourite month. The nest is placed anywhere in a building or in a roof where there is sufficient cavity or space for its formation; it sometimes is built in a thickly foliated lime-tree near a house, and is then a large structure of grass and straw lined with feathers, the entrance being a hole at the side. The natives, who are fond of the Sparrow, often fix an old chatty, pierced with a small hole, on their walls for it to nest in; and the offer thus made does not often seem to be refused, as these earthen vessels are just suited for the reception of a large and untidy bundle of straw, such as "Philip Sparrow" delights

in making. The number of eggs varies from three to six or seven; but I think four is the usual quantum. They vary much in colour and marking; and in the same nest I have found eggs totally differing from one another, such as several of a dark grey ground, thickly speckled and blotched with dark brown, and one, or perhaps two, of an almost pure white ground, openly marked with a few large spots of dark brown and inky grey; the usual type is a greenish-white ground, speckled throughout, but chiefly in a zone at the larger end, with dark brown and greyish brown. They vary much in size, some measuring as small as 0.75 inch in length by 0.57 in breadth, but the usual dimensions are from 0.8 to 0.85 by from 0.62 to 0.66.

Both sexes commonly share in building the nest; but occasionally it appears to differ as to choice of site. My correspondent, Mr. Parker, writes me, in March last, of an incident connected with this peculiarity which occurred in the Kurunegala Resthouse:—"About three days ago a pair of Sparrows began to build a nest in the roof of the verandah. I was surprised at the amount of straw and grass that they wasted, and, while enjoying a pipe, determined to watch their proceedings. It was soon evident that the two birds were not of one mind with regard to the site for the nest, and that each had selected a separate place. As soon as one bird went away in search of straw, the other industriously employed the time in removing to *its* nest the unprotected materials left by the other; and this went on without any intermission, though the birds appeared on the best of terms whenever they met. The result is, that after three days the floor is littered with straw that has fallen, but neither nest has made the slightest progress!"

Martins' nests are sometimes taken possession of; and doubt has been expressed as to whether the building-up of their enemy by the rightful owners in revenge for their eviction has ever really taken place; but in a former article I have given indisputable evidence in the matter from the pen of Miss Cockburn, one of the most accurate observers of birds in India; and though the species was not a Martin, yet the habits of these birds and Swallows are so similar, that one cannot doubt that they would be capable of treating the intruder after the same fashion.

Illustrative of its generally tame and literally domestic habits is the following racy account by Mr. Hume of its nesting in India:—"If domesticity consists in sitting upon the punkah-ropes all day, *chit, chit, chit*, chattering ceaselessly when a fellow wants to work, banging down in angry conflict with another wretch on the table, upsetting the ink and playing 'Old Harry' with every thing, strewing one's drawing-room daily with straw, feathers, rags, and every conceivable kind of rubbish, in insane attempts to build a nest where no nest can be—if, I say, these and fifty similar atrocities constitute domesticity, heaven defend us from this greatly lauded virtue, and let us cease to preach to our sons the merits of domestic wives!"

"Now everybody does, or ought to, know all about the nidification of Sparrows, that their nests are shapeless bundles of straw, grass, rags, wool, or any thing else that they can lay their bills or feet on, thickly lined with feathers stuffed into any holes or crevices about houses, huts, walls, old wells, &c. that they can find, and even, though rarely, into the centre of some thick bush."

The Sparrow, with all his faults (some more alleged than real), displays great attachment for its young. An instance of this is given by Professor Bell (*Zool. Journ.* i. p. 10, 1824), his account being thus rendered by Professor Newton in his edition of Yarrell's 'British Birds':—"A pair of Sparrows, which had built in a thatched roof at Poole, were seen to continue their regular visits to the nest long after the time when the young usually take flight. This went on for some months, till, in the winter, a gentleman, who had all along observed them, determined on investigating the case. Mounting a ladder he found one of the young detained a prisoner by a piece of string or worsted which formed part of the nest, having become accidentally twisted round its leg. Being thus unable to procure its own sustenance, it had been fed by the continued exertions of its parents." The same author cites a parallel instance which "had been recorded by Graves, who finding a nestling Sparrow in like manner entangled by a thread, observed that the parents fed it during the whole of the autumn and part of the winter; but the weather becoming very severe soon after Christmas he disengaged it lest its death might ensue. In a day or two it accompanied the old birds, and they continued to feed it till the month of March, by which time it may be presumed to have learnt to get its own living."

PASSER FLAVICOLLIS.
(THE YELLOW-THROATED SPARROW.)

Fringilla flavicollis, Frankl. P. Z. S. 1831, p. 120.

Gymnoris flavicollis, Blyth, J. A. S. B. 1844, xiii. p. 948; Horsf. & Moore, Cat. B. Mus. E. I. Co. ii. p. 497 (1856); Hume, Nests and Eggs, ii. p. 461 (1874); id. Str. Feath. 1873, p. 420; Ball, ibid. 1874, p. 421; Fairbank, ibid. 1877, p. 408; Davidson & Wender, ibid. 1878, vii. p. 85; Ball, *t. c.* p. 223.

Ploceus flavicollis, Sykes, P. Z. S. 1832, p. 94.

Petronia flavicollis, Blyth, Cat. B. Mus. A. S. B. p. 120 (1849).

Passer flavicollis, Jerdon, B. of Ind. ii. p. 368 (1863); Blyth, Ibis, 1867, p. 42; Brooks, Str. Feath. 1875, p. 254; Butler & Hume, *t. c.* p. 497; Fairbank, ibid. 1876, p. 261.

The Yellow-necked or *Jungle-Sparrow*, Jerdon. *Raji*, Hind., or *Jangli-churi*; *Adavi-pichike*, also *Konde pichike*, Telugu (Jerdon).

Adult male (Futtehgur). Length 5·5 inches; wing 3·25; tail 2·3; tarsus 0·6; middle toe 0·55, claw (straight) 0·19; bill to gape 0·55.

Female (Futtehgur). Length (from skin) 0·5; wing 3·02 to 3·2; tail 2·2.

“Iris brown; bill black; legs cinereous brown” (*Jerdon*).

Above from the forehead to the upper tail-coverts, including the scapulars, pale sandy brown; wings and tail plain brown; the least coverts cinnamon-red, forming a conspicuous shoulder-patch, the next row with deep white tips, and the greater series with pale external edges and tips; the secondaries with less pale margins, and the primaries and tail with fine light edges; throat whitish, paling into sandy grey on the cheeks; fore neck, chest, and flanks very pale greyish brown, becoming albescent on the breast, belly, and under tail-coverts; on the centre of the fore neck a large rich yellow spot.

Female. Slightly paler above, with the red shoulder-spot not so deep in colour as in the male; yellow neck-spot slightly smaller and of a somewhat less rich yellow.

Young female (Madampe, Ceylon, October). Length 5·2 inches; wing 2·8; tail 1·8; bill to gape 0·55.

Iris brown; bill dark brown, lower mandible fleshy; legs and feet dusky bluish.

Above darker brown than the male above described; wing-patch brownish cinnamon; the coverts wanting the white tips; quills, primary-coverts, and secondaries dark brown with pale edges; beneath whitish, tinged with brownish grey, except on the throat and lower parts; yellow throat-spot very pale. Another example in moult has the yellow throat-spot almost imperceptible from abrasion; the wing-spot is of the same dull colour.

Female (Futtehgur, January). Chestnut wing-spot brighter than the above, the median coverts conspicuously tipped with white; the neck-spot small, but pure yellow in colour; this is the plumage after the first moult, the breeding-season being in May, and my birds being in first autumn plumage.

Obs. This interesting Sparrow belongs to a little group which was separated by Hodgson as *Gymnoris*; there are, according to Jerdon, two other species—*P. petronius*, Liun., of Europe, and *P. superciliaris*, A. Hay, from Africa. They have the bill slightly longer and less robust, and the tail proportionately shorter than the other Sparrows, and are characterized by the peculiar throat-spot. Blyth considers the Yellow-throated Sparrows are “linked to the ordinary Sparrow by the African *Passer simplex*, Licht., which has an intermediate form of bill and wants the yellow pectoral spot;” and, to avoid a multiplicity of genera, I keep this bird in *Passer*, though it forms, perhaps, a recognizable subgenus.

Distribution.—The Yellow-necked Sparrow is new to the avifauna of Ceylon, and has not yet been published as occurring in the island. I intended to have included it among the few species on which I made remarks

(Ibis, 1878, p. 201), but omitted to do so. I met with it in October 1876, while on a trip to Chilaw, close to Madampe. A considerable flock were together, in company with a number of Weaver-birds, on some openly-wooded grass-land near the sea. I only procured two specimens, as it was just sunset; and on returning a couple of days afterwards, I did not see the flock. One of the birds in question was in heavy moult, acquiring new primaries, so that I am not of opinion that it had recently arrived from India, although the locality favours the idea that it and its companions may have been visitors to the island.

Its occurrence in Ceylon is very interesting, as it ought by rights to be an indigenous bird there, being found over most of India.

It is spread throughout the empire, from the Himalayas (in which it occurs to an elevation of 5000 feet) to the extreme south, extending in a westerly direction as far as Sindh, where Messrs. James and Blanford procured it, but not passing into Burmah. In the south, of late years, it has been noticed by the Rev. Dr. Fairbank, who obtained it at Periakulam near the base of the Palanis; he likewise remarks that it is found everywhere in the Khandala district, though in small numbers. Messrs. Davidson and Wender, too, met with it in the Sholapoor districts of the Deccan, where it was rare, but breeding notwithstanding. Mr. Ball records it from many localities between the Godaveri and the Ganges, and says that it is nowhere so abundant in Chota Nagpur as in the Satpura hills, where he hardly passed a day without seeing numbers, and in some places found it in the thickest jungles. About Mount Aboo it is common on the hills and in the plains, according to Capt. Butler, breeding on the mount in April. Mr. Hume says that he believes it to be only a seasonal visitant to Sindh and Kattiawar; and Mr. James is of opinion that it breeds in the former region. Mr. A. Anderson procured it at Futtchgur, and Mr. Adam at Oudh, and remarks that it is very common all about the Sambhur Lake. Captain Marshall found it at Murree in July, and Mr. Brooks procured it at Dhunda above Mussoori.

Habits.—Jerdon writes of this Sparrow as follows:—"It frequents thin forest-jungle, also groves of trees, avenues, and gardens in the better wooded parts of the country. It lives in small parties, occasionally, during the cold weather, congregating in very large flocks; feeds on various seeds, grains, and flower-buds, and has much the same manners and habits as the common House-Sparrow. It has also a very similar note." On the occasion of my meeting it, it was associating in a flock in a characteristic spot of the north-west coast—open country, dotted here and there with clumps of by no means luxuriant wood, about the borders or in the middle of which stood ragged-looking trees with half-clad branches; the troop was settling on the tops of the trees and uttering such a Sparrow-like chirp as they flew from one to the other that I took them for Common Sparrows, more particularly as they had the same style of flight. The food of the specimens procured consisted of seeds of various herbs. Mr. James writes that it is common to see them in Sindh feeding on the pollen of the flowers of the wild Caper.

Nidification.—This Sparrow breeds in the plains of India in April and May, but in the Himalayas nests as late as July. It is said to breed throughout India, except in the extreme south, and in Orissa and Bengal proper (*Hume*). Good-sized trees, such as mangos, are generally chosen; and the nest is invariably placed in a hole, sometimes at a height of 30 feet from the ground. Mr. Hume writes:—"On one occasion I found a nest in a hole in a stem of an old Heens-bush (*Capparis aphylla*), which stem was barely 5 inches in diameter. The nest is generally only a little bundle of dry grass, thickly lined with feathers. If in a mango-grove much frequented by the common Green Paroquets, the feathers of these latter are sure to be chiefly used. Sometimes, however, a more or less cup-shaped nest is formed of fine strips of bark and tow being added to the grass; and, again, at times it is a regular pad of hair, tow, and wool, with a few feathers, all closely interwoven, and with only a little central hollow." Four is the greatest number of eggs laid, three being often found. They are described as dull, glossless, moderately elongated ovals, sometimes pointed towards the small end. The ground-colour, of which little is visible, is "greenish white, thickly streaked, some edged and blotched, all over with dingy brown, usually more a mixture of sepia or chocolate-brown than any other shade." They average in size 0.74 by 0.55 inch.

PASSERES.

Fam. MOTACILLIDÆ.

Bill lengthened, more or less slender, straight; the culmen curved at the tip. Nostrils placed nearer the margin than the culmen. Wings with the first three feathers nearly equal; the tertials greatly elongated, often exceeding the primaries. Legs and feet variable. The tarsus more or less lengthened and covered with transverse scales; hind claw variable, in some much lengthened. Tail of 12 feathers, lengthened and narrow.

Of small size, elegant form, and mostly of terrestrial habit.

Genus MOTACILLA.

Bill lengthened, typically slender, compressed towards the tip; the culmen sloping from the base, curved at the tip. Wings with the first three quills nearly equal, and either the 1st, 2nd, or 3rd the longest; tertials nearly equal to the primaries. Tail equal to, or longer than, the wings; narrow and rounded at the tip. Tarsus longer than the middle toe and claw, the lateral toes subequal, the outer, if any thing, the shorter; hind claw short and curved.

MOTACILLA MADERASPATENSIS.

(THE INDIAN PIED WAGTAIL.)

Motacilla maderaspatana, Brisson, Orn. iii. p. 478 (1783); Blyth, Cat. B. Mus. A. S. B. p. 137 (1849); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 268; Jerdon, B. of Ind. ii. p. 217 (1863); Hume, Nest and Eggs, ii. p. 377 (1874); Ball, Str. Feath. 1874, p. 415; Brooks, *ibid.* 1875, p. 246; Butler & Hume, *t. c.* p. 489; Davidson & Wender, *ibid.* 1878, p. 84; Ball, *t. c.* p. 219.

Motacilla maderaspatis, Gm. Syst. Nat. i. p. 961 (1788); Holdsw. P. Z. S. 1872, p. 458.

Motacilla picata, Frankl. P. Z. S. 1831, p. 119.

Black-and-White Wagtail; *Bergeronnette de Madras*, Buffon; *The Great Pied Wagtail*, Gould.

Mamula, sometimes *Bhuin mamula*, also *Khanjan*, Hind.; *Sakala sarela gadu*, Telugu (Jerdon).

Adult male and female. Length 8.5 to 8.75 inches; wing 3.7 to 4.0; tail 4.0 to 4.1; tarsus 1.0; middle toe and claw 0.8; bill to gape 0.8 to 0.82.

Iris dark brown; bill black; legs and feet brownish black.

Male, breeding-plumage. Upper surface, from the forehead to the upper tail-coverts, and also the entire neck and throat glossy black; wings and all but the two outer pairs of tail-feathers less intense black than the foregoing parts; a broad stripe passing from the nostril over the eyes and down as far as the nape, the tips and outer webs of the median and greater secondary-coverts, a very broad outer margin to the secondaries, and the two outer pairs of tail-feathers white; the base of the primaries and secondaries, a narrow outer edging to the former, and the under surface from the chest to the under tail-coverts also white, as are likewise the under wing-coverts; flanks greyish at the junction with the black of the upper surface.

Female in breeding-plumage has the distribution of the colours the same, but the black of the upper surface less pure.

Nonbreeding-plumage. The chin and face just beneath the eye and the gorge are white; upper surface not so intense a black as the breeding-dress. An example shot by Mr. Adam at the Sambhur Lake in August is in this plumage; it must have bred early in the year and changed at once.

Obs. This Wagtail, which carries off the palm as regards size among all the pied group, resembles somewhat the common Water-Wagtail of England, *M. lugubris*, in summer plumage, the latter differing in the large amount of white which encompasses the forehead, whole face, and ear-coverts, and the less intense black of the upper surface, with a proportionate paleness of the wing. It is a much smaller bird, the wings of those I have examined varying from 3.3 to 3.6 inches.

In most species of this group the forehead is white. The black forehead in the Indian species has a parallel in the fine African Wagtail, *M. vidua*, in which also the colour of the crown extends down in a point to the base of the bill.

Distribution.—This, the largest of the four Indian Wagtails, appears to be only a straggler to Ceylon in the cool season, there having been but one example recorded in the island. This is mentioned by Layard (*loc. cit.*), who remarks that he detected a single specimen in a collection of birds formed by Mr. Gisburne, C.C.S., in the Jaffna peninsula, the exact locality from which it came being supposed to be the island of Valenny. It may perhaps be a regular visitant to the extreme north of the island; but this is, I think, doubtful, as if so it would have been otherwise recorded from districts south of the Jaffna Lake.

This Wagtail has a wide but local distribution throughout India. It is found in suitable localities in various parts of the peninsula, and in both the east and west of continental India. It occurs in the south, for Jerdon remarks:—"It is found throughout the whole of India . . . but it does not appear to extend to the east of the Bay of Bengal. It also occurs within the Himalayas, for I found it at Sikkim." Messrs. Davison and Carter record it from the Nilghiris and the Cauvery river. "In the Deccan it is common and breeds" (*Davidson*); and Dr. Fairbank writes that it affects the rivers in the Khandala and Mahableshwar districts. Mr. Aitken writes of it at Poona, and the Rev. H. Bruce at Ahmednuggur. Mr. Ball, on the eastern side of the peninsula, records it from "Sambalpur, north of Mahanadi, Godaveri valley, Singhbhum, Lohardugga, Maunbhum, and the Rajmehar hills," and he considers it, with regard to the whole division of Chota Nagpur, to be one of the birds most commonly met with on its rivers. Captain Beavan found it rare in Singhbhum, only meeting with it on the Cossye river. Across the Central-Indian districts it is noted from various places, such as Agra, Etawah, Futteghur, the great river-system of this well-watered portion of India affording it abundant localities suitable to its tastes. From Sambhur Mr. Adam records it common about all the open wells and tanks; but at Mount Aboo it is, according to Capt. Butler, not very plentiful; he observed it there about the lake, and occasionally in the plains round the edges of tanks, river-beds, &c. It is a resident species in the sub-Himalayan region. Mr. Brooks records it from Mussouri, and says that he also obtained it in Cashmere, while beyond the great Himalayan range it was found breeding by Severtzoff in Turkestan.

Habits.—This fine species is essentially a water Wagtail, being rarely found away from water, and frequents the banks of rivers, ponds, tanks, wells, brooks, &c. I observe that it is said, like other members of its group, to have a partiality for that seemingly eccentric situation the roof of a house, on which it often perches when opportunity offers; and I have no doubt that, like its congeners, it would also seat itself on a telegraph-wire. Captain Butler, who noticed its habits at Mount Aboo, remarks that "it delights in a large rock standing out by itself in the water at some distance from the shore to settle and run about upon. In the absence of a rock, an old stump suits its habits and answers the purpose equally well." It is very active in its motions and possesses all the grace of deportment which so remarkably distinguishes the whole of this interesting group of birds. It feeds on insects, at which it darts, adroitly seizing them, and has been observed to catch as large prey as a dragonfly with which to feed its young. Jerdon states that it has a sweet song in the breeding-season.

Nidification.—The breeding-season of the Indian Pied Wagtail, in most parts of India, is in March, April, and May; but, like many other birds which nest in the southern hills, it rears its young there during the north-east monsoon at the end of the year. It is said always to nest in the vicinity of water, “but with this sole reservation, that it places its nest almost anywhere. These may be found in holes in banks, crevices in rocks, under stones, under clods of earth, amongst the timbers of bridges, in drains, holes in walls, on roofs, in fact anywhere except on shrubs or bushes” (*Hume*). It appears that when these birds, like the Common Wagtail* of England, make up their mind to build in a particular spot no amount of adverse circumstances will deter them from carrying out their plans. In Mr. Hume’s interesting article on the nidification of this Wagtail ample testimony is given concerning the extraordinary spots chosen by it; and I append the following interesting particulars from the pen of this author:—“In the middle of the river Jumna, at Agra, there is an iron buoy attached to the pontoon-bridge which is surmounted by an iron ring, which lies down nearly horizontal; and in this ring, for several successive seasons, a pair of Pied Wagtails nested, within five yards of the roadway, and in full view of the thousands of passengers who daily cross the bridge. In the Chumbul, a little above its junction with the Jumna, a pair built in the old ferry-boat, which was but seldom used; and when the female was sitting she allowed herself to be ferried backwards and forwards, the male all the while sitting on the gunwale singing, making from time to time short jerky flights over the water, and returning fearlessly to his post.

“In this latter case the nest was nothing but one of those small circular ring-pads, say 4 inches in external diameter and 1 inch thick at the circumference, which the women place on their heads to enable them to carry steadily their round-bottomed earthen water-vessels; a dozen tiny soft blades of grass had been laid across the central hole, and on these, of course blending them down to the surface of the massive boat-knee on which the pad had been accidentally left lying, the eggs were laid.

“The character and materials of the nest are quite as various as are the situations in which it is placed. As to character, it varies from nothing up to a neat, well-formed ‘saucer’ or shallow cup; as to materials, nothing soft seems to come amiss to them: fine twigs, grass-roots, wool, feathers, horse-, cow-, and human hair, string, coir, rags, and all kinds of vegetable fibres seem to be indifferently used.” My late friend Mr. A. Anderson writes that “a favourite situation at Futtehgur was the bridge of boats, the nests being usually placed inside a pigeon-hole either at the bow or stern of a boat.” The eggs are usually four in number, sometimes three, and vary from a greenish or greenish-white to a pale earthy-white ground: those of the former type are marked with greenish-brown streaks, spots, clouds, and specks distributed sparingly over the surface, or chiefly confluent round the large end; the latter have dingy wood-brown markings, and, as in the former case, are divisible into two types—one in which the colouring takes the form of close speckling, and the other close smudgy mottling (*Hume*). The average size of a number of eggs is 0·9 by 0·60 inch.

* It will, no doubt, be fresh in the minds of many of my readers who peruse the ‘Times’ newspaper that a pair of Pied Wagtails last summer (1878) built a nest on a beam beneath a third-class carriage belonging to the train which runs backwards and forwards on the little loop-line connecting the Cosham and Havant stations near Portsmouth. The train makes four or five trips a day; and during the time the female was incubating her eggs she remained on them while the train performed its journey, and her partner patiently sat on the telegraph-wires till she returned. I can vouch for the truth of this story, as I am acquainted with the station-master from whom the particulars of the occurrence were gleaned.

MOTACILLA MELANOPE.

(THE GREY WAGTAIL.)

Motacilla melanope, Pall. Reis. Russ. Reichs, iii. p. 696 (1776); Dresser, B. of Europe, pt. 41, 42.

Motacilla boarula, Gm. Syst. Nat. i. p. 997 (1788); Blyth, Cat. B. Mus. A. S. B. p. 137 (1849); Kelaart, Prodromus, Cat. p. 121 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 268.

Motacilla sulphurea, Bechst. Gem. Naturg. Deutschl. iii. p. 459 (1807); Newton, ed. Yarrell's Brit. B. p. 552 (1873); Shelley, B. of Egypt, p. 127 (1872); Irby, B. of Gibraltar, p. 108 (1875).

Calobates * *sulphurea* (Bechst.), Kaup, Natürl. Syst. p. 33 (1829); Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 349 (1854); Jerdon, B. of Ind. ii. p. 220 (1863); Holdsw. P. Z. S. 1872, p. 458; Legge, Ibis, 1874, p. 22; Butler & Hume, Str. Feath. 1875, p. 489.

Calobates boarula (Gm.), Hume, Str. Feath. 1873, p. 201; id. Nests and Eggs, ii. p. 381 (1874); id. Str. Feath. 1874, p. 237.

Calobates melanope (Pall.), Swinhoe, P. Z. S. 1871, p. 364; Brooks, Str. Feath. 1875, p. 250; Hume, B. of Tenass., Str. Feath. 1878, p. 362; Ball, Str. Feath. 1878, vii. p. 219.

Bergeronnette jaune, French; *Alvelõa amarella*, Portuguese; *Jungle-Wagtail* (Jerdon), *The Grey-and-Yellow Wagtail*. *Mudi tippudu jitta*, Telugu (Jerdon); *Alveola*, in Azores (Godman); *Kisekiri*, Japan (Blakiston); *Piepita*, Spanish (Saunders).

Adult male and female (Ceylon). Length 7.3 to 7.5 inches; wing 3.1 to 3.2; tail 3.55 to 3.9; tarsus 0.8; middle toe and claw 0.65; hind toe 0.3, its claw (straight) 0.25; bill to gape 0.6 to 0.65.

Iris olive-brown; bill blackish horn, pale at the base beneath; legs and feet brown or reddish brown.

Winter plumage (Ceylon). Above ashy grey, slightly tinged with brown on the back, and the head somewhat pervaded with olive-greenish; least wing-coverts grey like the back; secondary and primary coverts, primaries, and secondaries blackish brown, the greater coverts with paler edges than the rest of the feathers; the tertials with the distal part of the outer web edged whitish; bases of the secondaries and tertials and the basal part of the inner web of all but the 1st four primaries white, running out towards the tip of the longest tertial feather; rump greenish yellow, blending with the grey of the lower back, and brightening into yellow on the upper tail-coverts; the 6 centre tail-feathers brownish black, with the margins near the base greenish yellow, the outer pair wholly white, the next two white, with all but the tip of the outer webs black, and the innermost pair with a black inner edge as well; a yellowish superloral streak passing over the eye (where it widens and becomes white) to above the ears; lores blackish; ear-coverts dark grey, with a yellowish patch just below the eye; throat and chest yellowish, deepening into bright yellow on the centre of the breast, abdomen, and under tail-coverts, the latter being the brightest; a few small brownish streaks on either side of the chin in some; thighs dusky yellowish.

The above is the plumage of the majority of adult birds while they are in Ceylon; many have a trace of the black summer throat in the dark markings just alluded to. The supercilium and cheek-patch vary in extent and in the amount of yellow in their colouring, some being whiter than others. Some have the head more olivaceous than others.

* This Wagtail has been generically separated as *Calobates* by Kanp from the Black-and-White Wagtails (*Motacilla* restricted) on account of its different plumage. Its wings are said to be somewhat shorter, and its tertials less elongated; these distinctions will not hold good if it be compared with a series of species of *Motacilla*. The hind toe is perhaps a little shorter; but, on the whole, I prefer to follow Messrs. Dresser, Newton, and others, and keep the present species in *Motacilla*.

There is no *constant* appreciable difference in the plumage of the sexes in winter ; both have the back in some examples more olive than in others.

Male, summer plumage (China, end of April). Lores, chin, and throat black, abruptly defined against the yellow of the fore neck ; above the lores a whitish streak, narrowing as it passes over the eye, and widening again above the ear-coverts ; from beneath the eye a broader white streak passes beneath the cheeks to the ear-coverts ; chest, breast, and underparts bright sulphur-yellow ; head, hind neck, scapulars, and back ashy grey, with the rump, upper tail-coverts, wings, and tail as in winter. The supercilium is more developed in some birds than in others. A *March* example, with the throat changing to black, shows the colour down the centre of the throat and along the lower edge of what will eventually be the black gorget, which appears to be acquired by a *change of feather*.

Female, summer plumage. Some birds do not assume the black throat ; and in those which do "it is not so well defined as in the males" (*Irby*). Ornithologists, as a rule, have not clearly described the plumage of the female, some omitting to make any mention of the throat, others (*Macgillivray*) saying that the throat "becomes dark grey, mottled with yellowish grey," while others, again, describe the throat as white. Col. *Irby*, however, explains the matter from personal observation. A female which I have this season watched breeding in Wales had a white throat. A female from Lake Baikal, says Mr. Dresser, has the throat greyish white, with a few blackish feathers on the chin. It is probable that birds in the second year do not change the colour of the throat, while older ones do.

Young. A nestling, just fledged, in the museum of Mr. Seebohm, is in the following plumage :—Head, neck, back, and scapulars brownish slate-grey, with a slight rusty tinge on the hind neck and scapulars ; orbital fringe and a postorbital stripe buff ; ear-coverts tinged with fulvous ; wing-coverts broadly edged with fulvous-grey ; secondaries externally margined with whitish ; rump dusky greenish, but with a greyish tinge not present in the adult ; longer upper tail-covert feathers yellowish ; the tail, which is only 1·7 inch long, has the three outer feathers all white, except a streak on the base of the outer web of the third, the remainder blackish, edged with white ; throat and fore neck greyish white, deepening on the chest and the upper part of the breast into rusty fulvous, washed slightly with greyish ; lower part of breast and belly whitish ; vent and under tail-coverts reddish grey, with the longer feathers of the latter part yellow.

Mr. Dresser describes a young bird shot by himself near Baden as follows :—

"Upper parts grey with a slight greenish tinge, the rump greenish yellow, a yellowish-white streak passes over the eye, and under the eye there is an indistinct white mark ; wings and tail as in the adult, but the secondary coverts have greyish tips ; underparts greyish white with a primrose tinge ; lower tail-coverts pale yellow ; fore neck marked with greyish ; breast washed with pale reddish grey ; bill dark brown ; legs pale fleshy grey ; claws dark brown."

Immature male (Ceylon, January). Iris olive or light brown ; bill dark brown, base beneath whitish. Legs and feet fleshy brown.

Hind neck, back, and scapulars ashy grey, pervaded somewhat with olive-brown on the back ; the forehead and crown greenish brown ; lores blackish ; superloral streak fulvous white, becoming whiter as it passes over the eye ; a yellowish-white patch just beneath the eye, encompassing the orbital fringe just above it ; wings as in the adult, as also the rump and upper tail-coverts ; ear-coverts dark grey ; chin and throat white, washed on the chin with yellow ; chest whitish, with a *just perceptible rusty hue* on it, and gradually becoming yellowish on the breast and flanks down to the abdomen and under tail-coverts, which are fine sulphur-yellow.

Young birds visiting Ceylon are in the above or nearly similar plumage. Some of them have the chest yellower than others, but there is a tell-tale rusty appearance on it which stamps them with the signs of youth.

A female (Asia Minor, February) corresponds with an October Ceylon example ; the yellow of the throat is slightly washed with fulvous, giving it a reddish appearance ; it is evidently a bird in the 2nd spring, showing that this immature chest-character is not put off until the 2nd year.

Obs. The Western or European form of Grey-and-Yellow Wagtail (*M. sulphurea* of Bechstein) was formerly kept distinct from the Eastern or Asiatic race, the *M. melanope* of Pallas, on account of its longer tail ; they have, however, of late years been united, and the species takes the older title of Pallas. The alleged difference consisted in the length of the tail, the European bird being said to measure more than the Asiatic. A widely-collected series has shown that the tail does decrease in length towards China and India ; but it likewise does so as we travel westward to the Azores, so that this character was found to be unstable, and the two races have rightly been made into one. The British examples which I have examined vary in the tail from 3·9 to 4·2 ; those from China

(coll. Swinhoe) vary from 3.3 to 3.8; and Mr. Dresser gives one at 3.9; he states that the Azores birds have shorter tails than any others, averaging 3.5.

Distribution.—The Grey-and-Yellow Wagtail arrives in Ceylon about the middle of September, taking up its quarters along the whole of the northern and western sea-boards. Stray birds arrive at the beginning of the month. Mr. Bligh has seen it as early as the 6th September in Haputale. It remains on the coast for a few days, and then moves into the forests of the northern half of the island, taking up its abode on the sandy beds of all the partially dried rivers. The majority of the birds, however, betake themselves to the hills in the centre and south of the island, resorting to the streams in the coffee-districts and following up the Mahawelliganga and its affluents to their source. About Nuwara Eliya it is very common, frequenting the roadside ditches, the borders of the lake, and every little stream on the plain. It is also found on the Horton Plains about the banks of the Maha Eliya, which, even at that great altitude, is a stream of considerable magnitude. Soon after its first arrival in the Western Province, it, for the most part, quits the low country to the south of the Maha oya, and, with the exception of the northern forests, may be considered a hill-visitant. It leaves again in March.

This Wagtail has, when viewed as being identical with the European bird, a very wide range. I will first consider its habitat in Asia, and then in Europe and Africa. It is a winter visitor to continental and peninsular India, arriving in September and leaving in April. Captain Butler's dates for its migration in the north-west are Sept. 5th to 30th April. It spreads throughout the empire, ascending the hills and taking up its quarters on mountain-streams, as in Ceylon. Mr. Bourdillon says that it is a common winter visitor in Travancore. Many remain to breed in Cashmere and along the Himalayas, which is the only part of India in which it can be said to be stationary. On the eastern side of the Bay it passes through Burmah to Tenasserim, in which province it is sparingly distributed on the more open portions; thence it finds its way across to the islands, where Mr. Davison remarks of it, "Not common on the Andamans or Nicobars;" he procured it on Prepara as late as the 26th of March. Down the peninsula of Malacca it must also wander, as it is found in Sumatra and still further east in Java. In the former island Mr. Buxton lately procured it. It is found throughout China, probably breeding in the northern hilly parts, and is a winter visitor to the east coast, Hainan, and Formosa (*Swinhoe*). Although it is doubtless resident in many regions beyond the Himalayas, yet there is a northward migration to some of them; for Col. Prjevalski, in his 'Birds of Mongolia,' remarks that it arrives at Muni-ul, South-east Mongolia, on the 22nd April. It passes through parts of Turkestan, and is found rarely in the north-western portion in winter up to 4000 feet altitude. Further north it occurs all across the southern parts of Siberia to Japan, where it must be resident, as Messrs. Blakiston and Pryer record it breeding on Fujisan and Tokio. It is found in Trans-Baikal; and Mr. Seebohm procured it, during his travels on the Yenisey, within the Arctic circle. In Palestine it is, according to Canon Tristram, a winter visitor, departing before it acquires its breeding-plumage. It occurs likewise in Arabia, but only on passage.

Turning to Europe, we find Mr. Dresser stating that it is met with there "as far north as the British Isles and Northern Germany;" and in these parts it is mostly a resident, although it moves about, extending its wanderings, as it does in England, after the breeding-season. In Sardinia, Mr. A. B. Brooke says it is common all the year, breeding in the mountains; and Mr. C. A. Wright found it to be a winter visitor to Malta, some few remaining to breed. In Portugal it is said to be common; and at Malaga Mr. Howard Saunders often observed it in winter, and found it abundant in the Sierra Nevada and other ranges, while Col. Irby states that it is abundant in Andalucia in winter and on passage. It is resident throughout the year in Turkey, and visits Greece in the autumn, passing the winter in the Cyclades according to Professor Newton. It is recorded by De Filippi from the Caucasus. It is found on the Carpathian mountains; and its range north of that locality is thus described by Professor Newton:—"This Grey Wagtail does not visit Iceland, the Faroes, or Norway. It has been observed in Heligoland, and a single example is said by Prof. Nilsson to have been shot in the extreme south of Sweden; its most northern occurrence in Germany, near Kiel, was recorded by F. Boie, more than 40 years ago; and in that country it is chiefly confined to the mountainous districts, which only exist in the central and southern parts. It is, however, also said to have occurred once in Posen."

It is found throughout the British Isles, but does not breed south or east of a line drawn from Start Point through the Derbyshire hills to the Tees. It is a summer visitant to Orkney, and occurs at the end of the

summer in Shetland, but has not been met with in the Outer Hebrides, and is rare as a resident in Scotland north of Inverness (*Newton* in *Yarrell*). In the winter there appears to be a movement from the south of Europe to North Africa. It is, according to *Favier*, a winter visitor near Tangier, appearing in September and October, and departing in February and March. Captain *Shelley* writes that it is probably a winter visitor to Egypt, and observes that Dr. *Adams* met with it in Nubia. In the highlands of Abyssinia it also winters; and *Brehm* says that it is resident at Mensa. How far south it goes on the west coast of Africa is not very clear; but Professor *Newton* has met with it in Madeira; and Mr. *Godman* (*Ibis*, 1866, p. 96) says that it is resident in the Azores, being common wherever there is water throughout all the islands, and elsewhere (*Ibis*, 1872, p. 176) remarks that it is abundant in all three of the Atlantic archipelagos.

Habits.—In Ceylon this elegant little bird frequents the banks of rivers, both sandy and rocky streams in the hills, the rivulets flowing through the "Plains" in the upper ranges, and even the roadside drains. It perches on the roofs of houses in the Kandy country, on stumps of trees and on rhododendron and other bushes, perpetually shaking or "balancing" its tail, and uttering its sweet little twittering note, which is very distinct from the louder and coarser cry of the Field-Wagtail. It is very tame in its disposition, getting up on being approached, and flying a little distance down the road or stream, and, if pursued, continues this for a long distance, turning round at the last and returning to where it was first disturbed. Its flight is very undulating, but it is, at the same time, swift, soon carrying the little bird out of sight when it is darting down the steep rocky streams of the Kandyan hills.

To be seen to perfection it must be espied standing on its favourite haunt—an isolated rock amid some foaming torrent in the deep glens of the coffee-districts; here it will rest for an instant under observation, but not long (for it is impatient when watched), "balancing" its graceful form, which looks all the more tiny when contrasted with the huge rocks and dashing waters, and then uttering its cheerful whistle, will dart away; or, if the rock be large enough, it will run to and fro, as if delighting in the wildness of the scene, meanwhile snapping right and left at the insects which swarm around it, or picking up some minute mollusk from the edge of the stream. In England it is equally aquatic in its mode of life, dwelling on brooks, and especially mountain-streams, in Wales or the northern counties. It is occasionally known to take up its quarters near a farm-house; and I have seen it among outbuildings in company with its Pied congener. *Jerdon* considers that "it has the jerking motion of the tail more remarkably than any other of the group, for it appears unable to keep it motionless for a moment."

Nidification.—In the Himalayas this species breeds in May and June, laying four or five eggs. Mr. *Brooks* has taken its nest in Cashmere on mountain-streams up to 6000 feet. He writes, "One nest that I found in Cashmere, at Kagan, was placed in a small bush on an island in the Sindh river, about 5 feet above the ground. The situation was that of a finch's nest! It was composed of moss, fibres, &c., and lined with hair, a neat compact nest, and placed in the fork of the branches near the top of the bush. Another nest was placed under a large boulder on the dry bed of the river, and was composed of the same materials." The eggs from these nests are described as "broad ovals at the larger end, and much compressed and pointed towards the smaller end. Typically the ground-colour is yellowish or brownish white, closely mottled and clouded all over with pale yellowish brown or brownish yellow. These markings, always pale dull and smudgy, are somewhat darker in some specimens and lighter in others; almost all have a very fine black hair-like line near the larger end." They vary from 0·68 to 0·73 inch in length by 0·53 to 0·55 inch in breadth (*Hume*).

Near Gibraltar, according to Col. *Irby*, they breed in April and May, generally in holes of the brickwork of the water-mills, sometimes close to the wheel, or in holes of rocks overhanging streams. In England it likewise builds, as a rule, near water. Professor *Newton* states that other sites are sometimes chosen, and instances one case in which it was known to build on a shelf in a room, which the bird entered through a broken window. He describes the eggs as "French-white, closely mottled, suffused, or clouded with very pale brown or olive, varying in depth of tint and also in the extent of the ground shown between the markings; they measure from 0·79 to 0·72 inch by from 0·57 to 0·53."

Subgenus LIMONIDROMUS*.

Differs structurally from *Motacilla* in its slightly stouter bill and shorter tail, as also in its different style of coloration.

Of sylvan and partly arboreal habits, and with a different motion of the tail.

LIMONIDROMUS INDICUS.

(THE WOOD-WAGTAIL.)

Motacilla indica, Gmelin, Syst. Nat. i. p. 962 (1788); Kelaart, Prodrumus, Cat. p. 121 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 268.

Nemoricola indica, Blyth, J. A. S. B. 1844, xvi. p. 479; id. Cat. B. Mus. A. S. B. p. 136 (1849); Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 353 (1856); Jerdon, B. of Ind. ii. p. 226 (1863); Fairbank, Str. Feath. 1875, p. 260.

Limonidromus indicus, Gould, B. of Asia, pt. xiv. (1862); Holdsw. P. Z. S. 1872, p. 458; Swinhoe, P. Z. S. 1871, p. 365; Hume, Str. Feath. 1874, p. 239; Hume, ibid. 1875, p. 142; Armstrong, ibid. 1876, p. 329; Bourdillon, *t. c.* p. 401; Hume & Davison, ibid. 1878, B. of Tenass. p. 364; Ball, ibid. vii. p. 219.

The Black-breasted Wagtail, Jerdon. *Nget Rahat*, Arrakan (Blyth); *Uzhalla-jitta*, Telugu (Jerdon); *Rode Rode*, Malay (Blyth).

Gomarita, lit. "Dung-spreader," Sinhalese (Layard).

Adult male and female. Length 6·5 to 6·7 inches; wing 3·0 to 3·2; tail 2·9 to 3·1; tarsus 2·7 to 2·75; middle toe and claw 0·72; hind toe and claw 0·55; bill to gape 0·7 to 0·75. The largest example in my series is a *female*. Iris olive-brown; bill, upper mandible dark brown, lower fleshy; legs fleshy, feet washed with brownish, claws brown. Above brownish olive-green, slightly duskier on the forehead and above the supercilium, which, with the orbital fringe, is whitish; upper tail-coverts, tail, and wings blackish brown, deepening to black on the wing-coverts and part of the secondaries; tips of major and median wing-coverts yellowish white, forming two conspicuous bands across the wing; outer edge of primaries about the centre of the feather, a marginal patch near the tips of the secondaries, margins of some of the longer tertials, and a band at the base of the primaries the same; outer tail-feathers white, except at the base of the inner webs, and the outer edge and terminal portion of the penultimate the same; beneath white, tinged with yellowish on the chest, across which there is a black band succeeded by a black-brown one, incomplete in the centre and generally joined there to the upper; flanks shaded with smoky grey; primary under wing-coverts brownish with yellow tips; long secondary under coverts whitish. The pale portion of the face in some specimens is barred with brownish.

Young (?). I have not seen any very young examples; but a specimen which appeared, on examination of the organs, to be immature is whiter beneath, and has the flanks less dusky than other skins in my collection.

Obs. Mr. Hume gives the following dimensions of specimens from Tenasserim:—"Male. Length 6·7 to 6·75 inches;

* This is an isolated form of Wagtail, differing chiefly from *Motacilla* in its habits, and I therefore adopt Gould's term *Limonidromus*. The difference in bill and tail is barely appreciable, for true *Motacillæ* vary *inter se* in this respect; and as to the band across the chest, we have it in some of the Black-and-White Wagtails—for instance, in the African *Motacilla vidua*, in the winter-plumage of *M. alba*, &c. The motion of its tail is a slow lateral one, and not a vertical shaking as in all other Wagtails. This I consider to be its distinguishing characteristic. It was first named *Nemoricola* by Blyth; but this name was changed by Gould to the present, it having been adopted previously by Hodgson for another genus of birds.

expanse 9.5 to 10.0; wing 2.95 to 3.15; tail 2.8 to 3.0; tarsus 0.8 to 0.9; bill from gape 0.7; weight 0.55 to 0.6 oz. *Female*. Length 6.5 to 6.75 inches; expanse 9.4 to 9.75; wing 3.05; tail from vent 2.7 to 2.8; tarsus 0.8; bill from gape 0.75; weight 0.62 oz.

“Legs, feet, and claws pinkish flesh-colour; upper mandible dark brown, lower mandible fleshy pink; irides deep brown.”

Distribution.—This charming little Wagtail, which is a denizen of the dry forests of the island, arrives in Ceylon about the first week in October, and spreads through the region north of the equatorial zone, its limit on the western side being the Kurunegala district, in which part I have traced it as far south as the forests lying between Madampe and the Maha oya. Thence it extends round the base of the hills to the eastern forests; but I do not know if it ranges higher than about the foot of the mountains. On the eastern side I have never seen it further down than the country between Vendeloos and Dambool. It is principally located in the central forests to the north of Dambool, and is numerous in the district between Trincomalee and Anaradjapura, in the Seven Korales, and other places north of the mountain-zone.

At Trincomalee I have found it in wood close to the sea-shore. It disappears from the island about the end of March. On the mainland it has a wide eastern distribution, extending from the south of India chiefly up the east side of the peninsula to Arrakan and Pegu and across to China, down the province of Tenasserim to Malacca, taking in the Andaman Islands, and thence to Sumatra, at the west of which island Mr. Davison saw it in Acheen. Mr. Buxton does not seem to have met with it in Lampong at the other extremity; but it is doubtless found in most parts of this comparatively little-known island. Jerdon says it is found throughout the whole peninsula of India, but is common nowhere; he considered it rare in the south of India, and he only procured it himself at Nellore and on the Malabar coast. Mr. Bourdillon records it as a *winter visitor* to the Travancore hills; Mr. Blanford procured it in the Godavari valley; Blyth states that he obtained it at *all seasons* near Calcutta. In the Irrawaddy delta Dr. Armstrong obtained it in dense forest a few miles from China Ba-keer; and up the country Captain Feilden got it at Thayetmyo, and Mr. Oates in the hills. In Tenasserim, where it is generally distributed throughout the less elevated portions of the province, it was not procured later than April. From the evidence of observers in various parts of India, Mr. Hume affirms that it leaves the country in May, returning in September; but where it breeds is still a mystery, although we may, from a glance at its distribution, surmise that it passes northward through Burmah, and thence perhaps retires to the eastern confines of Thibet, or still further north to the southern part of Mongolia. Here, however, once we pass to the northward of the line of the Himalayas, we are dealing with a region so vast that there would be room in it for numbers of Indian birds to breed unknown to any who have yet explored it; and any conclusions which one might arrive at with reference to our little Wagtail could only be the veriest conjecture indeed. It is noteworthy that Mr. Swinhoe procured it as far north as Peking, which would decidedly suggest a very northerly breeding-place. Its distribution in India is perhaps as singular as its migration, for it does not seem to be governed by a preference for the is-ombral tracts which Mr. Hume has so well delineated in the useful map he has lately published (*Str. Feath. vii.*), and in Ceylon it is essentially a dry-district species.

Habits.—The Wood-Wagtail frequents the interior of the forest, being more often seen away from water than near it. I have sometimes met with it on the sandy beds of dry rivers in heavy jungle, but most frequently running about on the leafy ground among trees, or along the edges of paths and roads in the depths of the woods. It is very arboreal in its habits, often flying high up and alighting on the gigantic limb of some huge “Koombook”- or “Palu”-tree, about which it will run with as much confidence as on *terra firma*; it just as often, however, flies off and realights on the ground. Its actions are very graceful, and there was always, to my mind, no little charm in watching its elegant form in the wild and solitary jungles of Ceylon. It is, to a surprising degree, fearless and inquisitive in its manner, and will approach within a few yards of man, quietly tripping over the fallen leaves of the forest, with its characteristic “balancing” and swaying to and fro of its tiny frame, twisting its head awry, and giving out its tinkling cry of *clink, clink*, resembling somewhat that of the Chaffinch; for a moment it will then survey the intruder with quiet curiosity, hopping perhaps on to a low adjacent branch, and after running along it for an instant will realight and

continue its busy chase after the teeming insects of the tropical jungle. He who can then deprive it of its happy existence must have a hard heart indeed! It runs with considerable speed, and darts at its prey as other Wagtails. It sways its body from side to side, thus giving its tail a horizontal motion instead of a vertical, as in other Wagtails.

It is said to be much like the Asiatic Tree-Pipits (*Pipastes*) in its habits; these I have not had the pleasure of seeing in their native haunts, and I cannot therefore venture on an opinion touching its affinities in that direction. It would appear to approach these birds in habits about as much as *Budytes* does the Titlarks (*Anthus*). Its bill, feet, wings, and graceful form, and its gait and deportment are essentially those of a Wagtail. It certainly displays an abnormal character in the black chest-bands; but we see this developed to a small extent in the young of *Budytes*, and its wings-markings are those of this genus exaggerated.

It may often be seen under tamarind- and banyan-trees in the Sinhalese jungle hamlets; and here it was, I conclude, that Layard noticed it scratching among cattle-ordure, for in its accustomed sylvan haunts it has no opportunity of doing this. Mr. Davison thus writes of its habits in Tenasserim:—"It is generally met with in forest-covered ground in small parties, in pairs, or even singly, walking about under the trees and bushes and hunting for insects. Its habits are very similar to those of the Pipits, *Pipastes maculatus*, &c. When disturbed they fly up into the surrounding trees, uttering a sharp Pipit-like note; and there they sit, walk along the branches, or fly from one to the other, shaking their tails all the while. They soon redescend again to the ground when every thing is quiet. This bird combines in its habits something both of the Pipits and Wagtails. Like the former they are found in shady places, walking about in a demure way, uttering now and then a sharp single note; but, like the latter, they usually seize their prey with short sharp dashes, and when disturbed do not generally rise at once, but run on in front of one, taking short runs, stopping every few feet, and shaking their tails violently the while; but, again, when they *do* rise they, Pipit-like, fly up into the trees."

Subgenus BUDYTES.

Differs from *Motacilla* in its longer tarsus, larger feet, and long hind claw.
Mostly of non-aquatic habits.

BUDYTES VIRIDIS.

(THE GREY-HEADED FIELD-WAGTAIL.)

Motacilla viridis, Gm. Syst. Nat. p. 962, "ex Brown," Ceylon (1788); Dresser, B. of Europe, pt. 40 (1875); Severtzoff in Dresser's Notes, Ibis, 1876, p. 178; Seebohm, Ibis, 1878, p. 352.

Budytes cinereocapilla, Bp. Comp. List B. p. 19 (1838); Swinhoe, P. Z. S. 1871, p. 364; Hume, Str. Feath. 1874, p. 237; Oates, *ibid.* 1875, p. 142; Davison & Hume, Birds of Tenass., Str. Feath. 1878, p. 363; Ball, Str. Feath. 1878, vii. p. 219; Cripps, *t. c.* p. 286.

Budytes viridis (Gm.), Blyth, Cat. B. Mus. A. S. B. p. 138 (1849); Kelaart, Prodromus, Cat. p. 121 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 268; Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 350 (1854); Jerdon, B. of Ind. ii. p. 222 (1863); Blyth, Ibis, 1865, p. 50; Holdsw. P. Z. S. 1872, p. 458; Shelley, B. of Egypt, p. 129 (1872); Legge, Ibis, 1874, p. 22, et 1875, p. 398; Tweeddale, Ibis, 1877, p. 228.

La Bergeronnette verte, or *Green Wagtail*, Brown, Ill. Zool. pl. 39. fig. 2; *Bergeronnette à tête cendrée*, French; *Wagtail Lark*, Latham. *Pilkya*, Hind.; *Pastro marillo*, Portuguese in Ceylon.

Adult male and female. Length 6.5 to 7.0 inches; wing 3.1 to 3.3; tail 3.0 to 3.1; tarsus 0.9; middle toe and claw 0.8; hind toe 0.4, claw (straight) 0.45; bill to gape 0.65.

Iris dark brown; bill blackish, base of lower mandible whitish or greenish grey; legs and feet blackish; soles yellow.

Male, summer plumage (Futtehgur, 28th April). Forehead, crown, occiput, nape, and sides of the neck, just lower down than the ear-coverts, uniform sombre bluish grey; lores, cheeks, and ear-coverts black, over the *left* lore a white streak, not extending to the eyebrows, above and *behind the right eye* another short white streak; hind neck, back, scapulars, lesser wing-coverts, rump, and upper tail-coverts brownish olive-green, sharply defined against the blue neck; the centres of the upper tail-covert feathers brownish: wings umber-brown; the median and greater secondary wing-coverts and the tertials broadly edged with pale yellowish; the primary-coverts and the primaries with fine pale edgings; inner webs of the secondaries white at the base: tail brownish black, the outer feather all white but the inner half of the inner web, which is brown to within $\frac{1}{2}$ an inch of the tip; the adjacent pair with their inner webs the same, and the outer brown to within $\frac{1}{2}$ an inch of the tip; the dark central feathers edged with olive-yellowish; entire under surface from the chin to the under tail-coverts deep yellow, brightest on the lower parts; extreme point of chin white; thighs brownish yellow, under wing-coverts yellowish.

A *female* has the head not so blue, and a broader yellow eye-stripe.

Male, winter plumage (Ceylon, 29th November). Above dusky olive, greenest on the rump and upper tail-coverts, and pervaded with slate-colour on the hind neck, and slightly brownish on the back; lores and cheeks dark brown; a moderately-defined narrow supercilium, *longer over one eye* than the other; wing-coverts, secondaries, and tertials edged with whitish, tinged on the tertial margins with yellowish; tail as above; chin and throat white, washed with yellow on the fore neck; the under surface pale yellow, not nearly so rich as in summer; chest washed at the sides with brownish.

Other examples have the head browner, and some the back more olive or the opposite (that is, browner); some want the eye-stripe altogether; in one it is present on one side and not on the other; in fact scarcely any two examples are perfectly alike.

A *male in change* (Colombo, 17th April) has the forehead dusky olive, and the head partly bluish slate, these new feathers appearing among the old greener ones; the back is dusky olive-green, being clothed still with the winter feathers; wing-coverts and secondaries margined with yellowish white; cheeks and lores changing to blackish; a narrow supercilium, which is evidently disappearing from the moulting of the old feathers; chin and throat whitish; under surface pure yellow, with a few whitish feathers down the centre of the breast, the remains of the winter plumage.

Another male (27th October) is in the following singular plumage:—Head and hind neck dusky bluish slate, blending almost imperceptibly into the brownish olive of the back, the feathers on this part being brown at the centre and olive at the margins, those which are abraded are mingled with a few olive-green ones; wing-coverts margined with greyish white; rump pale olive; lores, cheeks, and ear-coverts black; beneath yellow, of medium brightness; chin and along the lower mandible whitish; chest dashed with dark brown, like a young bird; thighs slate-coloured.

This specimen has the appearance of a young bird, were it not for its partially summer-coloured head and total absence of eye-stripe. It is probably a bird which is in the 2nd year, and from some cause has not properly assumed the breeding-plumage in the first season.

A Lapland specimen (29th June: wing 3·2) is not unlike the above (27th October), except that, being in summer plumage, the head is bluer and the back greener, the face and ear-coverts are very black, and there is no supercilium; the under surface not so yellow as in the summer male from Futtehgur.

Young (mus. Seeborn: Yenesay, 8th August, 1877). Scarcely full-grown. Above brownish, tinged with green; some of the feathers on the head and hind neck nearly all black; a whitish supercilium; longer upper tail-coverts blackish; wings dark brown, the coverts very dark and broadly edged with dusky whitish; tertials edged whitish, the tail as in the adult; chin, throat, and lower part of face yellowish white; ear-coverts mixed with black; a blackish moustachial stripe; most of the feathers across the breast black, edged with yellowish; beneath yellowish white; flanks dusky.

Another, shot on the same day, is greener above, wants the black head-feathers, is not so dark on the chest, and has the under surface dusky whitish.

A third example, likewise killed on the same day, has a conspicuous supercilium and above it a black line, a white patch behind the ears, a very bold moustachial streak; chest patched with black; under surface whitish. Wing 3·0.

A yearling (Colombo, 23rd October). In moult to first winter plumage. Wing 3·3 inches. Above olive-brown, mixed on the back with a few olive feathers; the head browner than the back, with imperfect yellowish-white supercilia; rump olive-green; upper tail-coverts dark brown, edged with olive-green; wing-coverts broadly margined as in the nestling; chin and throat white, with the new yellow feathers appearing; fore neck and under surface yellow; chest tinged with fulvous, the feathers partially brown; the sides of the chest almost entirely brown.

This example proves that before migrating the long wing is acquired, together with most of the yellow under surface, and that after arrival the new face- and throat-feathers are donned.

Nearly all immature specimens possess, during winter, in Ceylon the eye-stripe; but it is of varying size, and rarely only present on one side. Many examples, which are apparently young, from the brown marks on the chest, have the head dusky cinereous, and separated from the more olive-colour of the back by a perceptible margin on the hind neck; they have the cheeks, just beneath the centre of the eye, striped with white. In March, the summer plumage is commenced to be acquired by moult. A *female* shot on the 17th is donning a narrow whitish supercilium and *dusky* bluish head; the quills are those of winter, and there is no sign of them being shed, and the old wing-covert feathers are acquiring a yellowish tinge. The *male* above described (17th April), which is in full moult as regards the head and under surface, retains the old quills. I am therefore under the impression that these are not moulted until arrival at the breeding-haunts, and perhaps not until the bird is going to return in the autumn.

Examples may be obtained as late as June with the summer livery not complete; such a one in Mr. Seeborn's museum, dated Yenesay, 4th June, has the head slaty, patched with greenish; the green of the back is lighter than my Futtehgur example. Another from Tromsø, Norway, which is perhaps a yearling in change to breeding-plumage, has the head pure bluish grey, and is brownish olive, like immature birds, on the back.

Obs. This species takes the name of *viridis*, which is much senior to *cinerocapilla*. Specimens from Europe are inseparable from Asiatic ones, although, as a rule, they seem to have darker heads and more sombre-green backs; and I have seen one from Trausvaal which I cannot separate from an Indian specimen.

Closely allied to *B. viridis*, and almost entirely resembling it in winter plumage, are two other species of Yellow Field-Wagtail found in India, viz. *B. flava* and *B. melanocephala*. The first-named is scattered over the whole of Europe and most of Africa and Asia. In *summer plumage* the male has a *pale bluish-grey head*, a *broad white supercilium*, the upper surface pale yellowish green, with the wing-coverts very broadly edged with yellowish; under surface very rich yellow. The female has a brownish head, with broad white supercilium. Wing 3·1 in both sexes; *the bill is slenderer and sharper* than in either of the other species.

B. melanocephala in summer plumage has the head, nape, and face coal-black, without a supercilium, as a rule—though

very rarely, Mr. Brooks says, a thin white line is present. The female has a browner head, with no supercilium. It has the bill stouter than *B. flava*, but not so deep at the base as in *B. viridis*. When the three species are laid side by side, the difference in the bill is at once perceptible. The Black-headed Wagtail is found in Eastern Europe, India, and China.

Distribution.—To the student of Ceylon ornithology it must be interesting to know that this widely-spread species, inhabiting the better part of Europe and Asia, and also the north of Africa, was first described from Ceylon, where it is only a winter visitant, from a specimen sent home by that indefatigable collector, Governor Loten, to Brown, who figured it in his 'Illustrations.' From Brown's drawing Gmelin took his description.

It arrives in Ceylon about the 20th of September in small numbers in the young stage; a week or two later a large influx, many of which are old birds, takes place, and by the 10th or 15th October the species is abundantly diffused through all the low country, but is withal more numerous in the maritime portions than far inland. It is less partial to the extremely dry and arid region of the south-east than to other portions of the sea-board; on the grass-lands surrounding the northern tanks of the interior it is plentiful. It does not ascend the hills, either in the centre or the south of the island, not having been recorded in any part above 1000 feet. In the Western and Southern Provinces it commences to pass northwards about the 20th March, migrating chiefly in the mornings, and its numbers decrease gradually through the month of April until the last birds disappear about the 5th of May. This latter date is the very latest in the district of Colombo that I have noted; and long ere this, as will presently be seen, it has begun to pass through some parts of Asia to northern regions.

This Wagtail is also a cold-weather visitant to India, and is spread, more or less, over the whole empire, extending into Burmah and southwards to Tenasserim. Thence it ranges as far as some of the Malay islands, as I observe that Lord Tweeddale includes it in Mr. Buxton's Lampong collection (S.E. Sumatra). It doubtless inhabits, during the season, the intermediate tract of country, the Malay peninsula, down which it must pass to reach Sumatra. In the Andaman Islands it also takes up its quarters; but it is not so numerous as the allied and perhaps more widely-distributed species, *B. flava*. Mr. Hume only records (in his List, Str. Feath. 1874) the procuring of two examples. It extends eastward to China, where it is, according to Swinhoe, found in pairs in the spring; to this region it probably finds its way from Mongolia or from Trans-Baikal, if it ranges so far eastwards. When Jerdon wrote his work on the Birds of India, he included the present and the other two species of Field-Wagtail (*B. flava* and *B. melanocephala*) under the title of *B. viridis*, and said that it was exceedingly abundant in every part of India. Since that time, however, Messrs. Anderson, Brooks, Hume, and others have paid much attention to this group (which is somewhat puzzling in winter plumage) and have demonstrated the fact that all three species inhabit India, so that they have been heretofore confounded with one another. It transpires accordingly that *B. flava* is quite as common, if not commoner, in some parts of the empire than our bird. There is no reason why it should not occur in Ceylon, although it does not seem to have generally such a southerly range as the present. As regards various observers in India, we find that Dr. Fairbank records it from Ahmednagar, and that Mr. Davidson says it is common in the Deccan. In the district of Furreedpore it is numerous during the cold weather. Captain Beavan writes that it is very "abundant at Barrackpore in the beginning of the cold weather;" he likewise found it numerous at Umballah. Further south, on the east side of the peninsula, Mr. Hume records it from Sambalpur. In Central India, I understand, it is common in localities. Mr. Anderson sent it to me from Futtchgur, where he also procured its two allies above mentioned. In the north-west I observe that neither Captain Butler nor Mr. Hume record it from the Guzerat district; but here it has, no doubt, been overlooked, as it must diverge to that part in migrating into India. In Sindh, it is, however, common, as also at the Sambhur Lake. In Pegu it is abundant, according to Mr. Oates, and it is likewise common in Tenasserim, and has occurred as high as 3000 feet in Karennee. In Turkestan it occurs in passage, according to Severtzoff, but does not breed there. Dr. Finckh met with it in the valley of the Irtysh in Western Siberia; and Mr. Seeborn found it on the Yenisey, where it breeds as far north as $69\frac{1}{2}^{\circ}$ N. lat., thus ranging into the Arctic circle; it arrived, he says, in the valley in great numbers on the 5th of June. It passes through Palestine in April on its way north, perhaps from Egypt or Arabia. Canon Tristram thus writes of it:—"When at Jericho, April 14th, I observed a large flock of *Budytes cinereicapilla*, evidently on their migration; they remained but one evening, and I secured several specimens, all of this form; on the next morning the flock took its departure for the north."

In Egypt it remains, according to Captain Shelley, throughout the year, and is there the most abundant of the Yellow Wagtails. It is found in North-western Africa, likewise inhabiting, says Col. Irby, both sides of the Straits of Gibraltar in great abundance. It arrives on the north side about the 20th of April, and leaves again in August and September. Mr. Saunders procured it in Southern Spain, and it is also found in Malta and Corfu. It inhabits Germany, and is common in Scandinavia, Lapland, and Finland; according to Suidevall it has been found as far north as Hammerfest. There has been no evidence, as yet, of its having occurred in England, although its near ally (*B. flava*) has many times been procured there. This latter species has been recorded from Transvaal and Damara Land, but the present bird has likewise occurred in South Africa, for I have seen a specimen in Mr. Seebohm's collection, procured by Mr. Andersson, which cannot be separated from unmistakable Ceylon examples of *B. viridis*.

I omitted to remark above that it visits Borneo, where it has been obtained in several localities, and in Sarawak has been shot as early as the 10th October. Horsfield records it from Java, Wallace from Moluccas, and Lord Tweeddale from Celebes; Gray notes it from Timor.

Habits.—This species frequents open lands covered with short grass, pasture-grounds, newly-ploughed paddy-fields, bare pasture, and so forth, resorting, whenever it can, to the vicinity of cattle, round which it congregates in little troops of three or four to catch the flies which torment oxen to such a degree in hot climates. Hundreds of these Wagtails are always to be seen in the season on the Galle face, Colombo, running to and fro, and darting along the ground in quest of food; little flocks of them associate in scattered company, and some are seen trooping across the road, or running along the curb-stone of the promenade, while others take up an elevated position on fragments of cattle-ordure, and plume their sober attire, making up, together with our Titlarks and Dotterels (which latter are generally to be found there after a heavy night's rain), quite an animated picture of bird-life. They are restless birds, constantly on the wing; but their flight is not so darting nor so undulating in character as that of the more graceful *Motacilla melanope*. They roost in long grass, resorting from far and wide to some chosen ground just before sunset, and starting back to their haunts in large flocks on the following morning. It was for years a matter of conjecture with me as to where all the Wagtails and Pipits which frequent the "Galle face" went at night; some time before sunset they became restless, and I used to observe that one by one they would take a longer flight than usual, and then mounting in the air, would fly off in the direction of the Pettah. About six, or a little before, the next morning they were to be seen returning in twos and threes, flying over the fort and making direct for the Galle face. It was not until shortly before I left Ceylon that I saw, on several occasions, great numbers of these birds coming from the south and settling down in the Mutturajawella swamp just before sunset; and I therefore conclude that these birds came from the environs of Colombo, as well as from other grass-lands in the neighbourhood. This Wagtail, to a great extent, catches its prey, consisting of small flies, while they are flying, darting at them very quickly from its terrestrial perch; it also picks up small terrestrial insects.

This species and its allies, in their non-aquatic habits, as well as in the structure of the leg and foot, show their affinity to the Pipits. In Ceylon I have never seen it near water; large flocks may be observed in the interior collected in newly-ploughed paddy-fields, where they procure a good supply of food from the upturned soil. In their breeding-haunts they would appear to resort to moist or marshy places. At Gibraltar Col. Irby says it keeps to marshes, nesting in the vicinity of water in grass and herbage and sometimes among sedges.

Nidification.—Our Indian birds, which breed in Siberia, would appear to nest in June or July; for Mr. Seebohm's nestlings, which he procured at the Yenesay on the 8th of August, were scarcely full-grown. In Southern Spain, according to Col. Irby, it lays at the end of April; but I am unable to give particulars concerning its nest and eggs.

Genus CORYDALLA*.

Bill straight, stouter and higher at the base than in *Motacilla*; tip slightly decurved. Nostrils as in the last genus; rictal bristles well developed. Wings long, pointed, the 1st, 2nd, and 3rd quills subequal and longest; tertials not exceeding the primaries. Tail shorter than the wings, even or emarginate; the outer feathers shorter than the others. Tarsus long, smoothly scutellate in front; toes moderately long, with the hind claw lengthened, in some species to a considerable degree.

Plumage pale-margined above, and more or less spotted or striated on the chest.

CORYDALLA RICHARDI.

(RICHARD'S PIPIT.)

Anthus richardi, Vieill. Nouv. Dict. xxvi. p. 491 (1818); Gould, B. of Europe, pl. 135; Blyth, Cat. B. Mus. A. S. B. p. 135 (1849); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 268; Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 355 (1854); Newton in Yarrell's Brit. B. p. 598 (1874); Dresser, B. of Europe, pt. 26 (1874); Irby, B. of Gibraltar, p. 110 (1875); Seebohm, Ibis, 1878, p. 343.

Corydalla richardi (Vicill.), Vigors, Zool. Journ. i. p. 411 (1825); Kelaart, Prodromus, Cat. p. 121 (1852); Jerdon, B. of Ind. ii. p. 331 (1863); Swinhoe, P. Z. S. 1871, p. 366; Holdsw. P. Z. S. 1872, p. 458; Brooks, Str. Feath. 1873, p. 358; Hume, ibid. 1874, p. 239; Legge, Ibis, 1875, p. 398; Scully, Str. F. 1876, p. 152; Armstrong, *t. c.* p. 330; Prjevalski, B. of Mongolia, Rowley's Orn. Miscell. ii. p. 195 (1877); Hume & Davison, B. of Tenass., Str. Feath. 1878, p. 365; Ball, ibid. vol. vii. p. 220; Cripps, *t. c.* p. 288.

Corydalla chinensis (Bp.), Swinhoe, P. Z. S. 1871, p. 366.

Slender Lark, Latham; *Large Titlark*, Europeans; *Marsh-Pipit* of some writers. *Sairam*, lit. "Singing-bird," Turkestan, Scully; *Pastro marello*, Portuguese in Ceylon; *Pulla puraki*, lit. "Wormpicker," Tamils; also *Meta kâlîe*, lit. "Long Legs."

Gomarita, Sinhalese.

Adult male and female. Length 7.5 to 7.9 inches; wing 3.6 to 4.0; tail 2.9 to 3.2; tarsus 1.2 to 1.3; middle toe and claw 1.07 to 1.18; hind toe 0.6, its claw 0.65 to 0.82; bill to gape 0.75 to 0.85.

These dimensions are taken, as is the invariable rule in this work unless otherwise stated, from Ceylon birds.

There is, as will be seen, much variation in the length of the hind claw; but it has always the same *straight* character, differing in that from *C. striolata*.

Iris pale brown or light hazel; bill, upper mandible dark brown, lower fleshy with dusky tip, inside of mouth yellow; legs and feet fleshy, the toes brownish and the soles yellow, claws brown.

* Structurally this genus is but little different from true *Anthus*. It was adopted by Vigors for the species first to be noticed, and has been adopted generally for the allied hair-brown fulvous-margined Pipits, *C. richardi*, *C. striolata*, *C. rufula*, and *C. malayensis* of the Indo-Malayan region. I retain the generic term here because these birds appear to differ from true *Anthus* in not having a marked breeding-plumage. Blyth says that they only moult once; but this is erroneous, for I have detected examples of both the commoner Ceylon species acquiring new feathers in spring, although they do not shed the quills and rectrices at that season.

Winter (Ceylon). Above sepia-brown; head and back more or less deeply margined with ochreous grey or brownish buff, the edgings on the back of the neck generally paler than elsewhere; wings and tail deeper brown than the back; the tertials, major wing-coverts, and centre tail-feathers boldly margined with brownish buff: outer primary with a white edge; lateral tail-feathers white, except at the base of inner web; the next pair with more brown on the inner web, and the next with a white outer edge; above the eye a broad streak of buff; lores and face mingled ochreous and brown, with a dark streak on the lower part of the cheek; beneath buff-white, the chin paler than the fore neck; a dark stripe on each side of the throat; chest and flanks washed with fulvous, the former with dark centres to the feathers; under wing buff, the longer feathers rufescent at the tips.

Obs. This species is said to have a summer plumage which is darker and more distinctly edged than that of the winter bird. I have not been able to detect much difference myself. An example shot in May at Galle, just on the point of leaving for northern parts, is no darker than winter specimens, although the edgings of the upper-surface feathers are more ochraceous; new feathers are being acquired on the chest, which are more fulvous than the old ones. One autumn Heligoland example is *somewhat* darker than my winter series from Ceylon; but this may be a local peculiarity.

Young (nestling: Yenesay, mus. Seebohm). Centres of head-feathers very dark brown, the margins rufescent; back-feathers narrowly edged with whitish; wing-coverts very broadly margined with whitish and rufous; outer tail-feathers, with the base of the inner web blackish, sloping to a point at an inch from the tip, the adjacent pair blackish, the tip of the inner web white, running up the web; ear-coverts fulvous; a *broad, dark, complete stripe* down each side of the throat; the chest and fore neck with broad, blackish, central, drop-shaped markings.

Immature birds in Ceylon have the legs dusker than the adults; lores not so dark; the edgings of the upper surface paler, the centre of the back not presenting that uniform appearance which old birds have; the throat less fulvescent, the stripes on each side conspicuous, and the stræ of the chest more pronounced.

Obs. Examples of this Pipit vary somewhat according to locality. Some specimens from China are particularly dark; and the hind claws and bills of these Eastern birds seem to be shorter than those from Europe and India. In five specimens the claw varies from 0.4 to 0.7 inch; the wings from 3.7 to 3.8; tail from 3.3 to 3.4; bill from gape to tip 0.75 to 0.8. Two adults from Heligoland, with shorter wings (3.5 to 3.6 inches), measure each in the bill 0.8, and in the hind claw 0.62 and 0.7 respectively. The chests in the China birds have the same fulvous wash on the chest and the same softened brown stripes that our winter birds in Ceylon have. A specimen from Siam corresponds exactly with these Chinese birds.

Dr. Armstrong gives the dimensions of examples shot in the Irrawaddy delta as—wings 3.45 to 3.7 inches, bill from gape 0.8 to 0.85; Mr. Cripps of Furreedpore specimens—length 7.75 to 8.16 inches, wings 3.5 to 3.75, bill from gape 0.76 to 0.86, hind claw 0.7 to 0.83. A Yarkand bird shot by Dr. Scully measures—length 8.0 inches, wing 3.95, tail 3.3, bill from gape 0.85. The majority of these Indian birds appear to exceed slightly those I have examined from Europe; but I have not seen a large series of the latter. Mr. Brooks, in his table of measurements of this and *C. striolata* (Str. Feath. i. p. 360), gives the hind claw at 0.65 to 0.7.

Distribution.—This large Pipit is migratory to Ceylon, arriving at the beginning of October and departing as late as the middle of May, about which time I have procured examples in the Galle district. It is widely diffused through the low country, affecting chiefly the maritime regions. It is particularly numerous on the pastures lying on both banks of the Virgel, and likewise on the open lands and grass-cheenas to the south of Batticaloa. In the west it is abundant at Puttalam, Negombo, Colombo, and other places on the coast. In the south it is frequently met with about Galle and Matara, but becomes scarce towards the east. It is probable that the large species of Pipit I observed in the Hambantota district belonged to this species and not to *C. striolata*. In the Central Province it inhabits some of the lower highlands and patnas; but I do not know that it ranges to any altitude. It is common all through the Jaffna peninsula and in the islands adjacent.

We may safely assume that this Pipit is only a cold-weather visitant to the whole of India, as Mr. Hume states; though it breeds at Ladak it does not do so at Simla, nor, I conclude, at any station on the southern slopes of the range. Jerdon sketches out its distribution in India as follows:—"It is found from Nepal and the Himalayas to the extreme south; more rare in Southern India, especially in the Carnatic, but tolerably common, indeed abundant, in Lower Bengal. It is also found in Burmah and other countries to the eastward." As regards the various localities here referred to, we find that of late years Mr. Ball records

it from Bardwan, Nowargarh, and Karial, and that Mr. Cripps says that it is common in Furreedpore. At Assensole, on the borders of the province of Chota Nagpur, it is, according to Mr. Brooks, not so common as its two congeners next referred to here. We do not find it recorded from the hill-districts in Southern India; but this is only natural, as it is essentially a bird of the low country. In the dry north-west of India it does not seem to locate itself at all, as it is not found in Sindh or Rajpootana; in fact, as regards this part of Asia, it has more of an easterly than a westerly distribution. On the opposite side of the Bay it evidently locates itself near the coast, as Mr. Oates did not find it up country in Pegu, whereas Dr. Armstrong says that it is extremely abundant in the paddy-fields near Elephant Point in the Irrawaddy delta; it likewise occurs in the maritime province of Tenasserim, in all cultivated and open lands throughout it. In the Andamans it was procured at Pt. Blair in April, but was not met with so far south as the Nicobars. It has been met with in Siam, and is found throughout China in the winter, also in Hainan, and rarely in Formosa.

Turning northwards now, in order to trace out its summer quarters, I observe that Dr. Scully states that it is a seasonal visitant to the plains of Eastern Turkestan, where it breeds; he observed it there in June and July, but not in winter. Further east, in the little-known regions which he explored, Col. Prjevalski states that it breeds in limited numbers at Kan-su in Mongolia, and that it is tolerably abundant at Lake Hanka from the end of April until the beginning of September. It breeds on the steppes, avoiding the tall thick grass of the marshes. Mr. Seeböhm found it breeding in great numbers on the Yencsay, and Dr. Dybowski met with it in Dauria. Severtzoff did not meet with it in Western Turkestan, nor does it appear to inhabit Palestine, although it is said to visit Smyrna by Dr. Krüper. As regards North-eastern Africa, Shelley says nothing of it in Egypt, nor does Mr. T. Drake mention it as having been seen by him in Morocco. On the European side of the straits, however, we have Col. Irby's evidence as to its occurrence at Gibraltar in passing in April, from which we infer that it must also be found on the African side too. Its distribution in Europe is somewhat noteworthy, for it seems to confine itself to the countries just on the north of the Mediterranean, on the east of which it inhabits South-eastern Russia and on the west France, straying into England and up to Heligoland, and thence into Sweden and Norway (where it has very rarely occurred); whereas in the intervening region of Central Europe it is almost unknown, it having only once been met with there, and that near Vienna. Mr. Saunders obtained it at Malaga; and one of the first few examples ever procured came from the Pyrenees. In France and Lombardy it is well known; in fact it was described by Vieillot from specimens procured in Lorraine in 1815 by M. Richard; while in Lombardy it is said by Signor Bettoni to be a characteristic species. To England it is of course a visitor, arriving in autumn and departing in spring; and since the first specimen made known to science was obtained near London in 1812, about sixty have been recorded. It has chiefly, according to Professor Newton in his edition of Yarrell, occurred in the southern counties from Kent round to Cornwall, even having occasionally found its way to the Scilly Islands. Mr. John Haneock records three examples in his interesting catalogue as having occurred in Northumberland, and it has also been procured in Shropshire and Staffordshire.

Habits (Ceylon).—This Pipit is usually found consorting in scattered company with the common Titlark, *C. rufula*. It frequents pastures, particularly those covered with short grass or on which cattle are much fed, bare ground in the Jaffna peninsula, checnas in the forest, and marsh-land. To the latter sort of locality, however, in Ceylon it is certainly not so partial as to the barest ground, although it *has* been named the "Marsh-Pipit." I have generally found it in long grass on wet marshes, either just after its arrival or before leaving the island for northern climes. It is a handsome bird in its carriage, holding itself erect, running swiftly, and frequently mounting on to some little eminence, where it stands pluming itself, and in this attitude is very apt to deceive the eye as to its size. It has a soft-sounding yet louder note than *C. rufula*, and constantly utters it, both on the ground and when flying with its rapid undulating flight from one spot to another. It is as fond of dusting itself on roads as the next species, and on the Galle face, Colombo, where it is common, becomes discoloured with the red *Kabook* soil. It feeds on worms and grasshoppers, and often seizes a passing butterfly or insect on the wing.

Mr. Brooks, who has devoted much attention to this species and *C. striolata*, has some interesting notes on his observations of it at Assensole in Bengal. He remarks that there it is particularly shy and difficult to shoot, and that its note is a soft double chirp, reminding one strongly of the note of a Bunting. The

places it "frequented were low grounds occurring below jhcels or *talaos*; the water constantly percolating through the reservoir-bank kept the low grounds adjacent rather damp, and in many places quite wet. Over a greater part of this low ground, the rice-crop having been gathered, there now grew a small vetch with blue flower, and in these vetch-fields the large Pipit of which I am speaking delighted. Before retiring among the vetches to feed they sat for some time, as a rule, upon the little bunds which divide the fields; and when they did this I found the best plan was to wait till the lookout was over and the birds had retired among the crops to feed. It was then possible to creep up within shot." In Ceylon the Marsh-Pipit exhibits none of this shyness when inhabiting public resorts, but is, on the contrary, very tame. In wet weather in the Eastern Province I have, however, found it somewhat wary in marshes. Mr. Seebohm observed that it hovered like a Kestrel at its great breeding-grounds on the Yenesay. In Furreedpore it is said to frequent fields of peas, linseed, &c.; and, according to Jerdon, it is always found "in swampy or wet ground, grassy beds of rivers, edges of tanks, and especially wet rice-fields, either singly or in small parties."

Nidification.—There is not much known about the nesting-habits of this fine Pipit. It is probable that our birds all breed in Thibet and Turkestan. Col. Prjevalski, the celebrated Russian traveller and ornithologist, found it breeding in Kan-su, where it arrives in May; and Dr. Scully considers that it hatches its young about the beginning of July in Eastern Turkestan. In Northern Asia Mr. Seebohm shot the young in August on the Yenesay, so that its breeding-season throughout Central Asia must be June and July. Concerning its breeding in Dauria, Mr. Dresser writes as follows:—"Dr. Dybowski writes (J. f. O. 1868, p. 334) that it is common in Dauria, and remains there to breed; but he gives no information as to its habits or nidification, excepting that he found its nest, and that it deposits five or six eggs. . . It is curious that, although this bird has been so frequently met with in various parts of Europe, and must breed there (for I have before me European-killed specimens in young plumage), there does not appear to be any reliable instance on record of its nest having ever been taken in Europe; and, in fact, next to nothing is known respecting its nidification. I have a clutch of five eggs collected by Dr. Dybowski in Dauria; but they were sent to me without the nest, which I am therefore unable to describe." These eggs are described as being greyish white, closely spotted with greyish olive, and as measuring 0.9 to 0.78 by from 0.67 to 0.62 inch.

CORYDALLA RUFULA.

(THE COMMON PIPIT.)

Anthus rufulus, Vieill. Dict. d'Hist. Nat. xxvi. p. 494 (1818); Blyth, Cat. B. Mus. A. S. B. p. 135 (1849); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 268; Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 356 (1854).

Corydalla rufula, Kelaart, Prodromus, Cat. p. 121 (1852); Jerdon, B. of Ind. ii. p. 232 (1863); Holdsw. P. Z. S. 1872, p. 458; Hume, Nests and Eggs, ii. p. 384 (1874); Ball, Str. Feath. 1874, p. 416; Hume, *ibid.* 1875, p. 142; Brooks, *t. c.* p. 252; Butler & Hume, *t. c.* p. 490; Fairbank, Str. Feath. 1876, p. 260; Armstrong, *t. c.* p. 330; Bourdillon & Hume, *t. c.* p. 401; Hume, *t. c.* p. 458; Fairbank, *ibid.* 1877, p. 407; Hume & Davison, B. of Tenass., *ibid.* 1878, p. 366; Ball, *ibid.* vii. p. 220; Cripps, *t. c.* p. 288.

The Indian Titlark, Jerdon. *Rugel*, Hind.; *Chachari*, Hind. at Monghyr; *Gurapa-madi pitta*, Telugu; *Pastro marello*, Portuguese; *Meta kâlîe*, lit. "Long Legs," Tamils.

Adult male and female. Length 6·2 to 6·75 inches; wing 3·0 to 3·3; tail 2·5; tarsus 1·1; middle toe and claw 0·8; hind toe 0·4, claw 0·45 to 0·52; bill to gape 0·75 to 0·8. This species varies much in size. The claw is straight, like that of *C. richardi*.

Iris dark brown, olive-brown, or earth-brown; bill, upper mandible dark brown, gape fleshy, lower mandible fleshy, with dark tip; legs and feet fleshy grey, joints darkish, claws brown.

In general character this bird is very similar to Richard's Pipit, of which it is a miniature, differing structurally also in its shorter hind claws. The margins of the upper plumage are perhaps, as a rule, more clearly defined than in the larger bird, and the broad edgings of the wing-coverts and tertials more tawny in hue; but, at the same time, the character of these markings is subject to variation; the penultimate has the brown portion of the inner web, as a rule, more extensive than in the large bird; the buff supercilium, ear-coverts, and cheeks are similar, but the streak at the side of the throat is, in low-country birds, less clearly defined; chest and flanks washed with fulvescent, the former streaked, and the under tail-coverts tinged, with buff, as in *C. richardi*.

Some individuals from the patnas in the upper hills are very tawny in general hue, and have the tail darker than in low-country birds; the stripe running down from the bill on each side of the throat is also bolder, and the bill very large in some,—in a Horton-Plains specimen it is 0·8 inch, quite as large as any Richard's Pipit; the wing measures only 3·3, and the hind claw 0·5; the anterior claws are very long, the middle one 0·26. In fact, had I large series exhibiting throughout the same character, it would, I think, be justifiable to separate the hill-race as distinct. An example from Lindula patnas measures—wing 3·2, hind claw 0·52.

The edgings of the feathers above are very ochraceous, as is also the entire colour of the under surface.

Young. Immature birds of the year scarcely differ from adults; the feathers are perhaps rounder on the head, as in the Larks, and the centre tail-feathers rather conspicuously edged with buff.

This species moults completely in September and October, but only the clothing-feathers before breeding. It has a strong propensity towards albinism: examples may occasionally be seen with two or three white feathers in the tail; and I possess one in which the terminal portions of all the clothing-feathers above, most of the central tail-feathers and tertials, and the entire occiput are *pure white*.

Obs. The same variation in size appears to exist in continental members of this species; and this fact exposes a propensity in its nature which makes it unsafe to try any expedient of dividing it into races. Many such uncertain birds exist, and they are, perhaps, better left alone, to enjoy an undisturbed and intimate relationship with one another. Mr. Hume, in dealing with Mr. Bourdillon's specimens from the Travancore hills, says that local races differ as much as those of *Alauda gulgula*, the Indian Sky-Lark. In the southern examples, he remarks, the bills are longer and slenderer, the hind claw shorter, and the markings of the upper surface better defined and more pronounced. As regards size from various localities, Dr. Armstrong records the wing of an Irrawaddy specimen

as 3·27, and Mr. Cripps that of a Furreedpore example 3·08 inches, both being males. Jerdon, generalizing from India, fixes the wing dimension at 3·0 to 3·25.

C. malayensis, the Malay Pipit, is the representative of this species in that peninsula. It is closely allied, differing, according to Mr. Hume, in the darker upper surface, more strongly marked spotting of the breast, stouter bill and feet: I have not seen any examples; but it must be remarkably close to our hill-bird, and can at best be only looked upon as a *subspecies*. *Male*, wing 3·5; *female*, wing 3·1 to 3·15.

Distribution.—The Common Pipit, or Indian Titlark, is one of our most familiar birds, being distributed over the whole island, and almost as abundant on the lofty lying patnas and “plains” of the Nuwara Eliya plateau and other elevated regions of the hill-zone as on the plains of the north. It is, however, scarcer at the Horton Plains than at the Sanatarium, Elephant Plains, or the Agra patnas, that upland region being probably too cold for it. It moves about in districts exposed to the force of the monsoons, seeking shelter at that time in more secluded localities than its favourite open lands on the sea-coast. There is a marked increase in its numbers on open places near the sea-coast during the N.E. monsoon, owing to its retiring in the breeding-season to grassy places in the interior. This may be plainly observed by noticing it throughout the year at the Galle face.

It is abundant in most parts of India, except, perhaps, in the north and north-west portion of the empire. Jerdon remarks that it is numerous from “the Himalayas and Nepal to the extreme south, more rare in Southern India, especially in the Carnatic, but tolerably common and abundant in Lower Bengal.”

As regards the south, however, it is found in Ramisserum Island, in the hills of Travancore, and in the Palani ranges. Further north, in the Deccan, it is common, and also on the hills, according to the same authority. The same is true in the open parts of Chota Nagpur; and Mr. Ball likewise records it from various places between the Godaveri and the Ganges, from Caleutta and the Satpura hills; in Central India it is found, and, in fact, it breeds, says Mr. Hume, all over the plains. In the north-west its distribution is local. Mr. Adams records it as common at the Sambhur Lake; and Captain Butler says it is likewise so in the plains round Mount Aboo in the cold weather, though it does not ascend the hills; it, however, sparingly remains in that district throughout the year, as subsequently he found it breeding at Deesa. Mr. Hume says it is common at Ajmere, but not found at Jhodpoor, or in Sindh, Cutch, and Kattiawar. In the Himalayas Mr. Brooks procured it in the narrow part of the Bhagirati river above Mussoori; and Mr. Hume says that it builds up to 6000 feet elevation. It is abundant in parts of the Irrawaddy delta according to Dr. Armstrong, but is rare in Pegu, where Sir Arthur Phayre procured it in the Tongoo district. In Tenasserim it is “a permanent resident in the more open and cultivated tracts throughout the province,” not ascending the higher hills. Mr. Davison remarks that “there is not a bit of open land anywhere about Moulmein, Tavoy, or Mergui where numbers may not be seen.” It has not been found in the Andamans, if the Marquis of Tweeddale’s identification of *C. striolata* in Lieut. Wardlaw Ramsay’s collection was correct, which I have no doubt was the case. It is replaced to the south of Tenasserim by the Malaccan form, *C. malayensis*.

Habits.—This tame bird frequents fields, esplanades in towns, pastures and open ground of all sorts, ploughed paddy-land, and bare patnas in the hill-districts. It is fearless in its disposition, taking no notice of man, but merely moving out of his way or running leisurely before him. It rises with a two-syllable note, and is capable of taking long-sustained flights, which are noticeable in its evening passage from the Galle face over Mutwal to the Mutturajawella swamp, where it roosts in great numbers in sociable company. It associates in flocks at some seasons of the year, notably before pairing in June, and is then very restless in its habits. Both this and the last species, adapted by nature to open and bare localities, are capable of sustaining the powerful midday rays of a tropical sun without any apparent inconvenience; and when all other insessorial birds are seeking the cool shade of green foliage, or panting with heat, these salamander-like little birds may be noticed running on the burning soil, or quietly feathering themselves on some half-baked clod! It feeds on worms and various terrestrial insects, and likewise partakes of small grass-seeds. It is in a constant state of moult in the autumn.

Mr. Davison remarks concerning this species:—“It is a very familiar and tame bird, running about the gardens and along the paths and roads, and even coming to within a foot or two of one’s door. Though

numbers are seen within a very small circumference, yet they all seem to act quite independently of one another; their flight is undulating, and they utter as they rise and during flight a short sharp note. I have seen them often rise into the air, however, for a few moments, sing a sort of song, and then descend." They do not all sing thus as a constancy when breeding, like the Bush-Larks; but I have on one or two occasions seen them rise and make a poor attempt at a Pipit-like warble. Jerdon likens it to a "mere repetition of one note, during its descent from a short flight of a few feet from the ground."

Nidification.—This species breeds in the west and south of Ceylon during May, June, and July, placing its nest in a depression in the ground, under the shelter of a tussock or small tuft of herbage. It is generally well concealed or artfully situated, so as to escape observation, for it is seldom found. In shape it is a shallow cup, the bottom being thick and tolerably compact, while the edges are fined off to correspond with the grass at the surface or edge of the hollow in which it is placed; it is made of roots, dry grass, stalks of plants, &c., and lined with fine grass, hair, or very small roots, the egg-cavity being about $2\frac{1}{4}$ inches in diameter. The eggs are usually two or three in number, of a whitish or greenish-white ground-colour, speckled and spotted all over, but chiefly at the large end (where the markings unite to form an irregular zone), with greenish brown, light brown, or purplish brown, over which, in some, are more sparingly distributed blots of dark or inky brown. Some eggs are openly marked all over with dark brown without the lighter wider spottings. In size they vary from 0.76 to 0.89 inch in length by from 0.56 to 0.64 inch in breadth. The female sits closely to preserve her eggs from the attacks of vermin and lizards; and incubation lasts from 12 to 14 days.

In India the breeding-season lasts from March until July, April being the favourite month. The nests are made of grass and roots, and lined scantily with finer roots. Some nests are almost entirely composed of roots, and they are usually placed under the shelter of a tuft of grass.

The eggs are said to be three in number, and are described as "typically of a brownish or greenish stone-colour, thickly streaked, clouded, and streakily spotted with dull brownish and purplish red, and sometimes with brown of different shades, or brown intermingled with pale purplish grey;" the markings have a tendency to become confluent at the large end. In size the eggs vary from 0.75 to 0.86 inch in length, by 0.57 to 0.63 inch in breadth (*Hume*).

CORYDALLA STRIOLATA.

(THE LARGE MEADOW-PIPIT.)

Cichlops thermophilus, Hodgs., Gray's Zool. Miscell. 1844, p. 83 (without description).

Anthus striolatus, Blyth, J. A. S. B. 1847, xvi. p. 435; id. Cat. B. Mus. A. S. B. p. 136 (1849); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 268.

Corydalla striolata (Bl.), Kelaart, Prodrum, Cat. p. 121 (1852); Jerdon, B. of Ind. ii. p. 233 (1863); Holdsw. P. Z. S. 1872, p. 458; Brooks, Str. Feath. 1873, p. 359; Ball, ibid. 1874, p. 417; Fairbank, ibid. 1876, p. 260; Hume & Davison, B. of Tenass., Str. Feath. 1878, p. 366; Ball, ibid. vii. p. 220.

Anthus thermophilus (Hodgs.), Horsf. & Moore, Cat. B. Mus. E. I. Co. ii. p. 356 (1854).

The Mountain-Pipit, Kelaart.

Adult male and female. Length 7.1 inches; wing 3.6; tail 2.8; tarsus 1.05; middle toe and claw 0.8; hind toe 0.43, claw 0.5; bill to gape 0.75 to 0.8. The tarsus and toes are short, and the hind claw *much curved* in this species. The bill is also small for the bird.

Iris brown; bill, upper mandible dark brown, lower fleshy yellow, tip dusky; legs and feet fleshy yellow, claws dusky.

Ceylon (October). Above sepia-brown, the feathers more narrowly margined with a paler hue than *C. richardi*, giving the edgings a more conspicuous appearance than in that species; the penultimate rectrice has more white, and its shaft is also white near the tip; median and greater wing-coverts broadly edged with *whitish*, forming two bars across the wing; tertials and secondaries edged with tawny; primaries pale-edged, the outer edge of the 1st white; from the nostril to the ear-coverts, the upper feathers of which are brown, a buff streak; beneath fulvous whitish; throat and abdomen the palest; a series of spots forming a line down the sides of the throat and spreading over the chest, which is lightly washed with greyish buff; the flanks are paler than in the other two species.

Obs. The above is a description of the only Ceylonese example in my collection, about the identification of which I have no doubt. I am therefore unable positively to say whether it is a fully adult bird. It, however, corresponds well with specimens collected by Mr. Brooks at Dinapore, and with a skin in the late Mr. A. Anderson's collection; and therefore if due regard be paid to the peculiarities in the plumage of this specimen, taken in conjunction with the well-marked character exemplified in the short and *curved* hind claw, the species ought to be correctly identified by my readers in Ceylon. The hind claw varies in length in the last species, but it is always remarkably straight, or, more correctly speaking, *very gently curved*; whereas in the present species it is fairly curved, slightly more so than in the Common Pipit next to be considered. Mr. Brooks's specimens are all characterized by the same slender small beak; the chests are marked with clearly-defined, small, rather pointed stripes, which have a different appearance altogether from the softened down striæ in the last; the centres of the back-feathers are darker brown. Four examples from Dinapore measure respectively as follows:—wings 3.5, 3.6, 3.6, 3.6 inches; tails 3.5, 3.5, 3.5, 3.7; hind claws 0.5, 0.55, 0.4, 0.52. Mr. Anderson's specimen measures—wing 3.6 inches, hind claw 0.5. The claw, therefore, varies but little. In my specimen the terminal portion of the shaft of the penultimate feather is *white*, whereas in *C. richardi* it is black to the tip. In one of Mr. Brooks's skins it is the same, but in all four the amount of white on the webs of this feather is somewhat less than in mine. Mr. Ball states that in the Satpura hills specimens have very faint or no spotting on the breast.

Distribution.—This species, which, like Richard's Pipit, is migratory to Ceylon, arrives in October, and, according to some writers, is widely distributed. I have no doubt that it is so; but it cannot be so numerous as Richard's Pipit, which is probably taken for it by those who are not well acquainted with its distinguishing characters. Kelaart speaks of it as being common at Nuwara ELLIYA; but here he is evidently speaking of the Common Titlark, which, on the hills, is a more robust bird than in the low country. Mr. Holdsworth says it is not uncommon at Colombo in the north-east monsoon. I was unfortunate in not procuring it at the Galle face; many large Pipits which were shot by me on the Galle face during successive seasons all proved to be the

larger long-clawed species. My specimen was obtained in the flooded pasture-lands near the Virgel. I was struck by the peculiar appearance of the head and bill of certain Pipits I met with during a forced march to Trincomalie, and shot one (the only individual I had time to get), which proved to be the desired species. I have no doubt it is commoner on the extensive pastures and grassy plains in the great delta of the Mahawelliganga than anywhere else in Ceylon.

Concerning its distribution in India, Jerdon says, "Hodgson sent it from Nepal; Blyth first procured it from Darjiling, where I found it tolerably common about the station and in stubble-fields. I also procured it in the Nellore district, in the south of India, generally near low bushy hills, not approaching houses like the last (*C. rufula*); it is not rare at Saugor, in Central India, in similar localities. It does not breed, that I am aware of, in India, even at Darjiling, coming in towards the end of September." It is possible that the species noted from Kangra, North-west Himalayas, as *C. rufula* by Herr von Pelzel may have been the present. It is recorded from the Deccan by the Rev. Dr. Fairbank, and Mr. Ball notes it from the Rajmehal hills, Bardwan, Singhbhum, Nowargah, and Karial. He likewise obtained it in the Satpura hills and in all the districts of Chota Nagpur. Mr. Brooks met with it at Assensole, and says that it is more abundant in that part of Bengal than the "Marsh-Pipit." I do not find any record of its occurrence on the eastern side of the bay north of Tenasserim, to the southernmost district of which province Mr. Hume says it is a rare visitant: it was there procured at Mergui and Bankasoon. The Marquis of Tweeddale identified this species in Capt. Wardlaw Ramsay's collection from the South Andamans; but Mr. Davison does not appear to have met with it there. Where it retires to during the breeding-season is still a mystery; but its haunts must be beyond the snowy ranges, if it does not nest anywhere in India.

Habits.—This fine Titlark frequents pasture-lands and plains covered with short herbage, moist fields, and, according to Indian writers, stubble-land. Mr. Davison found it in turfy and rice-land, and Mr. Brooks met with it in vetches and paddy-fields in Bengal. It appeared to me to be solitary in its habits, and it ran quickly about, stopping suddenly and holding itself very erect. Jerdon remarks that it has a stronger flight than the Common Titlark, and takes shelter under trees and shrubs. Mr. Brooks says that it rises with a loud discordant note, very different from that of any other Titlark; and by this it may be readily distinguished from Richard's Pipit, which it so much resembles at a distance. It feeds on worms and insects, which it takes from the ground or from the cattle-ordure on the pastures which it frequents.

PASSERES.

Series C. STURNOID PASSERES.

Wing with 10 primaries, the first of which is rudimentary. (Wallace, Ibis, 1874, p. 412.)

Fam. ALAUDIDÆ.

Bill variable, more or less conical and slender in some, stout and slightly curved in others; tip entire. Wings pointed, with the 1st quill normally present, but absent in one or two recognized genera of the family*; the tertials elongated. Legs more or less slender. The tarsus *scutate both before and behind*; claws straight; the hind claw generally elongated. Head in most crested.

Genus ALAUDA.

Bill rather conical, but slender, the culmen slightly curved. Nostrils *concealed* by a tuft of hair-like feathers. Wings moderate, pointed; the 1st quill minute, less than the primary-coverts; the 2nd, 3rd, and 4th quills subequal, the 3rd usually the longest. Tail moderately long, emarginate at the tip, the centre feathers shorter than the lateral ones. Tarsus moderate, equal to the middle toe and its claw, covered in front and behind with broad transverse scales, those behind being smoother than those in front; inner anterior claw longer than the outer; hind claw very long and straight.

ALAUDA GULGULA.

(THE INDIAN SKY-LARK.)

Alauda gulgula, Franklin, P. Z. S. 1831, p. 119; Jerdon, Cat. B. South India, Madr. Journ. 1840, xi. p. 30; Blyth, Cat. B. Mus. A. S. B. p. 132 (1849); Kelaart, Prodrumus, Cat. p. 126 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 259; Jerdon, B. of Ind. ii. p. 434 (1863); Brooks, Ibis, 1869, p. 60; Holdsw. P. Z. S. 1872, p. 465; Hume, Str. Feath. 1873, p. 487, note; id. Lahore to Yarkand, p. 269, pl. 29 (1873); id. Nests

* The variation in the wing in this family is very remarkable, and precludes the satisfactory classification of the Larks as a group according to a given wing-formula. They appear to me, notwithstanding, to be better located in this series next the Pipits (the last family of the preceding group), than actually with them, because the 1st quill is normally present as an abortive or rudimentary feather, and the wing is consequently of *Sturnoid* formation. In the character of their plumage, as a rule, and in the structure of the foot, the Larks are allied to the Pipits through the genus *Corydalla*; and some genera, such as *Otocoris* (the horned Larks), might perhaps be placed in the latter family. The peculiar structure of the tarsus, in having scales behind as well as before, is, however, common to *Otocoris*, as well as to other genera; but the scales are scarcely perceptible with the naked eye. Were it not for its conical bill and short tertials, *Otocoris* would have quite the aspect of a Pipit, and may, I think, be considered as a connecting link between the Motacillidæ and the Alaudidæ.

and Eggs, ii. p. 486 (1874); Legge, Ibis, 1874, p. 25, et 1875, p. 399; Oates, Str. Feath. 1875, p. 342; Hume & Butler, ibid. 1876, p. 2; Armstrong, *t. c.* p. 337; Davison & Hume, B. of Tenass., Str. Feath. 1878, p. 409; Davidson & Wender, ibid. vii. p. 86; Ball, *t. c.* p. 223.

Alauda leiopus v. *orientalis*, Hodgs. Gray's Zool. Miscell. 1844, p. 84.

Alauda malabarica (Scop.), Horsf. & Moore, Cat. B. Mus. E. I. Co. ii. p. 467 (1856, in pt.); Hume, Str. Feath. 1873, p. 41.

Alauda australis, Brooks, Str. Feath. 1873, p. 486.

The Common Indian Lark, Horsf. & Moore. *Buruta pitta*, Telugu, also *Niala pichike*, lit. "Ground-Sparrow;" *Manam badi*, lit. "Sky-bird," Tamil; *Bhurut*, Hind. (Jerdon); *Pullu*, lit. "Wormpicker," Ceylonese Tamils.

Gomarita, Sinhalese.

Adult male. Length 6·2 to 6·3 inches; wing 3·35 to 3·7; tail 2·0 to 2·15; tarsus 0·95 to 1·0; middle toe and claw 0·85 to 0·95; hind toe 0·45, claw 0·55 to 0·7; bill to gape 0·68 to 0·72.

Individuals vary much *inter se* both as to wing and robustness of bill even when shot in the same locality.

Adult female. Length 6·0 inches; wing 3·1 to 3·5.

Iris hazel-brown or chocolate-brown; bill, upper mandible brown, paling towards the margin, lower mandible fleshy, tip dusky; legs and feet brownish fleshy, toes dusky towards the tip, claws brown.

Above rich sepia-brown, the feathers broadly edged on the hind neck, back, scapulars, and rump with fulvescent yellowish, passing with a rusty hue into the brown next the shaft, and more narrowly margined with the same on the head; the margins of the feathers on the back generally pale to whitish at the tips, and on the hind neck they are broader than elsewhere; wing-coverts broadly edged with rufescent grey, and the secondaries and inner primaries deeply with brownish rufous, the margins of the outer primaries being narrower, and the outer web of the 1st long quill wholly pale; tail with the lateral rectrices whitish buff, except at the base of the inner web, and the next with the outer web and tip the same; lores dusky, surmounted by a whitish supercilium; beneath the eye and on the ear-coverts the feathers are edged and tipped with brown, and the lower part of cheeks more or less spotted with the same; chin, throat, and under surface fulvescent white, the lower part of fore neck and chest sepia-brown, centres and the basal portion of the upper breast-feathers rufescent; lower flanks striated with brown.

Examples vary in the depth of rufous coloration. Jaffna specimens are palest.

Young. Birds of the year have the feathers of the upper surface rounded at the tips, especially on the head, where the tips are whitish; the back-feathers are likewise tipped with white, and have one web mostly rufous, the other being margined with the same; greater wing-coverts boldly margined with rufous-buff; tertials tipped and edged with fulvescent rufous; the rufous margins of the quills very bright; supercilium and under surface more rufescent than in the adult.

Immature birds are at once recognizable by the white-tipped rounded upper-surface feathers, and by their more rufous coloration.

Obs. The Ceylonese Sky-Lark belongs to the rufous type of *Alauda gulgula*, the typical form of which was described from the North-west Provinces by Franklin. Typical examples of this bird from the northern parts of India are much paler than those from the south of the peninsula and from Ceylon; but the species has been found (by accumulating a large series from all parts of India) to divide itself into so many local races, running, as Mr. Hume says, into one another in such a manner, that it is not possible to consider them worthy of specific rank.

The Nilghiri race (*A. australis*, Brooks) appears, from this gentleman's description, to be a larger and more rufous bird than ours. He gives the wing-measurement as 3·84, and the upper surface would appear to correspond in tint with that of a yearling *A. gulgula* from Ceylon. A North-Indian example in the British Museum from Behar is quite as rufous as any Ceylon skin in my collection; it measures—wing 3·6 inches, tarsus 0·8, bill to gape 0·68. Another from Mogul Serai (wing 3·6) is not very much paler than specimens I have shot at Jaffna, although the margins of the back and wing-feathers are not so rufous. One or two Futtehgur specimens collected by

Mr. A. Anderson are paler above and beneath than my birds, and the hind claws are longer than in most Ceylonese specimens. I notice particularly the absence of rufous tinting on the breast-feathers. The wings in two skins measure 3·6 and 3·7.

Messrs. Sharpe and Dresser, in their article on the European Sky-Lark (*A. arvensis*), look upon the Indian form as a diminutive of that bird, having the tail-feathers more pointed and the outer pair more tinged with isabelline rufous. In addition to this it must be noted that *A. arvensis* is not so rufous on the under wing, and the 4th primary is considerably shorter than the 3rd, whereas in the Indian bird it is only slightly so.

Distribution.—The Indian Sky-Lark is a resident in the northern half, east, and south-east of the island, as well as in the eastern parts of the Kandyan Province, and a north-east monsoon visitant to the western and south-western portion of the country between Colombo and Hambantota. It is found throughout the year as far down the west coast as Chilaw; and from that district to the Jaffna peninsula it is very common, inhabiting the islands of Karativoe, Mauaar, and all those in Palk's Straits. As regards the east of the island, it is most numerous round the south-east coast. At Colombo it makes its appearance after the rains in October, and does not quit the district until May, on the 5th of which month I have even seen it at Galle. It is not unfrequent on most of the patnas of Uva throughout the year, the highest point at which I have seen it being Carey's Gap, 5200 feet.

On the mainland this Lark is diffused throughout India from the extreme south to the Himalayas, extending on the one side westwards into Sindh and on the other into the countries eastward of the Bay of Bengal as far south as Moulmein, being confined to the neighbourhood of that town and the tract between the Sittang and Salween rivers. In the south it is found abundantly on the Nilghiris, and from Ootacamund came the type of Mr. Brooks's *A. australis*. Miss Cockburn found it breeding on this range of hills, and Mr. Wait likewise at Conoor. It has not been recorded from the Travancore hills or from the Palanis by either of the oft-quoted writers in 'Stray Feathers;' but it may possibly occur in them, particularly on the grassy slopes of the latter. It is not mentioned either from the Deccan by Dr. Fairbank; but Messrs. Davidson and Wender say that it is not uncommon in Satara. In the Mount-Abou district Captain Butler says it is not very plentiful, and he does not note it from the mount itself. It occurs in all the surrounding region, though it is not common in Sindh. It was procured in that province by Messrs. James and Blandford. It extends from this section of country up into Cashmere and along the Himalayas, in many of the tracts at the foot of which mountains, such as Kumaou, it is common. In the North-west Provinces and in Bengal it is as much at home as anywhere else in India; but in Chota Nagpur does not seem to be well distributed, as I find that Mr. Brooks only procured it at Assensole. Mr. Ball notes it in his list of birds from the Godaveri and Ganges region, from Bardwan, Sirguja, Jashpur, Udaipur, and Bilaspur. Eastwards Dr. Armstrong found it evenly distributed in the Irrawaddy delta; and in Burmah Mr. Oates notes it as a visitant; further south it extends, as above remarked, as far as Moulmein.

Habits.—This songster frequents the same situations as its European congener—pasture-land, stubble-fields, bare commons, and so forth. It is, however, with us particularly noticeable on the rich pastures surrounding the great inland tanks of the northern half of the island. No meadows in old England in the merry month of May sound more pleasantly with the sweet song of Larks than do these lovely spots in Ceylon, surrounding the lasting monuments of the might of its ancient kings! These verdant lands remind the sojourner in tropical Ceylon of home; the long meadow-like grass, the browsing hundreds of cattle driven down by the Kandyans to fatten, and the air filled with the song of the Sky-Lark recall pleasant memories; but let the wanderer awake from his reverie and only cast his eye around on the boundless circle of dark forest, and the broad, wooded lake, its surface broken here by the head of a stealthy crocodile and there by the stately form of a huge Pelican slowly floating along its glassy waters, and the vision of green English meadows is quickly dispelled. A more peaceful existence obtains for the Sky-Lark in Ceylon than in India; in the latter country, when "flocked" in the cold season, it is caught in great numbers for the table, and is sold in Calcutta, in common with various Pipits, as "Ortolan." Its home in Ceylon, however, is in the woods and plains far away from the epicurean wants of large towns; and were it ever found in abundance near Colombo, the Buddhists of Ceylon are so averse to bird killing, that I do not think the Lark would have many enemies to fear.

Its European relative fares worse still, for it is captured, as nearly every one knows, in fabulous numbers for the table (we read, in Professor Newton's edition of Yarrell, of 1,255,500 having been taken into the town of Dieppe during the winter of 1867-8); but in addition to this danger it is forced to migrate in vast flocks to southern districts when deprived, by a heavy snowstorm, of its sustenance, great numbers never again returning; and it is therefore a wonder that this species remains so numerous as it is.

But to return to the habits of our bird. It sings, I think, quite as sweetly as the European Lark, but not so loudly, and its song is not so long sustained, neither does it mount so high in the air. At times this Lark maintains its position on the wing by a continued fluttering of its pinions; but it may be more often seen making several powerful strokes and then suddenly closing its wings, which movement causes it to dip in the air, from which it rises again by the same vigorous strokes, continuing this alternate rising and falling until it descends to earth.

The flesh of the Indian Sky-Lark is excellent eating. It feeds on small insects and various kinds of grass-seeds, and during the cool season congregates in flocks, which lie close in the long grass and get up in the same manner as the European species, flying off with a low straight flight and suddenly dropping again to earth.

Mr. Brooks styles it a most delightful songster and quite equal to the Sky-Lark, with even a sweeter song. Jerdon noticed that it frequented, as a favourite resort, the grassy sides of tanks and also the bunds of rice-fields, on which, he says, it often breeds. In the islands off the Jaffna peninsula I have observed it in long grass among bushes, the usual haunt of the Bush-Lark.

Nidification.—The breeding-season of this Lark in Ceylon is from May until July or August. The nest is placed in a depression in the ground and sheltered generally by a tuft of grass; sometimes a rut protected by a corresponding inequality in the surface is chosen, and at others the hollow would seem to have been partly prepared by the bird herself. The nest is rather neatly made of fine grass and roots of the same, lined sometimes with a little cattle-hair; the egg-cavity is a broad cup in shape, about 3 inches in diameter and $2\frac{1}{2}$ in depth. The eggs are three or four in number, of a whitish or greyish-white ground-colour, spotted or freckled all over with light-brown or greyish-brown ill-defined markings. The brown is of various shades, and the character of the markings varies somewhat, some eggs being more closely freckled than others.

Much information concerning its nesting is given in Mr. Hume's work, Miss Cockburn, as usual, supplying many interesting details. She is of opinion that the birds scratch the hole for themselves, and says:—"I have noticed a bare, smooth, round hole from which a pair of Larks had flown away, and some days after as neat a Lark's nest as possible occupied the same spot. The material they use is entirely fine grass twisted round and round the hole nearly half an inch thick; this fine grass is also placed a little over the edge on the side at which they enter . . . Sky-Larks never lay twice in the same nest, but always build a new one for every brood."

As to the eggs of the Indian bird, Mr. Hume says that all the different races lay precisely similar eggs, those he has received from the Nilghiris, Central Provinces, Sharunpoor, Almorah, and Cashmere being undistinguishable. They are of two types—the one a cream-coloured ground, freckled *finely* with small spots of purplish grey and brownish yellow; the other a nearly pure white ground, with larger and less densely set markings of the same hue. The average size is 0·8 by 0·61 inch.

[N.B.—A further species will be treated of in an extra article in the Appendix.]

Genus MIRAFRA*.

Bill stout and curved, deep at the base; the culmen keeled. Nostrils elongated and *exposed*. Wings moderate, rounded; the 1st quill *unusually long*, the 2nd shorter than the 3rd, which is the longest, 4th and 5th longer than the 2nd. Tail short, emarginate, the lateral feathers longer than the central pair. Tarsus long, covered in front with transverse scales and behind with obsolete plates; middle toe and claw shorter than the tarsus; hind claw long and curved.

MIRAFRA AFFINIS.

(THE MADRAS BUSH-LARK.)

Mirafra affinis, Jerdon, Cat. B. S. India, Madr. Journ. xiii. pt. 2, p. 136 (1844); id. Ill. Ind. Orn. pl. 38 (1847); Blyth, Cat. B. Mus. A. S. B. p. 133 (1849); Layard & Kelaart, Cat. Ceylon B. Prodromus, App. p. 59 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 259; Horsf. & Moore, Cat. B. Mus. E. I. Co. ii. p. 475 (1856); Jerdon, B. of Ind. ii. p. 417 (1863); Holdsw. P. Z. S. 1872, p. 465; Ball, Str. Feath. 1874, p. 422; Hume, Nests and Eggs, ii. p. 474 (1874); Legge, Ibis, 1875, p. 399; Fairbank, Str. Feath. 1877, p. 408; Ball, *ibid.* 1878, vii. p. 223.

The Lark, Europeans in Ceylon. *Eeli-jitta*, Telugu; *Leepee*, in Central India; *Chirchira*, Hind. (Jerdon).

Gomarita, Sinhalese.

Adult male and female. Length 5·8 to 6·4 inches; wing 3·0 to 3·35; tail 1·6; tarsus 1·0 to 1·15; middle toe and claw 0·9 to 1·0; hind toe 0·4, claw 0·6. Females average smaller than males.

Iris varying from reddish to yellowish brown; eyelid brownish fleshy; bill, upper mandible dark brown, margin and the lower mandible, with the exception of the dusky tip, fleshy; gape fleshy; legs and feet fleshy, edges of scales brownish.

Above sepia-brown, margined on the head with fulvous-buff, on the back and rump with fulvescent greyish, and on the hind neck and wing-coverts with buff-white, imparting a whitish appearance to the former part; quills and tail sepia-brown; secondaries and all but the outer primaries, which have pale edges, margined with rufous, and with the margin and the basal portion of the inner webs the same; outer and most of the inner web of the lateral rectrice buff, and the margins of the next two the same; supercilium buff; lores dusky; ear-coverts and cheeks tipped with brown: beneath fulvous-white, the feathers of the lower part of the throat and chest with broad sepia-brown centres; flanks shaded with rufescent; under wing-coverts shining pale rufous.

Young. In nest-plumage the bill is paler than in the adult, the under mandible being mostly fleshy. The feathers of the head and back rounded at the tips, and the margins rufous on the head and buff on the back; tertials with bright but narrow margins, and not blending into the brown, as in the adult; upper tail-coverts margined with rufous; beneath whiter than in the adult; the chest with numerous dark "drops," and the feathers on the centre of the throat tipped with blackish; thighs rufescent; outer tail-feathers with conspicuous rufous margins, the inner web entirely brown, which colour gradually decreases with age.

Obs. Four examples in my possession from the Madras Presidency measure from 3·1 to 3·3 inches in the wing; they

* The Bush-Larks in the possession of an abnormally long 1st primary seem to have affinities with some of the round-winged *Turdoid* series, and are just as awkward members of this puzzling family to deal with as the nine-primary Crested and Sand-Larks, which appear to grade towards the Pipits.

vary, as is the case in Ceylon, in size of bill; the tints of the under surface correspond with those of our birds, and the striations on the chest are similar; they are somewhat darker on the back; the amount and distribution of the rufous on the primaries and secondaries are the same. The tarsus averages shorter* in these examples, ranging from 0.9 to 1.0 inch. A Travancore specimen has the bill very robust, and is more richly coloured than most Ceylon birds. In the India Museum is a skin from the Deccan, which has the wing 3.0 inches and the tarsus 1.05; it is somewhat slender in the bill, but not more so than females from Ceylon.

M. erythroptera, Jerdon, is closely allied to the present species, differing, as its name denotes, in the redder wing. The primaries and the secondaries, except the first of the former and the innermost of the latter (exclusive of the "tertials"), are rufous right across both webs to near the tips; the primary-coverts are rufous, and the greater secondary-coverts rufous on the outer webs and brown near the shafts. A specimen in the national collection measures—wing 3.0, tail 2.0 inches.

Mr. Hume has described the Burmese Bush-Lark under the name of *M. microptera*. It is smaller than *M. affinis*, measuring 2.6 to 2.8 inches in the wing, and it has no rufous on the outer webs of the primaries.

M. assamica and *M. cantillans* are two other Indian Bush-Larks. The former, the Bengal Bush-Lark, differs from its congeners in the grey plumage and very thick bill; the latter, the Singing Bush-Lark, is distinguished, says Jerdon, from other species by its slender bill and less amount of rufous on the wing; a specimen before me (in the national collection) has the wing 2.9 inches.

Distribution.—This interesting bird is widely distributed throughout the low country of Ceylon, the only part of the low-lying districts in which it is not numerous being the damp south-western coast-region between Kalatura and Matara. In the east and throughout the whole northern half of the island it is very common, both in the interior and on the sea-board. In the North-west Province and in the drier parts of the Western Province it is likewise numerous, being one of the commonest birds to be seen even in the cinnamon-gardens of Colombo and Morotuwa; thence round to Tangalla, beyond which it is again abundant, it is found in less numbers, and is chiefly confined, and that sparingly, to the sea-coast. Throughout the flat jungles between Haputale and the sea it is tolerably common. I am not aware that it is found in the Kandyan districts; but it may perhaps occur, as a rare straggler, in the lower parts of Dumbura. It is found near the base of the hills in the Kurunegala neighbourhood.

On the mainland, this Bush-Lark is chiefly confined to the southern portion of the peninsula. Jerdon remarks that it is "found on the Malabar coast, in the Carnatic, in Mysore, and the southern part of the table-land, extending north to Goomsoor and Midnapore. Col. Tytler states that it occurs at Barrackpore, but it is certainly very rare in Bengal." Mr. Ball asserts it to be tolerably abundant in Singbhum, and records it from Midnapur, Manbhum, and Gumsur. It seems therefore to stretch from the Carnatic northwards in an easterly direction, avoiding all divergence towards Central India. I notice that the Rev. Dr. Fairbank does not record it from the Deccan, nor do Messrs. Davidson and Wender, although *M. erythroptera* is noticed by these gentlemen as very common there. It is abundant about Madras, and also inhabits Ramisserum Island and the adjacent coast. Dr. Fairbank found it at the base of the Palanis.

Habits.—This Lark loves grassy wastes, studded with trees and bushes, openly timbered plains, scrubby

* Since this article was printed, I have received a letter from Mr. Hume containing a remark on this species, which, according to ornithological custom, I quote here:—"Have I ever pointed out to you that your *Mirafra*, which I call *M. ceylonensis*, is distinct from the Madras bird, *M. affinis*? It is a much larger, richer-coloured, longer-billed bird, with markedly larger legs and feet. I have just compared five examples from Colombo with a large series of Madras specimens." Now this bird varies in Ceylon. The five examples alluded to are all from Colombo; and as regards size see my comparisons above. I do not find that South-Indian specimens are more richly coloured; one from Travancore, which I obtained from Mr. Whitely, Woolwich, differs considerably in brightness of coloration from St. Thomas's Mount examples. Brightness of coloration in the Lark family is often dependent on age. The tarsus in Ceylonese birds is, as a rule, longer, as I have above noticed, but short-legged insular birds equal long-legged continental ones. A male from St. Thomas's Mount (wing 3.21) measures, tarsus 1.05; a good-sized female (wing 3.15) from Trincomalee measures, tarsus 1.05.

If, on the whole, it be hereafter decided by general consent that the Ceylon species should stand distinct, it must be as a very close subspecies indeed; but I would here remark that, above all birds, Larks are the most unsafe to tamper with. If we once begin to divide them up, there will be no end to subspecies.

enclosures, and dry pasture-land surrounded by trees. It is also found in open spots in the heart of the jungle and round the borders of tanks and salt-water estuaries and lagoons. It is to some extent arboreal, especially in the breeding-season, when the male constantly mounts to the topmost branch of some dead or seraggy tree, and pours out his little love-song, launching himself out into the air, and descending rapidly, with increasing fervour of note, to the vicinity of the nest, where his partner is patiently performing the duties of incubation. It is not gregarious, but usually lives in pairs, several of which, however, occupy contentedly the same locality, passing their time in catching insects, and feeding likewise on grass-seeds, varying the monotony of the noonday heat by now and then flying up into the air, or alighting on trees and bushes, from which they give out their long-drawn sibilant whistle, *tsee-tsee-tsee*. These Larks do not mount to any height, nor do they remain any time in the air; their actions are Pipit-like, for after reaching the altitude to which they wish to ascend, they quickly sail down again with upturned wings, continuing the note they commenced with on leaving the ground until they realight, when it is suddenly hushed. They often descend to a low tree or bush, and sometimes continue their notes for a few seconds. Mr. Ball remarks that it is a very early bird, sometimes singing before dawn.

Nidification.—In the Western Province, the Bush-Lark breeds in May and June, and in the north somewhat earlier, commencing about March. It nests in a little depression in the ground, generally beneath the shelter of a tuft of grass or tussock of rushes. It sometimes, however, in sandy soil excavates a hollow itself, and therein it constructs its nest. It is a loosely-made cup of dry grass and fine roots of herbs, measuring about three inches wide by two in depth; the top is flush with the surface of the soil, and over the nest the adjacent blades of grass are bent, or arranged so as to conceal it. The eggs are nearly always two in number, stumpy ovals in shape, and of a greenish-white ground-colour, boldly marked almost equally throughout with light umber-brown and blackish-brown spots, the latter being small in some and large in other eggs.

The young become fledged very rapidly, flying in about a fortnight from the time they are hatched. The old birds are very zealous in their attempts to draw off intruders from their young, running along the ground with trailing wings, or feigning lameness or incapacity to fly!

Genus PYRRHULAUDA.

Bill short, stout, conical, the culmen much curved; gape angulated; margin of under mandible slightly concave. Nostrils basal, round, and concealed by tufts. Wings long, the tertials elongated; 1st quill equal to the primary-coverts, the 2nd and 3rd equal and longest. Tail moderate, emarginate at the tip. Tarsus short, covered in front and behind with broad but smooth scales. Feet small, with the lateral toes equal and the claws straight; the hind claw stout and considerably longer than the anterior ones.

N.B.—The hindermost tarsal scales are very plainly developed in this genus.

PYRRHULAUDA GRISEA.

(THE BLACK-BELLIED FINCH-LARK.)

Alauda grisea, Scopoli, Faunæ Insubr. ii. p. 95 (1786).

Alauda gingica, Gmelin, Syst. Nat. i. p. 795 (1788).

Fringilla crucigera, Temm. Pl. Col. 269. fig. 1 (1838).

Pyrrhulauda crucigera (Temm.), Jerdon, Cat. B. S. India, Madr. Journ. xi. p. 35 (1840).

Pyrrhulauda grisea, G. R. Gray, Gen. B. ii. p. 381 (1841); Blyth, Cat. B. Mus. A. S. B. p. 134 (1849); Kelaart, Prodromus, Cat. p. 126 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 259; Horsf. & Moore, Cat. B. Mus. E. I. Co. ii. p. 479 (1856); Jerdon, B. of Ind. i. p. 424 (1863); Holdsw. P. Z. S. 1872, p. 465; Hume, Str. Feath. 1873, p. 212; Adam, *t. c.* p. 388; Hume, Nests and Eggs, ii. p. 478 (1874); Ball, Str. Feath. 1874, p. 422; Legge, *ibid.* 1875, p. 371; *id.* Ibis, 1875, p. 399; Butler & Hume, Str. Feath. 1875, p. 499; Fairbank, *ibid.* 1876, p. 261; Hume, *t. c.* p. 459; Fairbank, *ibid.* 1877, p. 409; Ball, *ibid.* 1878, vii. p. 223; Cripps, *t. c.* p. 295.

Alouette grise de Gingi, Scopoli, Sonn. Voy. Ind. ii. p. 203 (1782).

Gingi Lark, *Duree Finch* (Latham); *Squat Finch*, *Ortolan*, Europeans in India. *Diyora*, *Duri*, and (most commonly) *Dabhak-churi*, lit. "Squat Sparrow," Hind.; *Chat Bharai*, *Dhula-chata*, in Bengal; *Poti-pichike*, lit. "Short or Ground-Sparrow."

Adult male. Length 4·8 to 5·0 inches; wing 3·0 to 3·1; tail 1·6; tarsus 0·6; middle toe and claw 0·55; bill to gape 0·5.

Iris brown or yellowish brown; bill whitish; legs and feet reddish grey, claws dusky; eyelids brown.

Above greyish brown, with a rufescent tinge on the back, the bases of the feathers brown, and the head paling gradually into the albescent of the forehead; wings and tail brown, the coverts, tertials, and secondaries very broadly edged and tipped with whitish; the major coverts and tertials slightly tinged with rufous; tail pale edged, with the outer feathers almost entirely rufescent whitish; cheeks and ear-coverts white; a broad band from the gape over the eyes to the occiput, chin, throat, sides of fore neck, centre of chest, breast, belly, and under tail-coverts dull black; under wing-coverts the same; sides of chest greyish white.

In abraded plumage the *fulvous-brown margins of the clothing-feathers disappear and the "ribs" of the webs become bleached, giving the plumage a grey appearance*; the pale tips of the tertial feathers and the margins of the rectrices likewise disappear.

Female. Length 5·8 inches; wing 2·75 to 2·95.

Bill not so white as in the male.

Head and upper surface earthy brown; the upper tail-coverts margined with whitish; the wings not so conspicuously margined; the white cheeks and all the black markings are wanting, the under surface being albescent, washed with fulvous-brown on the chest, the feathers being centred darker than the edges; flanks dusky; bases of the greater under wing-coverts dark brown; supercilium and space just beneath the eye buffy white; ear-coverts brownish. In birds in old plumage the upper tail-coverts are dark from abrasion.

Young. The nestling is at first covered with fulvous-coloured down.

A *young female* (St. Thomas Mount, Madras) has the feathers of the head and occiput tipped with ochraceous and marked with a subterminal blackish band; the feathers of the back and rump have the same blackish markings, but not so dark, and their tips and lateral margins are buff; ear-coverts and sides of neck brownish tawny; wing-coverts and tertials broadly margined with fulvous tawny; upper tail-coverts pale fulvous; central tail-feathers sandy buff, and the whole edged with buffy white; beneath tawny yellowish; the chest and breast with dark centres to the feathers.

The tarsal scales are very pronounced in this immature specimen.

Males of the year are no doubt browner on the upper surface than adults, and the forehead is not albescent; but the peculiarly grey appearance of the latter arises from abrasion. The moulting-time is in March and April.

Obs. Examples kindly sent me by the Director of the Madras Museum from the neighbourhood of that place are very similar to our birds. A male in abraded plumage is not quite so grey as some of my specimens, and the black superciliary streak is broader. A female is slightly darker. ♂, wing 2.95 inches; ♀, wing 3.0. Another male measures 3.1 in the wing.

A female in Mr. Anderson's collection from Futtelghar is paler above than any Ceylonese examples; the edges of the feathers are grey, and the centres not so brown; wing 3.0 inches. Two examples from "Bengal" in the national collection, male and female, measure 3.0 and 2.8 inches in the wing respectively; the latter is very dark and the former of a decidedly pale type. Specimens from Northern India, and especially from Sindh, are probably, as a rule, paler than Southern birds.

Allied to the present species is *P. melanauchen*, Cabanis, = *P. affinis*, Blyth, from Sindh, &c., the males of which have the crown and occiput black or concolorous with the eye-streak, and a broad white forehead. In the type mention is made of a blackish spot on the nape; but it does not, according to Mr. Hume's remarks (*Str. Feath.* 1873, p. 212), always appear to be present. This species is larger in the bill and wing than *P. grisea*.

Distribution.—This curiously plumaged and pretty little Lark was believed by Layard to be migratory; this is, however, not the case, although from his remark, "I have seen flocks careering from the direction of the continent when out dredging," there seems to be a movement of the species from the continent to the north of the island, probably during the cool season. It is a resident in all the dry and arid portions of the maritime provinces of Ceylon, scarcely ever, to my knowledge, except as a straggler, extending more than about twenty miles inland. In the north of the island, and in all the islands between Jaffna and Manaar, down the west coast as far as the Chilaw district, and entirely round the east side to the borders of the wet region on the Girawa Pattu, it is a common bird; but south of Negombo and round the south-west coast to Tangalla it is not found. On one occasion as I was riding up the Pass from Rambodde to Nuwara ELLIYA, in November 1870, when near the top I was astonished to see feeding quietly by the roadside a male Finch-Lark. This, I believe, is the only instance of its being seen at any great elevation, and the only occasion which I know of its being found in the interior of Ceylon; and its occurrence at that great altitude is so remarkable that I am unable to come to any other conclusion than that it was driven south by the high north-east winds and stormy weather which were at that time prevailing. Were there dry plains in the interior of Ceylon, it would, of course, be found on them.

This Finch-Lark is found all over the plains of India, from the extreme south to the foot of the Himalayas, except, says Jerdon, on the Malabar coast. It is particularly abundant, according to the same author, in Western India, Sindh, and the Punjab; and in the North-west Provinces Mr. A. Anderson recorded it as common. It is found in Ramisserum Island and on the adjoining mainland. About Madras it is common; and the Rev. Dr. Fairbank procured it at Peria Kulam near the base of the Palanis, and which place has an altitude of more than 900 feet. In the Deccan it is, according to the same observer, very abundant. Mr. Ball found it very common in all the open parts of the Chota Nagpur, and he records it from many places and districts between the Godaveri and the Ganges, including the Rajmchal hills. In Furreedpore it is "pretty common;" but Mr. Cripps has not observed it there between the months of November and February. It does not extend into the countries to the eastward of the Bay of Bengal, but has, on the contrary, a westerly range. On the plains of Sindh, Kattiawar, Guzerat, and in the Sambhur district it is found in abundance. Captain Butler obtained it close to Kurrachee, but did not observe it on Mount Aboo. Its extending into Arabia, as mentioned by Jerdon, doubtless refers to the allied species *P. melanauchen*, which has a western distribution.

Habits.—This sociable little Lark is fond of the barest plains and the driest ground that it can find. It especially frequents, therefore, the arid land surrounding the great salt-water lagoons and "leeways" and the wide estuaries and river-mouths which indent the whole of the north and east coasts of the island. I have often seen it on the dried-up fore-shores of the Hambantota "leeways," or the vast sand tracts which are left bare in the dry season at the head of the Jaffna and other lakes in the north, sitting motionless in those

dreary wastes without another living creature near save a few Stints or Shore-Plovers, which were running along the edge of the tepid water, having nothing in common with the lonely little "Squat Sparrow." It is also generally found on the uncultivated paddy-fields (converted by want of irrigation and a burning sun into the barest possible pasture) which are so marked a feature of the poverty-stricken districts of the north and south-east; here it displays a sociable nature, feeding in closely associated little troops, and tripping along the ground like a party of Munias. It is excessively tame, and, as Jerdon truly remarks, squats stupidly on the ground, and will almost allow itself to be ridden over. From its squatting habits it has obtained its numerous native Indian sobriquets. Its ordinary note is a cheerful little chirrup; but it has a sweet song which it warbles out when rising in the air, like a true Lark, though it does not mount so high, nor does it remain poised on expanded wing more than a minute or two. It has a habit of suddenly rising off the ground and quickly dropping again; but when moving about it is capable of considerable powers of flight. True to the nature of its family, it is one of the first birds abroad in the morning; but it is also one of the last to go to roost at night, the song of the male being often heard *after* the short tropical twilight has sunk into the shades of night. It feeds on small grass-seeds; but I have often found insects in its stomach, and have seen it dart up and catch a passing fly. The males congregate together out of the breeding-season, and seem to leave their quondam mates to their own devices.

Jerdon writes concerning it:—"It is remarkable for the sudden ascents and descents of its flight, mounting up some height by a few flappings of its wings and then descending almost perpendicularly till it nearly reaches the ground, when it again rises as before, and repeats this several times. In general it takes but a short flight, and on alighting squats close to the ground, and will allow itself to be ridden over before it rises. It occasionally may be seen seated on the housetop; but I never saw it perch on a tree, except on one occasion when I observed about twelve or fifteen of them perched on a low tree close to Cantonment in the hot weather."

Sundevall speaks of it singing in the air with expanded wings, as I have noticed above; but I have nevertheless only seen it do this in the dusk of the evening and at daybreak.

Nidification.—The Finch-Lark breeds in the north and east of Ceylon from April until August, placing its nest in exposed places and bare spots away from all shelter. It sometimes scoops a hole in the ground for its domicile, while at others it chooses a small rut or natural hollow. I have found its nest on esplanades and public commons close to the paths frequented by hundreds of natives during the day. They are, as a rule, loosely put together, made of dry grass, roots, stalks, bits of rag or cotton, and without any particular lining; but some are more neatly constructed of fine grass like a Lark's. Round the edge of two or three nests, on the Trincomalie esplanade, were little circles of small pieces of brick and tile, which must have been carried some distance, as there were none close by. Were these efforts of instinct as regards protection, or were they the result of a desire for ornamentation? Two is the normal number of eggs: they vary somewhat in shape, some being stumpy ovals and others slightly pointed at the small end; the ground-colour is greenish white or whitish, freckled all over with minute spots of yellowish brown, olive-brown, and slaty grey, with some larger markings of the same, forming a zone at the obtuse end, or they are sparingly spotted with larger markings of yellowish brown and bluish grey over minute specks of brown. They measure from 0·71 to 0·8 inch in length, and from 0·52 to 0·55 in breadth.

Mr. Adam writes of a nest which he found built in the low retaining wall of a salt-pau in the Sambhur Lake being encircled by "a belt, about 5 inches broad, of small flakes of a saline incrustation about one-tenth of an inch in thickness; the pieces varied much in size, but the largest were about an inch long by half an inch broad." This nest was composed of coarse pieces of grass worked carelessly together, and here and there were pieces of cloth. Mr. Cripps remarks:—"I once found its nest in the dry bed of a river in front of my house; it was on the 26th April, 1878. The nest was a tiny cup-shaped affair of fine grass-roots, which were firmly held together by damp sand, so much so that on taking it up it appeared like a ball cut in two; it contained two fresh eggs. There was not even a small tuft of grass anywhere where the nest was, only some tamarisk-shoots above and shading it."

Mr. Anderson once found the nest in the centre of a lump of cowdung, all over which white ants had left their marks, so that detection was almost impossible. But singular as are the situations so frequently

chosen by this curious little bird to build in, the following instance related by Mr. Hume is the most extraordinary that has come under my notice. He writes ('Nests and Eggs') :—"I may note that at Etawah we found a nest of this species also amongst the ballast between the rails, so that here too" (in reference probably to the nest of another species) "the trains must have passed a dozen times a day and night over the sitting bird. When we think of the terrible heat glowing from the bottom of the engine and the perpetual dusting-out of hot einders, it seems marvellous how the bird could have maintained her position."

I would suggest that in this case the bird allowed the heat of the sun to incubate the eggs by day, and that she only sat at night, and being asleep was not disturbed by the trains. The average of thirty eggs is 0.73 by 0.55 inch.

PASSERES.

Fam. PLOCEIDÆ.

Bill conic, as in Fringillidæ, but stouter; the culmen widened and flattened at the base, and the sides perpendicular; tip entire. Nostrils basal, small, round, and exposed. Wings with the 1st primary minute. Tail of 12 feathers, rather short, rounded or pointed in some. Legs and feet stouter than in the Fringillidæ; tarsus covered in front with broad scales.

Genus PLOCEUS.

Bill large; the culmen curved from the base and flattened, the sides tumid and overhanging the margin of the under mandible. Nostrils circular and basal, gonys straight. Wings moderate, the 1st quill exceeding the primary-coverts; the 3rd and 4th the longest, and the 2nd shorter than the 5th. Tail moderately short, rounded at the tip. Legs and feet stout; tarsus scaled, longer than the middle toe, outer toe slightly exceeding the inner; claws rather long; hallux stout.

PLOCEUS PHILIPPINUS.

(THE COMMON WEAVER-BIRD.)

Loxia philippina, Linn. Syst. Nat. i. p. 305. no. 36 (1760), *ex* Brisson.

Ploceus philippinus (L.), Sykes, P. Z. S. 1832, p. 105; Blyth, Cat. B. Mus. A. S. B. p. 115 (1849); Kelaart, Prodrum, Cat. p. 125 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 257; Walden, Trans. Zool. Soc. 1877, ix. p. 210; Hume, B. of Tenass., Str. Feath. 1878, p. 399; Ball, *ibid.* 1878, vii. p. 222.

Ploceus baya, Blyth, J. A. S. B. 1844, xiii. p. 945; Jerdon, B. of Ind. ii. p. 343 (1863); Holdsw. P. Z. S. 1872, p. 463; Adam, Str. Feath. 1873, p. 387; Legge, Proc. R. S. Tasmania, p. 30 (1873); Hume, Nests and Eggs, ii. p. 437 (1874); Ball, Str. Feath. 1874, p. 420; Hume & Butler, *ibid.* 1875, p. 495; Hume, *ibid.* 1877, p. 323; Davidson & Wender, *ibid.* 1878, vii. p. 85.

Le Touchnam-courvi, Buffon, Nat. Hist. Ois. iii. p. 465; *Baya*, Hind.; *Chindora*, Bengal.; *Bawi* or *Talbali*, Bengal.; *Parsupu-pitta*, Telugu; *Manja-kuruvi*, Tamil (Jerdon); *Pastro carpenteiro*, Portuguese in Ceylon; *Thuckenam kuruvi*, lit. "Basket-maker bird," Ceylonese Tamils.

Tatta kurulla and *Wada kurulla*, Sinhalese.

Adult male. Length 5·7 to 6·0 inches; wing 2·6 to 2·8; tail 1·8 to 2·0; tarsus 0·8; middle toe and claw 0·9 to 0·95; bill to gape 0·65 to 0·7.

Iris hazel-brown; bill blackish brown, lightish at gape and base of lower mandible; legs and feet dusky or reddish fleshy, claws brownish.

Breeding-plumage. Forehead, head above, chest, and sides of upper breast glistening saffron-yellow, blending into the brown of the nape and hind neck, the feathers of the interscapular region edged likewise with yellow; back, wings, and tail sepia-brown, paling on the upper tail-coverts, which are generally tipped with yellowish; the coverts, tertials, and most of the secondaries with broad fulvous-grey edgings; primaries and rectrices with pale margins; lores, orbits, face, ear-coverts, and throat blackish brown, paling on the chin, breast, and lower parts into whitish, with a pale brownish wash on the flanks and thighs; shafts of the flank-feathers dark.

In *nonbreeding-plumage* the iris is paler, the bill brownish above, fleshy at base beneath; the yellow parts are wanting, the head being brown as the neck, with a brownish-white supercilium; the ear-coverts and face brown, and the chin and throat whitish, the chest being washed with fulvous. The change to the nuptial dress takes place by an alteration in the feathers, the tips first assuming the yellow and black colours respectively.

Adult female. Length 5·3 to 5·6 inches; wing 2·4 to 2·6; tarsus 0·75. Soft parts as in the winter male, and the plumage similar. There is frequently a yellowish hue on the eye-stripe and about the chest and throat.

Young. On leaving the nest the bill is brownish fleshy, with the margins yellowish.

Upper surface dark brown, edged with fulvous-grey, most broadly on the wing-coverts and tertials; supercilium buff; chin and lower parts whitish; the breast fulvous; lower parts whitish.

A young female (10th October) has the head- and back-feathers edged with tawny, the rump fulvous-brown; tail pale brown, the bases of the feathers with yellowish edges; primaries margined with yellowish-grey margins; a broad fulvous supercilium; ear-coverts brown; cheeks fulvous, spotted with brownish; chin and throat white; chest and flanks tawny fulvous, with dark narrow shaft-stripes at the sides of the chest and on portions of the flanks; lower parts whitish; under tail- and under wing-coverts buff. This example is in moult, but not losing the quill- or tail-feathers.

In the following July *immature females* want the dark shaft-stripes on the chest, a few being only visible on the sides; the throat and chest are delicate tawny yellowish; the lesser wing-coverts conspicuously tipped with whitish, and the greater margined and tipped with the same; primaries and tail-feathers narrowly edged with yellow. An

immature male of the same month, probably bred late in the preceding autumn and not about to breed, has the upper-surface feathers margined with a less tawny hue than the above, and the centre of the fore neck and sides of chest with conspicuous, though very fine, dark shaft-stripes, and has no trace of a yellow tinge on the lower surface. This specimen has some resemblance to the Striated Weaver-bird; but I have compared it with skins of the latter, and the striae are not of the same character at all, but resemble those on the flanks of adult individuals of the present species.

Obs. A Malabar skin of this bird in breeding-plumage has the yellow of the head and chest of a deeper hue than almost any I have seen from Ceylon; but another from "Madras" is identical with a male in my own collection. The specific name *philippinus*, which I here employ and which appears to be the correct one, is not aptly applied to our Indian species, and is, in fact, an inappropriate name altogether, as the bird is not found in the Philippine archipelago. The Indian-peninsular form has of late years been usually styled *P. baya*; but Mr. Hume now considers that Blyth applied this name to a large race with a differently coloured chest, which occurs in Nepal, Sikhim, Eastern Bengal, Burmah, and the Malay peninsula. The late Marquis of Tweeddale and Mr. Hume are of opinion that Linnæus's name applies to the common Indian Weaver-bird; and after perusing the remarks of the former, written in his admirable paper on the birds of the Philippine archipelago, I think that there is little doubt that the species so named by Linnæus was no other than the present. The Marquis first of all points out that there is no Weaver-bird in the Philippines, and then remarks that, according to Buffon, D'Aubenton's figure was taken from a male example of Brisson's *Coccothraustes philippinensis*, on which Linnæus founded *Loxia philippina*; Brisson's description completely agrees with *P. baya*, Blyth, and cannot, as some think, apply to *P. hypoxanthus* of Indian authors. Furthermore, Brisson describes and figures the nest of his Weaver-bird, which is unmistakably that of *P. baya*.

Mr. Hume writes that the larger form, his presumed *P. baya* of Blyth, differs from the true *philippinus* in the much more rufescent character of its lower plumage; and he is also of opinion that the males do not assume the yellow breast in the breeding-season. He recognizes a third form in his *P. megarhynchus* (Ibis, 1869, p. 356), which has an immense bill for its size, measuring 0.84 to gape, and in the wing 2.95 inches, and differs from *P. philippinus* "in the darker and more rufescent tone of the entire plumage, and in the almost entire absence of striations on the crown, the much broader and sparser striations of the back, with entire absence of any rufous or rufescent supercilium, and in the cheeks and ear-coverts being unicolorous with the rest of the sides of the head and nape."

Distribution.—The Baya is common throughout all the low country, but I have always found it more numerous in the maritime provinces than in the interior. It is very local, keeping in large flocks to certain spots for some time, breeding in them, and then disappearing for months at a time, during which it occupies other localities suited to its habits; and this wandering disposition has caused some to think that it is migratory. It is, I think, more frequently met with in the south and west than in the north of the island, although I seldom failed to find flocks of it at all seasons frequenting the open country surrounding the salt lagoons and estuaries in the Trincomalee district; and I have likewise met with it in similar spots in the neighbourhood of Hambantota and Batticaloa, so that it cannot be said to be very much more partial to the west than the east side of the island. In the Anaradjapura district Mr. Parker has met with it not unfrequently, and at Uswewa he says it is not uncommon. I have seen it in the Kurunegala district, and at Chilaw I found it in large flocks. About Colombo I have met with it as near to the town as Cotta, where it breeds, as it likewise does occasionally at Borelesgamuwa. I am not aware that it has been found in the hills.

This Weaver-bird is found throughout peninsular and continental India, and would appear, from Mr. Hume's first writings on the subject, to extend to Burmah and Tenasserim, although from later disquisitions in 'Stray Feathers' it would appear that he identifies the bird inhabiting those regions with what he considers Blyth's true *P. baya* from Nepal, Sikhim, and Eastern Bengal. In the first list of Tenasserim birds ('Stray Feathers,' 1874) we find that the *Ploceus baya* of the province is "identical with continental Indian specimens," by which I understand the smaller race with the pure yellow breast. Again, in the "Birds of Pegu," *t. c.* 1875, it is written:—"Specimens from Thayetmyo agree well with others from all parts of India." But in the "Birds of Tenasserim" (Str. Feath. 1878) we find all the specimens of this type entered as true *baya*, Blyth, *apud* Hume, which is stated to inhabit Nepal and Sikhim, Eastern Bengal and Burmah, and not continental India. This matter apparently requires elucidation. At any rate our Ceylonese bird is found in suitable places in Southern India, and is common in the Deccan, from which the Rev. Dr. Fairbank records it; in the north-west it is common at the Sambhur Lake and in the plains

round Mount Aboo in the cold season, and also in the surrounding districts, according to Mr. Hume. It has lately been added to the avifauna of Sindh on the evidence of a single specimen procured in the Kurrachee collectorate. Crossing the empire to the eastward, we find it in the North-west Provinces and Central Bengal, and throughout Chota Nagpur, where Mr. Ball found it abundant. In the region lying along the east coast between the Ganges and the Godaveri, the same writer records it from many places, such as Bardwan, Manbhum, Lohardugga, Singhbhum, Orissa, south of Mahanadi, Nowagarh, and Karial; and Mr. Hume notes it from Raipur and Sambalpur in the same district. From Furreedpore, Eastern Bengal, Mr. Cripps records a *Ploceus* in abundance, but, not having kept specimens of it, he is unable to say whether it was the continental Indian or the Nepal bird.

Habits.—This Weaver-bird is found about the borders of open land or scrubby wastes in the vicinity of water more frequently than away from it. It affects low trees, palms, strips of jungle between paddy-fields and the like, and congregates in large flocks, which keep up an incessant chattering and a repetition of long-drawn sibilant whistles on the part of the males, which appear to be uttered as an encouragement to the females during the process of building their laboriously constructed nests. The energy displayed, particularly on the part of the male, in the construction of these wonderful structures, and the extraordinary aptitude which they show for learning the tricks so well known in India, entitle the Weaver-bird to a high place among the intelligent members of the feathered creation. A young pair which I endeavoured to rear at Galle, but which fell a prey to rats, displayed signs of unusual intelligence at a very early age. As soon as they were fledged they recognized me, and knew well when to expect their food, fluttering along the floor when let out of their cage, and scrambling up my legs into my lap to get fed.

The account by Blyth of the performances of the Baya in India, which is quoted in Jerdon, is so interesting that I cannot do better than transcribe it here for my readers. After stating that exhibitors carry them about to all parts of the country, he says:—"The usual procedure is, when ladies are present, for the bird, on a sign from its master, to take a sweatmeat in its bill and deposit it between a lady's lips, and repeat this offering to every lady present, the bird following the look and gesture of its master. A miniature cannon is then brought, which the bird loads with coarse grains of powder one by one, or more commonly with small balls of powder made up for the purpose; it next seizes and skilfully uses a small ramrod, and then takes a lighted match from its master, which it applies to the touch-hole." He further remarks, "We have seen the little bird apply the match five or six times successively before the powder ignited, which it finally did, with a report loud enough to alarm all the crows in the neighbourhood, while the little Baya remained perched on the gun, apparently quite elated with its performance."

The Baya has a strong rapid flight; it roosts in flocks, and not unfrequently resorts to large reed-beds, in common with the next species, and there takes up its quarters for the night in company with flocks of Munias. It is very destructive in paddy-fields, establishing itself in the vicinity of these in large colonies, and feeding greedily on the grain. Its movements about the country are no doubt regulated, to a certain extent, by the time of harvest in different districts; and when it takes up its quarters in the vicinity of large paddy-fields before they are cut, it usually takes advantage of the abundance of material and commences to breed, constructing its nest of the blades of corn.

Nidification.—In the south-west and south of Ceylon the Common Weaver-bird breeds from May and June until August, and in the north from October until January. It chooses trees standing in open places or on the borders of fields, checnas, lakes, &c., and nearly always associates in a large flock, which make their nests in adjacent trees, suspending from one to a dozen or so to the branches of each, the whole number accommodating a very large and noisy colony of these busy little architects. At times they will choose a river-bank or a hanging wood on a hill-side overlooking some extensive or perhaps secluded paddy-field, and then the sight of the many pendent nests swaying perchance to and fro with the wind, as one looks up at them from the open beneath, is very interesting. Much has been written about the nidification of the Weaver-bird, and there must be few inhabitants in Ceylon who are not familiar with its wonderful nest, the most striking part of which is the long entrance-tube, which attains *occasionally* a length of 4 feet! The nest is composed of those materials which are abundant on the spot chosen by the colony. I have seen a whole batch of nests constructed

of fine strips of date-palm leaves, another of cocoanut fronds similarly treated, and others of strips of bamboo when they were suspended from that tree overhanging water. Again, blades of green paddy are as often used as any thing else, for the borders of the fields are frequently chosen for the breeding settlement. In the southern province I think the date-palm leaf is as frequently chosen as any thing else, as it abounds in that district and forms a very durable material.

I have seen a structure containing two completely formed nests connected by a tube of about 18 inches in length, the whole measuring nearly 6 feet.

On referring to my account of the nesting of this species in Ceylon, communicated to the Royal Society of Tasmania, I find the details which I here subjoin:—"The strips of which these wonderful structures are composed are about $\frac{1}{16}$ inch broad, and are torn off the palm-frond in the most dexterous manner by the hard-working little 'Weavers.' The bird alights near the base, and with a bite and twist of its bill quickly detaches the end of the desired piece, launches itself out into the air, and after a momentary flutter succeeds in tearing it off, and wings its way back to the nest. The neck, or part which connects the egg-compartment with the branch or leaf (as the case may be), varies from 6 inches to more than a foot in length, and is, in general, about 1 inch in diameter; at the bottom it suddenly expands into the peculiar flattened 'goblet' or retort-shaped mass which contains the nest itself and the origin of the entrance to it. It is during the formation of this part that the extraordinary ingenuity and highly-developed constructive powers of the male bird in particular are exemplified. Carrying a long strip of material in its bill, it alights on the nest, and quickly weaves in one end; then taking a little hop forwards, it stretches itself out to the utmost, and, seizing the blade as far out as it can, runs its bill along it till it catches the end, which it underlaces in like manner, the whole operation occupying a few seconds only. It then frequently hops to another part, and clinging on with its claws, reaches itself out and carefully inspects its work, tucking in any projecting ends that it may observe. The body of the nest takes from four to five days to construct; and when the widest part has been reached, a strong loop is thrown across the bottom *a little at one side of the centre*, giving the nest, as Jerdon remarks ('Birds of India'), the appearance, when taken from the tree and inverted, of a basket with a handle. It is curious how many people have erred in noting the use of this loop, some being of opinion that it is meant for the male bird to sit upon in what has been equally erroneously described as the *male nest*! It is the keystone to the whole structure, and, of course, exists in all nests, the *construction of it being the principle on which the egg-compartment* is separated from the entrance or 'spout,' and if examined will be found attached to the interior walls by strong buttresses running up for a couple of inches. On one side of this loop, therefore, the egg-receptacle is formed by bringing down the exterior of the nest and then working it up to the loop again, while the opposite side is built down into the form of a tube or spout, the loop then constituting merely the edge, over which the bird has to mount to enter the egg-chamber. This 'spout,' or tubular entrance, varies in length according as the *passion for building*, if I may so describe its instinct, exists to a greater or less degree in the male bird, as it is nearly always continued by him after the female bird has commenced to lay, and in some cases after she has commenced to sit. It is generally about 18 inches or 2 feet long, but occasionally only about 6, and rarely attains the great length above mentioned." During the time the egg-compartment is being built, the pieces of clay are attached, about which there are so many different theories. Layard suggests that it might be for sharpening the bird's bill on; the natives of India have an idea (Jerdon, *loc. cit.*) that they are intended to stick flies on in order to light up the compartment at night! Jerdon himself was of opinion that they are used for the purpose of steadying the nest, and preventing its being knocked about by the wind. From my own observation I find that these lumps of clay are but seldom used in Ceylon, perhaps because they do not build during the windiest months in the year; and I have noticed that in a whole colony of nests built in a sheltered hill-side no clay was used. It is probable, therefore, that Jerdon's theory is the correct one. During the time the Weaver-birds are building, the whole flock keep up an incessant chirping, varied now and then by the long grating whistle uttered by the male as he elings to the nest he is making. Many nests are deserted when the body is being constructed, both before and after the loop has been formed; and this is, according to some writers, to furnish the male with a roosting-place. This is, I think, an erroneous idea; the proportion of such nests is sometimes only three or four to a large colony; and it seems to me probable that they are rejected by the birds on account of some fault in their construction—the egg-chamber too small, the

neck not strong enough, or some such weak point. I am strengthened in this view from having observed, as above stated, how particular the male bird is at times in examining and inspecting his work; and under these circumstances it is only natural that badly-made nests would be deserted. Again, as Jerdon remarks (*l. c.*), these nests may be "simply the efforts, if built late in the season, of that *constructive faculty* which appears to have such a powerful effect on this little bird, and which causes some of them to go on building the long tubular entrance long after the hen is seated on her eggs."

I have generally found the number of eggs laid by the Baya to be three or four; they are long ovals in shape, and of a pure but glossless white colour, quite unspotted. They average in size about 0.9 by 0.65 inch.

On entering the nest the old birds fly to the bottom of the tube, and, closing their wings, run up to the egg-chamber with surprising rapidity. I have several times witnessed this performance and carefully noted it, particularly as it has been said that the bird *flies up the tube*. Jerdon, in his admirable account of this bird's nesting, writes that, "when the loop is completed, the female takes up her seat on it, leaving the cock bird to fetch more fibre and work from the outside of the nest while she works on the inside, drawing in the fibres pushed through by the male, and reinserting them in their proper place, and smoothing all carefully."

PLOCEUS MANYAR.

(THE STRIATED WEAVER-BIRD.)

Fringilla manyar, Horsf. Trans. Linn. Soc. xiii. p. 160 (1820).

Ploceus manyar (Horsf.), Blyth, Cat. B. Mus. A. S. B. p. 115 (1849); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 257; Horsf. & Moore, Cat. B. Mus. E. I. Co. ii. p. 514 (1856); Jerdon, B. of Ind. ii. p. 348 (1863); Hume, Str. Feath. 1873, p. 208; Hume, Nests and Eggs, ii. p. 440 (1874); Oates & Hume, *ibid.* 1875, p. 154; Butler & Hume, *t. c.* p. 495; Butler, *ibid.* 1877, p. 221; Davison & Hume, *ibid.* 1878 (B. of Tenass.), p. 401; Ball, *ibid.* vii. p. 222; Cripps, *t. c.* p. 292.

?*Ploceus bengalensis*, Kelaart, Prodromus, Cat. p. 125.

Ploceus striatus, Blyth, J. A. S. B. 1842, xi. p. 873; Holdsw. P. Z. S. 1872, p. 463.

The Black-throated Weaver-bird; *Black-breasted Weaver-bird* of some. *Bamani Baya*, Hind., Deccan; *Telia Baya*, Bengal.; *Bawoyi*, in Rungpore; *Manyar*, Java.

Adult male and female. (British Museum, "India") Wing 2·7 to 2·81 inches; tail 1·9 to 2·0; tarsus 0·7 to 0·8; middle toe 0·65, claw (straight) 0·28; bill to gape 0·65, height at nostril 0·38. Length 5·8 inches (*Jerdon*). (Java) Wing 2·7 to 2·8 inches; tail 2·0; tarsus 0·8. Iris brown; bill "black" (*Jerdon*); legs and feet fleshy.

Breeding-plumage. Head and crown rich glistening yellow, forming a point on the nape; cheeks, ear-coverts, chin, and throat brownish black; hind neck, interscapular region, and scapulars blackish brown, the feathers margined with tawny; back, rump, and upper tail-coverts lighter brown than the hind neck, with paler margins to the feathers; wings and tail brown; the inner secondaries broadly edged with fulvous; the primaries and tail-feathers

PADDA ORYZIVORA.

(THE JAVA SPARROW.)

Loxia oryzivora, Linn. Syst. Nat. i. p. 302 (1766).

Amadina orizivora (L.), Blyth, Cat. B. Mus. A. S. B. p. 118 (1849).

Munia orizivora (L.), Bonap. Consp. Gen. Av. p. 451 (1850).

Padda orizivora (L.), Hume, Nests and Eggs, ii. p. 454 (1874).

Fringilla orizivora, Bligh, J. A. S. (Ceylon Branch), 1874, p. 67.

The Java Grosbeak, Latham. *Glate*, Java; *Gelatik*, Sumatra (Horsf.); *Ram Gira*, in Bengal (Blyth).

Adult male. (Ceylon, December 1870) Length 5·8 inches; wing 2·7; tail 1·8; tarsus 0·75; middle toe and claw 0·8; bill at front 0·6.

(Java, Lombok, Tenasserim) Wing 2·6 to 2·8 inches; tail 1·9; tarsus 0·65 to 0·75; middle toe 0·6; bill to gape 0·5. Iris red; bill fleshy red at base, paling to fleshy towards the tip; legs and feet fleshy.

Entire head and gape black, encompassing a large white patch which covers the cheeks and ear-coverts; upper surface, wings, entire neck, and chest delicate dove-grey; primaries tinged with brown; upper tail-coverts and tail black, the tail less intense than the coverts; breast, belly, and flanks isabelline red, blending into the grey of the chest; vent and under tail-coverts white.

A Lombok example has the breast and abdomen darker red than one from Java; a specimen from Tenasserim is albescent on the abdomen.

Obs. A handsome species allied to this one is *P. fuscata*; it has the head and throat black, enclosing a similar white

narrowly margined with dull yellowish; chest and flanks tawny, with *deep brown central stripes, rather broad on the chest*, and narrowing gradually on the flanks; the centre of the breast, abdomen, and under tail-coverts albescent. Examples appear to vary in the intensity of the colouring of the throat and in the amount of striation on the chest.

Nonbreeding-plumage (Burmah). Head and upper parts blackish brown, the feathers edged with tawny; a light stripe over the eyes; lower part of the cheeks and the throat whitish, tinged with yellow; breast and flanks striated darkly, as in breeding-plumage.

An example beginning to change to breeding-dress has the eye-stripe and a patch above the ear-coverts light yellow, and the throat-feathers changing to black along the shafts.

Female. Length 5.4 inches; wing 2.65; tail from vent 1.85; tarsus 0.91; bill from gape 0.63 (*Oates*).

"Iris brown; eyelids grey; bill yellowish horny, darker on the upper mandible; legs fleshy; claws pinkish."

Similar to the male in winter plumage.

Obs. I see no difference in Javan and Indian examples of this bird, and I conclude it was with the latter that Blyth compared Layard's skins sent from Ceylon. Horsfield's description is very meagre, and was perhaps taken from a young bird breeding, or it may be simply a case of the incomplete style of description in vogue at the beginning of the present century.

Other species of *Ploceus* inhabiting the Indo-Malaccan region are *P. bengalensis*, from Bengal, Assam, and Burmah, and *P. javanensis*, Lesson, = *H. hypoxanthus*, Dandin. The former differs in breeding-plumage from our bird in having the chin, throat, and face white, with a broad black pectoral band reaching upon the sides of the neck; the head and occiput are pale but brilliant yellow; the wing-coverts, scapulars, and back brownish black, margined with greyish; wings and tail brown; under surface from the chest buffy white; flanks brownish, with dark shafts to the feathers. The *female* has the head and hind neck uniform brown; a pale supercilium; throat yellowish; a blackish pectoral band, with the feathers in the centre terminated with whitish, giving it a broken appearance. *P. javanensis* is a very handsome species, with the head, the sides of the neck, and the entire under surface brilliant chrome-yellow; throat and cheeks black, and the yellow of the chest just beneath the black tinged with tawny; the rump, upper tail-coverts, and edges of the back, scapulars, and wing-covert feathers paler yellow than the head; wings and tail brown.

cheek-patch, and the parts which are slate-grey in this species are ruddy brown in it; breast and lower parts white, divided from the brown chest by a blackish border; wing 2.4 to 2.5 inches.

Distribution.—This well-known bird, which is largely imported into Ceylon as a cage-pet, has been successfully acclimatized in Ceylon.

It is now no uncommon occurrence to meet with a small flock on the compounds surrounding the Colombo Lake. I saw one in the pretty grounds of the bungalow belonging to the Messrs. Green, of Colombo, in April 1870; and my friend Mr. J. P. Green informs me that he saw a few near the house last year. They are, however, frequently seen in other places in the neighborhood of Colombo, and have even been introduced into some of the coffee-districts, where they are, it appears, thriving as well as in Colombo. Mr. Blyth writes, from Kotmale, in the Ceylon As. Journal for 1874:—"I have frequently seen them in the jungle, where they are so wild, and keep to the tops of the highest jungle-trees in inaccessible places, that I have not yet been able to obtain a specimen; they seem to be quite at home in this wild district."

Jerdon states that it has been turned out so much near Madras that it may be seen wild there. It occurs in Tenasserim, whence I have seen examples in the British Museum; and Blyth states that Major Berdmore procured it in the Mergui province. In Malacca it is common. It is found abundantly in Java, and also in Sumatra, in the Lampong district of which latter island Mr. Buxton lately procured it. Further east than Java it has been obtained in the island of Lombok; and no doubt it occurs in other islands of the great chain which terminates with Timor. It has been introduced into St. Helena, and, according to Mr. Melliss, is numerous there.

Habits.—This bird appears to affect trees as much as the nearly allied *Mniotilta* resort to the ground. It flies swiftly, and is restless and shy. In confinement it is as docile as all birds of its kind, and it is consequently a favourite cage-pet. It feeds on the ground, tripping quickly on the grass, and it clings, with the agility of its family, to stalks of grain, to which it is no doubt very destructive during harvest-time.

Distribution.—According to my observations the Striated Weaver-bird is not a common bird in Ceylon. Layard, who discovered it in the island, remarks, "I found it replacing *P. philippinus* in the neighbourhood of Tangalla;" and, alluding to the possibility of Kelaart having seen it at Trincomalie, suggests the probability of the species extending round the east coast to that place. I think I met with a flock once at a tank in the Trincomalie district; but, as I was unable to procure a specimen, I am unable to record it with certainty. I likewise saw what may have been this species near the Wallaway river; but unfortunately it did not occur to me at the time, although they were frequenting a reed-bed, that they were not the Common Weaver-bird, and I allowed them to pass unmolested! In both these localities, particularly at Trincomalie, the latter species is found not unfrequently, so that no dependence can be placed on my surmise. There is, if I mistake not, a specimen in the Colombo Museum, shot near Borelesgamuwa. I have never seen it in any collections, nor heard of it having been procured in any part of the island other than the localities above mentioned.

On the mainland of India this species has, it would appear, quite as extensive a range as the last, for, in addition to being diffused throughout the peninsula, it extends on the one side as far north as Sindh, and on the other into Burmah, and thence as far south as Tenasserim, where it is found between the Sittang river and Salween. Mr. Davison obtained it on the Thatone plain, where, from his remarks, it was not plentiful. In the south of India Mr. Bourdillon met with it near Trevandrum, in southern Travancore. Jerdon remarks that it is rare in the Deccan, and I observe that it has not been recorded from there by recent observers; in addition to which Mr. Hume states that it is not common in Southern India. In the north-west Captain Butler met with it at Milana, near Deesa; but it does not seem to be common in that district. In Sindh, according to Mr. Hume, it is plentiful; he writes, "Everywhere in the giant flowering-grasses, so common in the neighbourhood of Shikarpore and other similar localities in Upper Sindh, this Weaver-bird is seen in large parties" in that province. It breeds only where there are large sheets of water, as is the case in other districts of Northern India. It is found at Etawah, breeding there, as also in the Aligurh, Mynpoorie, and Cawnpore districts. Further east and to the south Mr. Ball records it from Orissa, north of the Mahanadi; and in the Furreedpore district Mr. Cripps says that it is very common. As regards Pegu, Mr. Oates says "this species is scarcely less common about Thayetmyo than *Baya*;" but in the Irrawaddy delta Mr. Armstrong did not meet with it. It is found in Java, having been described from there by Horsfield; but in Borneo it has not been as yet observed; in fact the genus *Ploceus* does not find a place in Salvadori's 'Uccelli di Borneo'; neither can I find any mention of it in Sumatra; but in the district of Lampong the Malayan race of the Indian *Baya*, entitled *P. maculatus*, P. L. S. Müller, by Lord Tweeddale, occurs.

Habits.—This handsome Weaver-bird has a partiality for long grass in open country and reeds near water, in one or other of which it is usually met with. But little has been written concerning its habits except as regards its nidification, which is almost as interesting as that of the last species. The birds which I hesitatingly identify as the Black-throated Weaver-bird were congregated in a large flock about reeds and rushes, and were as noisy as the common species, flying up and settling down again continually. Mr. Hume found its food to consist of insects as well as grass-seeds, and writes as follows concerning its habits in Sindh:—"Half a dozen may be seen perched close side by side upon the topmost sprays of the largest grass-stems, which, curved slightly beneath their weight, sway backwards and forwards at every passing breath, apparently much to their satisfaction. No sooner, however, are half a dozen comfortably placed than a dozen others insist on sharing the perch; great is the commotion that ensues, down bends the grass-stem and off they all fly, to resume the same game on some other stem; and so they will go on continuously for half an hour."

Nidification.—The Striated Weaver-bird breeds in Upper India in August and September, building a nest of the same character as the last species, suspended from high reeds or bulrushes. Great numbers are often placed close together; Mr. Hume writes of having found nearly a hundred in a small bulrush island not 20 yards in diameter. He thus describes the nests:—"They are formed of the same materials" (as those of *P. philippinus*) "and woven in the same manner; but the upper or body portions are more massive and clumsier, and the tubes are shorter. The points of some forty or fifty narrow bulrush-leaves are commonly gathered together and incorporated into the upper portion of the nest to form a point of suspension. The true nest, exclusive of the tubular entrance-passage, averages about $7\frac{1}{2}$ inches in length externally, with a

diameter of 5 inches one way by 4 the other. The tube is from 2 to 5 inches in length, and about $2\frac{1}{2}$ inches in external diameter; the upper portion of the nest may be about $1\frac{1}{4}$ inch thick, but the sides average about half an inch, and the entrance-passage is scarcely a quarter of an inch thick. What gives the nest a clumsy appearance is that its upper end terminates squarely, instead of tapering more or less to a point, as is the case with those of *P. philippinus*; but then the nests of these latter are hung from a point of support." The eggs are usually two or three in number, and are slightly smaller than those of the last species. They are "moderately broad ovals, a good deal pointed towards one end, and of a perfectly pure glossless white." The average size of the eggs is 0.8 by 0.58 inch.

The colony I met with near the Wallaway river, and which, I presume, was one of this species, were nesting in the reeds; the nests corresponded to the above description, and many of them had pieces of clay attached to them. What could this have been for, except to add weight, and thus prevent the swinging to and fro of the nests?

Genus MUNIA*.

Bill much as in *Ploceus*, but more inflated between the nostrils and the margin, which is festooned; gape much angulated; culmen running back on the forehead in a point. Wings with the 1st quill *very minute*, the next three nearly equal in length, but variable, the 2nd of them usually the longest. Tail rather short, cuneate. Tarsus stout, scarcely exceeding the middle toe without its claw; middle toe much longer than the lateral ones, which are subequal, the outer being slightly the longer.

Of small size and gregarious habit; often building in company like the Weaver-birds.

* It will seem strange to many of my Ceylon readers to remove these little birds from among the Finches, with which one is always inclined to associate them; but, in addition to their possessing a minute or rudimentary first primary, they are, in other respects, more like the "Weavers" than the true Finches, to the former of which they assimilate in outline and structure of bill, and in the short tail and legs; and, furthermore, they are highly gregarious and often nest in company: to the latter they merely bear a superficial resemblance in the matter of their conical bill and small size.

MUNIA KELAARTI.

(THE HILL-MUNIA*.)

(Peculiar to Ceylon.)

Amadina pectoralis, Blyth, J. A. S. B. 1851, xx. p. 178; Kelaart, Prodrömus, Cat. p. 126 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 258.

Munia kelaarti, Blyth, MS.; Jerdon, B. of Ind. ii. p. 356 (1863); Blyth, Ibis, 1867, p. 299 (orig. descrip.); Holdsw. P. Z. S. 1872, p. 464.

The Nuwara-Elliya Finch, Kelaart; *Ortolan, Hill Paddy-bird*, Europeans in Ceylon.

Wé-kurulla, lit. "Paddy-bird," Sinhalese; *Tinna kuruvi*, Tamil (Layard); *Pastro de Neli*, Portuguese in Ceylon.

Ad. suprà chocolatio-brunneus, pilei dorsique plumis angustissimè medialiter albido lineatis: alis nigricantibus, tectricibus interioribus secundariisque brunneis: uropygio et supracaudalibus nigris, scapis albis, et subterminaliter maculà albà ornatis, supracaudalibus longioribus aureo-fulvo terminatis: caudà saturatè brunneà: loris, facie laterali et gulà nigris: regione paroticà posticà et colli lateribus pallidè cervino-brunneis angustissimè medialiter albo lineatis: corpore reliquo subtùs albo nigroque maculatim marmoratis, plumis albis nigro latè fasciatis et marginatis: subcaudalibus nigris latè albo medialiter lineatis: rostro nigro, mandibulà basaliter cyanescente: pedibus fusciscenti-plumbeis: iride brunneà.

Adult male and female. Length 4.65 to 4.8 inches; wing 2.1 to 2.25; tail 1.6 to 1.8; tarsus 0.5 to 0.6; middle toe and claw 0.75; bill at front 0.5, to gape 0.45 to 0.48.

In this species the bill is somewhat flatter above and the culmen less arched than in the other Ceylonese members of the genus.

Iris sepia-brown; bill blackish leaden, bluish at the base of lower mandible; legs and feet plumbeous, in some with a greenish tinge.

Forehead, cheeks, throat, and fore neck glossy brownish black, paling on the head, and changing on the hind neck, back, and scapulars into a woody or fulvous brown; the feathers on these parts with whitish or fulvous striæ (according to the hue of the back), those of the sides of the neck and under surface likewise with white striæ; wings, upper tail-coverts, and tail brownish black, the tail-coverts with central arrow-headed white spots, the longer feathers glistening ochre-yellow at the tips; below the ear-coverts the sides of the neck are pale fawn, continued down to the sides of the breast; breast and lower parts white with black edges, and two more or less oval black spots on each side of the shaft, imparting a curious chequered appearance; the black is of greater extent on the flanks; under tail-coverts black, with broad white centres, which in some specimens take the form of bars. In specimens in abraded plumage the under surface is much lighter.

Young. Upper surface uniform dark brown, wanting both the striæ of the back and the white barring of the upper tail-coverts; upper tail-coverts plain brown; throat black, barred with white; fore neck and under surface tawny fulvous, with indistinct black lunulations; under tail-coverts buff, barred with black.

Obs. This species was at first confounded by Blyth with *M. pectoralis* from the hills of Southern India, inasmuch as he was under the impression that it was the adult of that Finch, to the young of which Jerdon had given this title. He afterwards gave it a MS. name, and in his paper on Ceylonese birds ('Ibis' 1867) fully described a specimen of it. It is, in fact, the Ceylonese representative of *M. pectoralis*. This latter, which is found in the

* I have chosen the term *Munia* for the English name of these little "Amaduvads." It is employed by Jerdon, in his 'Birds of India,' as being, I conclude, shorter than *Amaduvad*, the term generally applied to the genus by Europeans in India. Hodgson first gave the name as a generic one, and remarks in the 'Asiatic Researches' concerning it:—" *Munia*, the name we have assigned to these birds, is well known to the Tarai and to the Hills as the generic appellation of several species of tiny gross bills, distinguished for their familiarity with man, their gregarious habits, their depredations upon the rice-crops, and their ingenious nests."



HIRUNDO HYPERYTHRA.
MUNIA KELAARTI.

Wynaad, Coorg, Travancore, and other hills, has the throat and chest deep brownish black, and the underparts, from the breast downwards, a salmon or reddish-fawn colour, without any dark markings; the upper parts are dark brown, the feathers with pale yellowish shafts.

Distribution.—This handsome little Finch, the only species of the family peculiar to the island, was discovered by Dr. Kelaart at Nuwara ELLIYA, where it is very common, and by him specimens were forwarded to Blyth. It is essentially an alpine bird, not being found below an altitude of about 2000 feet, and is not very numerous at that height. Its principal habitat is the Nuwara-ELLIYA plateau and the western coffee-districts extending from the Peak forest (in clearings in which it is common), through Maskeliya, Diekoya, Dimbulla, and Pusselawa, to parts of the Kandy district, and thence to the Knuckles, in the upper parts of which it is found, but not, according to my observation, as commonly as on the south side of the Dumbara valley. In Uva, about Badulla, and in Madulsima I found it less numerous than *M. malacca*, which is the common patna Finch of that part. In Maturata and Hewahette it is tolerably frequent, but not more so than *M. striata*. In the southern ranges (the Rakwana, Morowak, and Kukkul-Korale district) it is found above the altitude mentioned. I observed that it was numerous in the hill-fields and small clearings about the hamlets on the wilderness of the Peak.

Habits.—The Hill-Munia, in its habits, differs considerably from all the succeeding species. It is frequently found in the interior of the gloomiest forests; it is unsociable, living for the most part in pairs or in very small parties of three or four, except at night, when it comes together in flocks to roost; it is likewise a bird of more rapid flight than other Munias, Nature having afforded it the power of spanning the deep ravines and gorges, among which it passes its life, with ease and rapidity. It darts swiftly across open coffee-estates and patnas from one piece of jungle to another with an undulating flight, uttering a long-drawn, sibilant note, which is audible at some distance, and is often heard without the swiftly flying little "Finch" being itself perceived. It feeds on small seeds, frequenting the tall patna-grass when it is in flower, and resorting to the kurrukan clearings in the Peak forest and Kukkul Korale, where it gorges itself with the grain of that plant. I have noticed it in the early morning about the outhouses at Nuwara ELLIYA picking, like Sparrows, on dunghills and rubbish-heaps; and Mr. Holdsworth likewise observed it feeding on the roads there like Sparrows on whatever [it could find. When not feeding it is both shy and restless. During a sojourn in the Peak forest I observed that its appetite was satisfied at an early hour in the evening, and that it then commenced to roam about and settle on dead trees, coming home from its feeding-grounds one by one, and appearing to take some pains to find a good roosting-place.

Nidification.—The "Nuwara-ELLIYA Finch" breeds from May until September, nesting often in the upper branches of lofty, umbrageous trees, and at other times in coffee- and other low bushes, as well as in the creepers trained up the verandahs of bungalows on the estates. Mr. Bligh informs me that he has known a pair take possession of a Bulbul's nest, from which the rightful owners had been driven, and construct therein a nest of their own. I noticed, with regard to a pair breeding in that gentleman's verandah at Catton, that the female was a very close sitter, and returned to her nest shortly after being disturbed.

This was in May; and in July following Mr. Bligh writes me:—"On the 16th I saw the Munia fly out of the old nest in the verandah, and when I put my finger in the nest I found two eggs in it; the old bird was then sitting on them. I think it worth recording that they lay so soon after having reared their first brood. I noticed that occasionally the young and old returned to the nest to sleep; they did not make a practice of it; it seems to be only when they take it into their heads to do so; or it may be that the old birds are thinking of another brood and begin to visit the nest for that purpose, and tolerate the presence of the first brood while they are still young."

The nest is made of grass, and usually globular in shape; it is compact, and has a rather neatly rounded entrance. The egg-cavity is deep and round, and lined with fine grass. The eggs are pointed ovals, pure white, and glossy in texture. They measure from 0.65 to 0.68 inch in length, and 0.44 to 0.46 inch in breadth.

The figure in the Plate is that of a specimen shot in the Peak forest.

MUNIA MALACCA.
(THE BLACK-BELLIED MUNIA.)

Coccothraustes javanensis, Brisson, Orn. iii. p. 237 (1770).

Loxia malacca, Linn. Syst. Nat. i. p. 302 (1766).

Spermestes malacca, Jerdon, Cat. B. S. Ind., Madr. Journ. 1839, xi. p. 27.

Amadina malacca, Blyth, J. A. S. B. 1846, xv. p. 285; Kelaart, Prodrumus, Cat. p. 125 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 258.

Munia malacca, Blyth, Cat. B. Mus. A. S. B. p. 116 (1849); Jerdon, B. of Ind. ii. p. 352 (1863); Holdsw. P. Z. S. 1872, p. 464; Hume, Nests and Eggs, ii. p. 443; Legge, Ibis, 1874, p. 25, et 1875, p. 398.

White-breasted Indian Sparrow, Edwards, Gleanings, p. 301, pl. 355.

Malacca Grosbeak, Latham; *Malacca Finch*, Kelaart; *Black-headed Munia*, Jerdon; *The Chestnut-backed Munia* of some; *Paddy-bird*, *Ortolan* in Ceylon. *Nakal-nor*, Hind.; *Nalla jinuwayi*, Telugu (Jerdon).

Wé-kurulla, Sinhalese; *Tinna kuruvi*, Tamils; *Pastro de Neli*, Portuguese in Ceylon.

Adult male. Length 4·6 to 4·8 inches; wing 2·1 to 2·3; tail 1·5 to 1·6; tarsus 0·7; middle toe and claw 0·65 to 0·8; bill to gape 0·45, at front 0·5, height at nostril 0·34; hind toe 0·35, claw (straight) 0·3. Birds from the hills appear to average larger than low-country individuals.

MUNIA RUBRONIGRA.

(THE CHESTNUT-BELLIED MUNIA.)

Munia rubronigra, Hodgson, As. Res. xix. p. 153 (1836); Blyth, Cat. B. Mus. A. S. B. p. 116 (1849); Holdsw. P. Z. S. 1872, p. 464; Layard, P. Z. S. 1873, p. 205; Legge, Ibis, 1874, p. 25.

Amadina rubronigra, Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 258.

Munia atricapilla (Vieill.), Hume, Nests and Eggs, ii. p. 444 (1874); Salvadori, Ucc. d. Born. p. 265 (1874).

Pora Munia; *Nuk roul* at Mussoori (Blyth).

Adult male and female. Length "4·5 inches" (Jerdon); wing 2·1 to 2·2; tail 1·6; tarsus 0·65; middle toe 0·6, claw (straight) 0·2; bill to gape 0·42, height at nostril 0·3.

"Iris brown; bill and feet plumbeous" (Jerdon).

Entire head, neck, and upper chest jet-black; rest of body and wings dark chestnut, changing abruptly into dull black on the centre of the lower breast, abdomen, and under tail-coverts, and blending into the dark maroon of the upper tail-coverts; tail chestnut-brown, the feathers margined near the tips with paler maroon than the coverts.

This species differs from *M. malacca* merely in the chestnut colouring of the under surface, having the head, neck, and black lower-surface patch the same.

Young (N.W. Himalayas: Pinwell). Above brown, tinged with rufous on the back and rump; the throat white; chest and flanks rufescent fulvous, paling on the centre of the breast; thighs brownish rufous.

Obs. Doubts exist whether Vieillot's name *atricapilla* (Ois. Chant. 84, pl. 53) applies to this bird or not. I retain Hodgson's name, however, as the species only takes a doubtful place among the orniths of Ceylon.

Distribution.—Layard remarks (*loc. cit.*) that he found this *Munia* about Galle; but as it has never since been seen in Ceylon, and is a bird which does not strictly belong to the south of India, its presence in the Galle district must have

Female. Somewhat less than male; wing 2.1.

Iris brown, in some slightly reddish; bill light leaden or milky blue; legs and feet sombre blue, or dark slate-blue, or pale plumbeous.

Entire head and neck, chest, lower breast, abdomen, thighs, and under tail-coverts *glossy* black; chest, upper part of breast, and flanks white, its junction with the black of the throat and of the belly being convex in shape; back, scapulars, and wing-coverts chestnut-brown; quills brown, edged with chestnut; upper tail-coverts glistening deep maroon, central rectrices rich glistening chestnut; the remaining feathers, which are darker brown than the wings, edged with the same. In abraded plumage the colours of the upper surface fade much.

Young. Iris deep brown; bill brownish horn or dusky plumbeous; legs bluish brown, in nestlings lilac-grey. Uniform pale rufescent brown above, darker somewhat on the head, some specimens having the forehead and lores darker still; quills dark brown, edged with the hue of the back; under surface pale fulvous-white, lightest on the breast. During the change to the adult dress, which takes place by a moult in the first year, individuals in every variety of plumage may be seen. The nape and hind neck change first to black, and then the lower parts: the maroon rump is last acquired, as I have obtained specimens in almost complete black and chestnut plumage with the grey rump still unchanged.

Obs. Indian specimens correspond very well with ours; two examples in the national collection are somewhat pale on the back, in spite of being in good plumage. They measure 2.18 inches in the wing; another is larger—wing 2.2 inches, tail 1.7, height of bill at nostril 0.34, these measurements being precisely those of Ceylonese birds. It is considered by some that Linnæus's name does not safely apply to the present species, owing partly to his somewhat meagre description, and also to the distribution assigned by him to the species. As regards his description, he leaves out all mention of the white underparts: "ferruginea, capite abdomineque nigris, rostro caeruleo" is all that we have. He refers to Edwards's plate, 'Gleanings,' 355, which gives a representation of a bird which cannot be any other species, and which is called by Edwards "the White-breasted Indian Sparrow." It was figured from a specimen kept in confinement in St. Clement's. Reference is likewise made to Brisson's description of the "Chinese Sparrow," in which mention is made of the white underparts and black belly; but the distribution

been owing to a flock having been let loose from a ship calling at the port. By such means, or by pairs escaping from confinement, the little Amaduvad became not uncommon during several years of my residence at Colombo: I am not sure that it bred there; but it would appear that the present species, if rightly identified, did *not* propagate itself in the south of Ceylon, or else it would have been met with subsequently.

It replaces the White-bellied Munia in the north of India, being, according to Jerdon, "found throughout Lower Bengal, and all along the foot of the Himalayas, as far as the Dehra Doon, and also in some of the wooded adjacent districts; but it would appear to be rare in the open country of the N.W. Provinces. I have," he remarks, "seen specimens from the eastern coast north of Madras . . . but it is certainly rare in Southern India. It is much more common in the countries to the eastward, Assam and Burmah, as far as the Tenasserim provinces." I do not find any other record of its occurrence in the south, or, in fact, any lower down the peninsula than Sambalpur. Mr. Cripps says it is nowhere common in Furreedpore; in North-eastern India it is, according to Mr. Inglis, common during the rains, breeding there in June, July, and August; in Upper Pegu Mr. Oates records it as likewise common; but to Tenasserim it is only a summer visitant, Mr. Davison having observed it there from March until August. If identical with Vieillot's bird, it is found at Singapore and at Sarawak and Labuan (*Salvadori*).

In its *habits* and voice, Mr. Davison remarks, "they resemble other Munias, going about in larger or smaller flocks, and feeding on the ground, chiefly on grass-seeds." Mr. Oates says it affects elephant-grass and swampy places in preference to others.

Nidification.—The breeding-season of this handsome Munia in Bengal, Burmah, and Cachar is from June until September; but in Tenasserim, further south, Mr. Davison speaks of their laying in April and May. In Pegu Mr. Oates says it breeds in elephant-grass, attaching its nest to two or three stems at a height of four or five feet from the ground. It is "a loose mass of grass, spherical, cylindrical, or heart-shaped; the inside is lined with finer grass, the following ends being brought forward to the entrance, which is small and difficult to find." In 1874 Mr. C. Parker found it nesting in long grass near the top, the nest being a very conspicuous object; but in the following year, owing to the grass having been cut down, they selected prickly date-palms and small pines to build in. The eggs vary from two to five in number, and are elongated glossless ovals, from 0.58 to 0.68 inch in length, by 0.4 to 0.47 inch in breadth.

("China and Java") does not accord with that of our bird. It was from this that Linnæus took his distribution, as Edwards does not give any; and it is probable that Brisson took his idea from information received from sailors and travellers, in those days a not very reliable source. We find no mention of this species in China made either by Swinhoe or Père David; and Raffles merely gives the name in his Catalogue of Sumatran birds (Trans. Linn. Soc. xiii. p. 313), without any note whatever, so that his identification might have been incorrect. Blyth stated that "the true *Munia malacca* from Borneo (in Mr. Wallace's collection) is distinct from the Indian race" (Ibis, 1867, p. 40). I have carefully looked over the museum collection with Mr. Sharpe, and I find no such skin of Wallace's; and I think it is best to rely on the evidence given by Edwards's plate, and leave the long-adopted nomenclature of the species undisturbed. Salvadori includes it in his Bornean list of birds on the authority of others, but is himself under the impression that *M. atricapilla* has been mistaken for it.

Distribution.—This fine Munia is common in the south of the island, particularly in the district lying between the Bentota river, round the south-west coast to the Wallaway river. Between Galle and the Kukul Korale forests it is found in wild paddy-fields and small cultivated tracts of land near the inland villages in that wooded region. I met with it close to the sea between Tangalla and Hambantota, but did not see it in the coast-district east of the latter place. It reappears in the Park country, and is not uncommon between Batticaloa and Madulsima; it ascends into the hills between Bibile and Badulla, and inhabits all that region and the Uva patna-basin in considerable numbers, luxuriating in the long grass and tangled vegetation which clothe the maze of hills between Udu Pussclawa and Haputale. In the western parts of the Kandy country it is far less common. It does not seem to be common in the Western Province, except in certain localities, such as the sylvan paddy-fields in the lower part of the Pasdun Korale; there I found it plentiful not far from Agalewatta. It inhabits the east coast from Batticaloa northward as far as Trincomalee and the neighbourhood; but further north it appears to be rare.

On the mainland it has a restricted range, being chiefly confined to the south of the peninsula, "a few stragglers," according to Jerdon, "occurring in Central India, and even in Bengal occasionally." He remarks that it is very abundant in some parts of Southern India, especially on the Malabar coast. I do not find it recorded by Mr. Bourdillon from the Travancore hills, nor from the Palanis by Dr. Fairbank. Mr. A. G. Theobald found it in the Coimbatore district. Mr. Hume includes it in Mr. Ball's list of birds inhabiting the region between the Ganges and the Godaveri, noting it as having been procured at Raipur. In the Bhundara district it was found nesting by Mr. Blewitt.

Habits.—The "Chestnut-backed Finch" affects paddy- and grass-fields, situated among the woods and forests, and is also found in marshy land about tanks and water-holes. In the hills it is partial to the maana-grass patnas, and those covered with tangled bushes and rank vegetation. It is very destructive in the paddy-fields of the Kandyans, necessitating the constant presence of call-boys, and the erection of all manner of scarecrows, for the protection of their crops. Like the two following species it is very sociable, feeding in large flocks, which are quite sufficient to inflict heavy damage in the fields of the hard-working Cingalese cultivator. It is very fond of the seed of the maana-grass, and that of various reeds and rushes which grow in swamps and marshy spots. Its note is like that of the common species *M. punctulata*, but stronger, and its flight is also similar. Jerdon writes of this species:—"It frequents long grass by the sides of rivers and tanks, occasionally dry grain-fields, and very commonly sugar-cane fields; it often associates in very large flocks."

Nidification.—This Munia breeds often gregariously. The season of its nesting lasts from May until August. In the former month I found many nests among the gigantic "maana"-grass and tangled "brackens" which cover the Uva patnas; and in the latter I found it nesting, *a number together*, among reeds near Hambantota, in company with the Baya (*Ploceus manyar*?). The nest is sometimes placed in a low bush; but it is more frequently built in grass and "brackens." It is a large, strongly made, globular structure, composed of the material nearest to hand, either blades of grass and roots, or strips of reeds, with a large unfinished-looking opening at the side. The interior is roomy, and in some cases very deep, and is lined with flowering grass-stalks or fine grass itself. The eggs vary from four to six in number, but most commonly do not exceed

the former figure; they are pure white, rather stumpy ovals, and larger than those of its congeners. I have found them to vary from 0·73 to 0·63 inch in length, and from 0·45 to 0·5 inch in breadth.

In India it breeds from July till October.

Mr. Theobald writes of its nesting as follows:—"I found the nests near Pothanore, in the Coimbatore district, during the latter half of October. They were placed amongst reeds growing in a small pond; they were round, with a round hole on one side for an entrance, and were composed of dry seeds and leaves of some flag-leaved grass very like the Chodium (*Sorghum vulgare*). The lining was composed of the hair-like filaments from the broom-grass of this country. Seven, I think, is the full complement of eggs." Mr. Hume gives the average size as 0·64 by 0·47 inch.

MUNIA PUNCTULATA.

(THE SPOTTED MUNIA.)

Loxia punctulata, Linn. Syst. Nat. i. p. 302 (1766).

Loxia undulata, Lath. Ind. Orn. i. p. 387 (1790).

Munia undulata (Lath.), Blyth, Cat. B. Mus. A. S. B. p. 117 (1849); Horsf. & Moore, Cat. B. Mus. E. I. Co. ii. p. 506 (1854); Jerdon, B. of Ind. ii. p. 354 (1863); Holdsworth, P. Z. S. 1872, p. 464; Legge, Ibis, 1875, p. 275.

Amadina undulata (Lath.), Kelaart, Prodromus, Cat. B. p. 125 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 258.

Lonchura punctulata (L.), Adam, Str. Feath. 1873, p. 387; Ball, ibid. 1874, p. 420; Butler & Hume, ibid. 1875, p. 495.

Munia punctulata, Hume, Nests and Eggs, ii. p. 444 (1874); Fairbank, Str. Feath. 1876, p. 260, et 1877, p. 408; Davidson & Wender, ibid. 1878, vol. vii. p. 85; Ball, *t. c.* p. 222; Cripps, *t. c.* p. 293.

Cowry Grosbeak, Edwards, Birds, pl. 40; *The Reddish Indian Finch*, Kelaart; *The Barred Munia* of some. *Telia Munia*, Hind. in North; *Sing-bay*, Hind., Deccan and Mussoori; *Shubz Munia*, Bengal.; *Kakkara jinuwayi*, Telugu (Jerdon).

Wé-kurulla, Sinhalese; *Tinna kuruvi*, Tamils; *Pastro de Neli*, Portuguese in Ceylon.

Adult male and female. Length 5·1 inches; wing 2·1 to 2·25; tail 1·75; tarsns 0·6; middle toe and claw 0·75; bill at front 0·45.

Individuals vary in size, and I think females generally average smaller than males.

Iris light red; bill variable according to age, slate-colour or blackish leaden, in some brownish, the lower mandible paler at the base; legs and feet bluish or plumbeous.

Head, upper surface, sides of neck, and lower part of throat chestnut-brown, blending into the rich deep chestnut of the throat and face.

Above the feathers have narrow light striæ, which extend to the upper tertials; wings brown, edged with chestnut; upper tail-coverts, margins of tail-feathers, and tips of those on the rump ochre-yellow, more or less glistening; some of the feathers of the latter have indistinct brownish bars and whitish striæ; beneath from the chest white, with wavy edges and cross bars of blackish brown on the upper breast and sides, darkest and most conspicuous on the flanks; under tail-coverts unspotted white.

Young. Above pale earthy brown, darker on the head; secondaries edged with fulvous; upper tail-coverts tinged with obscure yellowish; beneath pale sullied buff, albescent on the lower parts.

Birds acquiring the adult plumage have the upper part of the breast without the cross bars, the feathers being merely subedged with brown; the tertials tipped with white with a dark edge.

The young of this species, of *M. malacca*, and *M. rubronigra* are very similar; the dark thighs in the latter lead to a speedy recognition, while the yellowish upper tail-coverts in the present species distinguish it from *M. malacca*, in which these parts are rufescent.

Obs. Five examples from the Himalayan district (Darjiling to North-west Himalayas) measure in length of wing from 2·1 to 2·2 inches; one from the peninsula and another from Mysore both 2·15; all agree in character of coloration and size of bill with Ceylonese examples.

The Spotted Munia of Tenasserim differs slightly from the present species, and has been separated by Mr. Hume as *M. superstriata*; it has "the feathers of the head, neck, mantle, and rump with conspicuous pale shafts; the rump is greyer and the tail-feathers and upper tail-coverts are fringed with an olive-yellow and not the golden-yellow" of continental specimens.

A closely allied race exists in *M. punctularia* from Malacca and the Malayan archipelago, which merely differs in having the upper tail-coverts greyish brown, the longer feathers being tinged with obscure yellowish; and the tail darker brown, with the central feathers tinged with greyish. It is slightly shorter in the wing—specimens from Bali, Timor, Makassar, and Malacca varying from 2.0 to 2.1 inches; the lunulations of the under surface have a reddish tinge as distinguished from the almost pure black in the generality of specimens of *M. punctulata*. An example from Nepal and another from Behar have the under-surface markings on the breast quite rufous.

Distribution.—The Spotted "Finch" is the most numerous of the family of Munias inhabiting Ceylon. It is abundant both in the north and south of the island and on the east and west coasts, frequenting the sea-board as much as the interior. In the Kandyan country it is common up to elevations of 2500 feet in open localities; and in Uva, where patna-land is so widespread, it is found nearly up to 4000 feet. I have met with it at this altitude in the Badulla and Madulsima districts, and I doubt not that it possibly ranges still higher between the former place and Hakgala, in which neighbourhood not a few low-country birds are found during the N.E. monsoon. In the west and south of the island it far outnumbers its congeners wherever the country is open or cultivated, but is not so plentiful in jungle-districts as the next species.

It is well known to the inhabitants of Colombo, who have frequent occasion of observing it in their afternoon drives round the ornamental "circular" in the cinnamon-gardens.

In India it is very abundant, inhabiting the peninsula throughout in suitable localities, and ranging more towards the east of the continental portion of the empire than the west. Jerdon says that it is rare in the extreme south; and I notice that Dr. Fairbank only observed it twice in thin jungle on the lower Palani hills. They are migratory to the Nilghiris, appearing there, according to Miss Cockburn, from June till October. It is singular that this species should be so common in Ceylon when it is not abundant on the adjoining mainland. Mr. Hume, generalizing, says that it only breeds, as a rule, in well-wooded and well-watered tracts; but, notwithstanding, Jerdon affirms that it does not occur on the Malabar coast, although he found it in various parts of the Carnatic and Central India. In the Ahmednugur district it is rare according to Dr. Fairbank, but in parts of the Deccan it is common and breeds (*Davidson and Wender*). From the extended eastern region lying between the Mahanadi and Ganges rivers Mr. Ball records it as occurring on the Rajmehal hills, and in the Manbhum, Lowardugga, and Singhbhum districts of Chota Nagpur; also in Sambalpur, Raipur, and the Godaveri valley. Mr. Cripps states that in Furreedpore, Eastern Bengal, it is nowhere common; but during the rainy season a few pairs are seen about hedgerows and cultivated fields, and they breed in the district from June to August. Further to the north-east it becomes scarce. Captain Beavan observed it at Barrackpore; but beyond this I cannot find any certain evidence of the existence of true *punctulata*. Mr. Inglis did not meet with it in North-eastern Cachar, and beyond this another allied species exists in the *M. subundulata* of Godwin-Austen. Mr. Hume, in commenting on Mr. Oates's notes on this species in Pegu, which was said by him to be by far the commonest Munia there, says that the specimens were destroyed; and we have not since been informed whether the species inhabiting that province really is the same as the continental Indian bird or identical with the Tenasserim allied race, *M. superstriata*, Hume. Returning towards the west we find that at Mount Aboo it is, according to Captain Butler, common, associating in large flocks in the hot weather and breeding in September; but Mr. Hume adds that it occurs in no other part of the whole region (Sindh, Cutch, Kattiawar, and Jodhpoor), although Mr. Adam saw it once in the rainy season at the Sambhur Lake.

From Lower Bengal it extends to the sub-Himalayan district, and appears to be found throughout it from Darjiling to the North-west Himalayas, whence there are specimens in the British Museum.

Habits.—This sociable little Munia chiefly frequents open land, grass- and pasture-fields, gardens and compounds around native villages, paddy-fields, and patna-hills in the Central Province. It consorts in large flocks and is almost entirely terrestrial in its habits, feeding in close contact on the ground, and tripping nimbly about among the grass. It is very destructive to the paddy, alighting on the stalk and picking out the grain, in spite of the shouts of watch-boys, the outstretched arms of the many uncouth scarecrows, and loud knockings of the ingenious bamboo "clappers," devised by the natives for the protection of their crops. It is at all times very tame, showing no fear of man, and when raised from the ground by his approach flies for a short distance and settles down again. Its ordinary note is a plaintive whistle, and this is often

accompanied by a little dissyllabic chirp. It roosts in companies among the branches of shrubs and low trees, the lime and orange being favourite resorts. The males are pugnacious in the breeding-season, and may often be found with the face and forehead denuded of part of the feathers from the pecking of antagonistic bills. Layard, in his notes on Ceylon birds (Ann. & Mag. Nat. Hist. 1854, xiii.), says that the natives fatten these Finches, to be used as medicine in pulmonary complaints. They are caught by them, in common with other birds, by the much-adopted horseshair noose.

Nidification.—These birds breed pretty well all the year round, but the favourite season is perhaps from April to July. The nest is built in any umbrageous shrub or tree, at a height varying from 5 to 30 feet from the ground, but for the most part at about 10 feet, and is a massive untidy structure of any shape that its situation may require to give it due support; some are globular, others oval, with the longer axis horizontal or vertical, as the case may be, while many are without any shape whatever; the materials used are grass-stalks and blades, straw, or strips of cane or palm-leaves; the egg-cavity is very large and sometimes lined with feathers, but oftener with fine grass. Several nests are often placed in the same tree, and frequently there are two compartments in the same structure; but, to my knowledge, they are never both occupied, the second being merely the new nest *added* to an old one, instead of the latter being repaired, which is very often the case.

Some large nests frequently measure more than a foot in diameter, the diligent little architects constructing them in a few days, working without cessation, and flying about with immense straws or grass-stalks in their bills streaming after them in the air. The eggs are from four to six in number, ovals in shape, and pure white, with a considerable gloss on the shell. They measure on the average about 0.66 by 0.46 inch.

Layard speaks of thirty or forty nests being placed in one tree. I have never seen more than half a dozen at the most.

From perusing Mr. Hume's 'Nests and Eggs' we gather that in most parts of India the Spotted Munia breeds in July and August, but in the Nilghiris from February to September. The nests are built, as in Ceylon, from 5 to 12 feet from the ground, and seven is the normal number of eggs. A notice of this bird's nesting would be incomplete without my subjoining the following charming account, written by Miss Coekburn, from the Nilghiris. She remarks:—"I have watched with great interest the punctual return year after year of these pretty friendly little birds, and have very carefully noted their behaviour and habits. In selecting a place to build on they sit on a twig, and raising themselves as high as possible flap their wings over their backs to ascertain that no small branches are likely to obstruct the progress of their building, thus appearing to be fully aware that their nest will occupy a good deal of space. When perfectly satisfied as to the convenience of the spot, the female remains there while the male flies to a short distance, alights on the ground, and breaking off a piece of fine long grass, flies back with it to the female and continues to bring her at least one piece every minute, while she carries on the building process alone. They begin early and build for an hour or so, then leave off till evening and work late, keeping up an incessant cry of '*kitty, kitty, kitty.*'

"The nest is composed entirely of grass; the entrance is at one side, a small round hole, so small that two fingers can hardly be inserted. They build in July and August, and lay from six to ten white eggs, so beautifully translucent that the yolk is clearly seen through the shell. When the young are fully fledged they accompany their parents to the grass-fields, but continue to return to their nests every evening for a long time after they have left them during the day. How they all manage to get in is wonderful. The nest appears perfectly full, and they seem to be restless and uncomfortable for some minutes after entering. In the morning they fly out one by one; those that go first wait for the others on some bush close by. When all are out away they fly in a flock, and are not visible near their nest during the rest of the day. At one time I counted no less than fourteen nests of these birds in the trellis of our 'verandah' and windows.... I have known instances of the House-Sparrow taking possession of the Spotted Munia's nest. They wait till the latter have finished building and then (being much bolder birds) drive the poor Munia away, and adding to the warmth of the nest by a number of feathers, appropriate it to their own use. On one occasion a pair of these Munias had taken a fancy to the trellis at my window. When their nest was completed an impertinent cock Sparrow seemed determined to take possession of it; but I was equally determined he should not. After a good deal

of trouble the poor owners were again the proprietors of their lawful abode. They appeared to be quite aware that I was taking their part in the arbitration business, and would sit patiently on a Fuchsia-bush close by till the case was decided. Sometimes one of their own species would approach their building; but at these times I considered them quite able to fight their own battles, and merely looked on. They required no assistance, but would sit close to their nest cracking their mandibles to show how decidedly displeased they were. This proceeding used often to have the effect of inducing their unwelcome visitor to take his departure; but if he did not think of going soon they would fly at him and use their bills to such purpose as to make him glad to be off.

"Yet notwithstanding that these little birds are so tenacious of their rights when invaded by one of their own species, they are easily intimidated by any strange and unexpected object. A few articles of furniture being placed under the trellis, which contained several of their nests, so completely frightened the parents away at one time that they left their helpless brood without food, and would not return even when the objects of offence were removed. Of course the young receiving no nourishment all day became fainter and fainter in their cries for food, and at last died."

MUNIA STRIATA.

(THE WHITE-BACKED MUNIA.)

Loxia striata, Linn. Syst. Nat. i. p. 306 ; Walden, Ibis, 1874, p. 144.

Amadina striata, Blyth, J. A. S. B. 1844, xiii. p. 349 ; Kelaart, Prodromus, Cat. p. 126 (1852) ; Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 258.

Munia striata, Blyth, Cat. B. Mus. A. S. B. p. 117 (1849) ; Jerdon, B. of Ind. ii. p. 356 (1863) ; Holdsw. P. Z. S. 1872, p. 464 ; Hume, Nests and Eggs, ii. p. 448 (1874) ; Fairbank, Str. Feath. 1876, p. 260 ; Ball, ibid. 1878, vii. p. 222.

Striated Grosbeak, Latham ; *The Striated Munia*, *Striated Finch* of some ; *Striped Paddy-bird*, Europeans in Ceylon, also *Ortolan*. *Shakari munia*, Bengal. (Blyth).

Wé-kurulla, Sinhalese ; *Tinna kuruvi*, Ceylonese Tamils ; *Pastro de Neli*, Portuguese in Ceylon.

Adult male and female. Length 4·5 to 4·7 inches ; wing 2·05 to 2·15 ; tail 1·6 to 1·8, centre feathers 0·4 longer than the lateral pair ; tarsus 0·5 ; middle toe and claw 0·6 to 0·63 ; bill to gape 0·4 to 0·45, height at nostril 0·33. Females are the smaller of the sexes.

Iris brown or reddish brown in some ; bill and upper mandible blackish leaden, lower mandible bluish, with dark tip ; legs and feet bluish or dusky leaden.

Forehead, face, fore neck, and chest dull black, paling gradually at the crown into the sepia-brown of the hind neck, back, and scapulars ; upper tail-coverts darker brown than the back ; feathers of the crown, hind neck, back, scapulars, secondary wing-coverts, and upper tail-coverts with whitish shafts ; wings blackish brown, the quills with inner basal edges of rufescent fawn ; lower back and rump forming a band of less than $\frac{1}{2}$ an inch in width, white, some of the feathers generally with brownish tippings or cross marks ; tail brownish black ; under surface with the flanks, from the chest to the vent, unmarked white ; lower flank-feathers covering the thighs sepia-brown, with whitish shafts ; under tail-coverts brownish black, with rusty tips ; thighs dark brown ; under wing-coverts pale fawn-colour.

Some examples have not the black chest clearly defined against the white breast, the feathers at the top of the latter being patched with blackish : again, others are much paler brown above ; these are probably birds in the first stage of the adult dress.

Young? An example shot in July (Galle) has the wing 2·0 ; bill blackish ; legs and feet lilac-grey.

Head and occiput dark brown, changing into brownish rufous on the back, scapulars, and wing-coverts ; wings and tail brown, edged with rufous-brown ; beneath rufescent white, strongly tinged with rufous on the chest.

N.B. This is only the presumed young of this species. I shot the specimen out of a flock of three ; from its smaller size and more diminutive bill than those of the last species I take it to be *M. striata*. I am not sure of it, as subsequently I omitted to place the matter beyond doubt, and I have not met with a description of the young in any Indian work. I bring this subject especially to the notice of my readers, as young birds must be common enough.

Obs. A "Malabar" specimen in my collection corresponds well with dark examples from Ceylon. Wing 2·05 inches ; tail 1·8.

There are several remarkably closely allied Asiatic species to the present, which form a "well-defined subgroup of the genus *Munia*" (Walden). Lord Tweeddale, in his valuable paper on an Andaman collection (Ibis, 1874, p. 144), gives the following useful diagnosis of these Munias :—

"*Uropygium* white.—*M. striata*. Dorsal plumage pale-shafted ; abdominal region and flanks pure white.

"*M. acuticauda*, Hodgson. Abdominal plumage white, faintly marked with pale brown ; middle rectrices elongated.

"*M. fumigata*, Walden (Andamans). Dorsal plumage unstriated."

(To these may be added *M. semistriata*, Hume, Str. Feath. 1874, p. 257 (Nicobars) : smaller than the last, with proportionately longer tail, a faint trace of striæ on the back, feathers of the breast narrowly margined with pale rufous-brown.)

"*Uropygium* uniform with the back.—*M. leucogastra*, Blyth (Malacca). Dorsal plumage pale-shafted ; flanks dark brown ; middle rectrices lustrous yellow.

"*M. leucogastrides*, Moore (Java). Dorsal plumage unstriated; all the rectrices black; flanks white."

M. acuticauda, which ranges from the mountains of Northern India, through Burmah, Malacca, to China and Formosa, has also the brown of the chest paler than in *striata* and with pale shaft-stripes. The upper plumage is likewise rather pale compared with that of the latter. The examples I have inspected vary in the wing from 1.95 to 2.0 inches. A specimen of *M. leucogastra* measures 1.9 inch in the wing.

Distribution.—The White-backed or Striated "Paddy-bird" is, next to *M. punctulata*, the commonest of the genus in the Western and Southern provinces, and in those parts frequents the interior more than the sea-board. It is, however, scattered more or less over all the low country, being found throughout most of the north of the island, where it is chiefly numerous on the sea-coast. It is found in the Central Province, in all the western parts, including the Kandy country, up to about 2500 feet, and in Uva is common up to 4000 feet, being, in company with *M. malacca*, more frequent on the patnas round Badulla than the Hill-Munia.

On the mainland, as far as India proper is concerned, it seems to be restricted to the peninsula and lower Bengal, but it is said likewise to be found in Arrakan (*Jerdon, Hume*). It is evidently a locally-stationed species. In the 'Birds of India,' Jerdon writes that it is most abundant on the Malabar coast, and occurs sparingly in other parts of India, in the Northern Circars, and in Lower Bengal. The Rev. Dr. Fairbank records it from "Khandala to Goa, along the Ghât hills;" but Messrs. Davidson and Wender do not include it in their avifauna of the Deccan. Mr. Aitken met with it in Bombay. On the eastern side of the peninsula we find Mr. Ball noting it from Manbhūm, Singhbhūm, and Raipur; and Mr. Hume from Sambalpur, north and south of the Mahanadi river. It is said to visit, but not to be resident on, the Nilghiris.

Habits.—This "Finch" does not associate in such flocks as the spotted species, but is met with chiefly in small parties of less than a dozen, frequenting waste, scrubby land, clearings in the jungle overgrown with bushes, long grass, and very often wild jungle and forest, in the very heart of which I have seen it; in its nature, therefore, it assimilates to the Ceylon Hill-Munia. When the "paddy" is in ear it resorts to the fields and devours the ripening grain after the manner of its congeners, and when driven off by the watch-boys, alights on the tops of adjacent bushes, and waits its opportunity to return to the attack. It is fond of the Kurrukan (*Eleusine indica*), which, being grown in clearings in the jungle, is never free from its foragings; it likewise feeds on the berry of the *Lantana* and other plants. Its flight is feeble and straight, being performed with regular beatings of the wing, and is accompanied by its plaintive chirrup note.

I glean but little concerning its economy from Indian writings. Jerdon remarks that it is a familiar bird in Malabar, "being constantly seen on the road-side, about houses, and in stable-yards, and it builds in gardens and orchards." Miss Cockburn's experience of it in the Nilghiris is contrary to this. She writes, "The White-backed Munia is not a resident on the Nilghiris, but accompanies the Amaduvads and Spotted Munias in their migrations, and is generally met with in their society, except in the breeding-season, when they are seen alone and in pairs. They are not numerous, and are very shy, never approaching any house. In this respect they are quite unlike the Spotted Munia, whose unceremoniousness endears him to us."

Nidification.—The breeding-season in the north and south is, for the most part, from May until August; but, like all these birds, it appears to be constantly nesting, most probably rearing two broods in the year. The nest is built in the fork of a shrub or among the small branches of low trees, from 3 to 10 feet from the ground generally; it is a loosely-made untidy structure of grass, in the form of a large ball, with the entrance at the side; the egg-cavity is large and destitute of any lining, save that furnished by the materials of the body of the nest. In shape the eggs are ovate, pure white and tolerably glossy, smaller than those of *M. punctulata*, some measuring as little as 0.5 inch in length by 0.4 in breadth; they vary, however, up to 0.65 by 0.45.

As regards India, Mr. Hume remarks that the breeding-season varies according to locality; "in the Nilghiris they appear," he says, "to lay in July and August. From Yercaud a nest was sent to me, taken on the 28th of September, containing six eggs. Near Raipoor nests were taken in January, and in Manbhoom in April." The nest is described by various observers as large, and loosely constructed of fine and coarse grasses, which, in one that Mr. Blewitt writes about, was intermixed with dry bamboo-leaves. The average size of ten Indian eggs is 0.61 by 0.44 inch.

MUNIA MALABARICA.

(THE PLAIN BROWN MUNIA.)

Loxia malabarica, Linn. Syst. Nat. i. p. 305 (1766).

Munia malabarica, Blyth, Cat. B. Mus. A. S. B. p. 117 (1849); Jerdon, B. of Ind. ii. p. 357 (1863); Holdsw. P. Z. S. 1872, p. 464; Hume, Str. Feath. 1873, p. 209; Adam, *t. c.* p. 387; Legge, Ibis, 1874, p. 25; Butler & Hume, Str. Feath. 1875, p. 496; Fairbank, *ibid.* 1876, p. 261; Ball, *ibid.* 1878, vii. p. 222; Cripps, *t. c.* p. 293.

Amadina malabarica, Kelaart, Prodrum, Cat. p. 125 (1854); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 258.

Malabar Grosbeak, Latham; *Malabar Finch*, Kelaart; *Pin-tailed Munia*, *The Pin-tailed Finch* of some in India. *Charchara*, Hind., N.W. Prov.; *Chorga*, Hind. in North; *Piddari*, Hind. in South and Central India; *Sar-munia*, Bengal.; *Jinuwayi*, Telugu.

Adult male. Length 4·9 inches; wing 2·1 to 2·2; tail 2·0; tarsus 0·55; middle toe and claw 0·6; bill at front 0·37; central rectrices in fine specimens 0·25 inch longer than the next pair.

Female. Somewhat smaller; wing 2·05 inches; tail 1·7.

Iris brown; bill, upper mandible dusky leaden, lower bluish; legs and feet lilac or mauve in some.

Above pale earth-brown, darkest on the head; wings and tail deep brown, the dark colour on the wing confined to the

Genus ESTRELDA.

Bill smaller, more compressed towards the point, and more flattened at the base than in *Munia*; tarsus slenderer and proportionately longer; hind claw long. Of smaller size than *Munia*; bill red. The male acquiring a breeding-plumage in some species.

ESTRELDA AMANDAVA.

(THE RED WAXBILL.)

Fringilla amandava, Linn. Syst. Nat. i. p. 319 (1766).

Estrela amandava, Jerdon, Cat. B. S. India, Madr. Journ. 1839, xi. p. 26; Blyth, Cat. B. Mus. A. S. B. p. 118 (1849); Jerdon, B. of Ind. ii. p. 359 (1863); Legge, J. A. S. (Ceylon Branch), 1870-71, p. 53 (first record from Ceylon); Holdsw. P. Z. S. 1872, p. 464; Hume, Nests and Eggs, ii. p. 454 (1874); Legge, Ibis, 1874, p. 25; Butler & Hume, Str. Feath. 1875, p. 496.

Amaduad Finch, Edwards, Birds, pl. 355. fig. 1.

Amaduad, Europeans in India. *Lal* (male), *Munia* (female), but usually *Lal-munia*, Hind.; *Yerra jinuwayi*, Telugu.

Adult male (Colombo, June). Length 4·1 inches; wing 1·6; tail 1·7; tarsus 0·5; middle toe and claw 0·62; bill at front 0·4.

Iris vermilion, blackish at the base of upper mandible; legs and feet fleshy reddish grey.

Breeding-plumage. Head, upper tail-coverts, throat, chest, and breast crimson, changing on the hind neck and back into brownish crimson, the bases of the feathers very brown and the tips crimson; upper tail-coverts with terminal white spots, preceded by a dark edge; wing-coverts and tertials with a round terminal spot of white on each feather; lores black; orbital fringe white; breast and flanks white-spotted, with the wing-coverts, lower breast,

outer web; rump and upper tail-coverts white, the bases of the feathers brown, and the outer webs of the longer coverts blackish brown; a narrow supercilium, face, ear-coverts, and all beneath white, shaded on the flanks with brownish grey or fawn-colour.

In some examples the lower flanks are *very* faintly barred with pale fawn-colour; some are darker than others above.

Obs. Some Indian examples show a greater tendency to barring on the flanks; notably one from Behar. As regards size: a skin from Madras measures 2.15 inches; another from N.W. Himalayas 2.2; one from Behar 2.1, tail 1.9 (this example is darker on the head than my birds; the two others are very pale on the back). Mr. Cripps, in his paper on the avifauna of Furreedpore, gives the following measurements:—♂, length 4.83 inches; expanse 6.8; wing 2.1; tail from vent 1.92; tarsus 0.56; bill from gape 0.42; weight 0.66 oz. The specimen from N.W. Himalayas, collected by Capt. Pinwell, has the fulvous of the lower flanks quite unmarked.

Distribution.—This is essentially a bird of the dry climate of Ceylon; wherever the little Finch-Lark (*Pyrrhulauda grisea*) is to be found the Plain Brown Munia is likely to be met with. Its distribution is therefore local, and it is chiefly confined to open districts in the maritime regions of the north, east, and south-east. It is found around the west coast as far as the Chilaw district; but south of this place, where the heavier rainfall line is passed, its range does not extend; and I have never seen it anywhere between that point and Tangalla: here the dry coast-region is again entered upon, and it becomes tolerably common. I have met with it in various parts of the eastern side, and at Trincomalee it is not uncommon. It is numerous, according to Mr. Holdsworth, at Aripu; and I have seen it there and at Manaar and further up the coast, while at Jaffna and the islands it is common. In the interior of the northern forest tract it may be met with in suitable localities; but I do not know that it extends into the hills at all.

In India it is a bird of wide distribution both in the peninsula and in the northern parts, being abundant in the hot dry regions of the west, but not extending to the eastward of the Bay of Bengal. According to Jerdon,

flanks, and under tail-coverts black, washed, except on the latter, with crimson; tail black, the two outer feathers on each side tipped white.

After the breeding-season the male assumes the plumage of the female.

An example shot in *January* at Colombo has the forehead and supercilia red, and the feathers of the hind neck and back tipped with crimson; upper tail-coverts crimson, some of the feathers with small white spots; chest and throat crimson, mingled with partially white feathers, and the breast blackish, washed with crimson, and barred and otherwise marked with white; the flanks and sides of breast spotted with white.

Another, probably a *bird of the year*, has the supercilia and upper tail-coverts as the above, but the lower back and hind neck uniform olive-brown; the under surface chiefly white; the feathers of the fore neck in various stages of change to red, those of the breast turning black; the under tail-covert feathers changing from white to black.

Both these examples are assuming the breeding-dress by a *change of feather*, and *not by a moult*. Jerdon remarks that this species *moults* twice a year.

Female. Similar in size to the male.

Brown above, the orbital fringe white, as in the male, and the lores black; the rump and upper tail-coverts washed with crimson; beneath brownish, tinged with fulvous yellow on the lower parts.

Young. "Brown above, paler beneath, whitish on the throat and belly; tail blackish, and a few small white spots on the wings" (*Jerdon*).

Distribution.—In 1870, when I detected this little bird in the vicinity of Colombo, I was under the impression, as it had not been before noticed in Ceylon, that it owed its visit to the island to the agency of man—in short, that it had been liberated from ships calling at the port. I have since become aware that it wanders about a good deal in India, appearing suddenly in districts, remaining for some time, and then departing; and as it occurs in the south of the peninsula it is possible that it *may* have been driven down to Ceylon by the north-west wind which had been blowing before I first discovered it in January 1870. I have no evidence in support of either theory, and therefore I adopt that which appears

it does not ascend the hills; and I have not observed that it has been found recently in any of the alpine regions treated of in 'Stray Feathers.' In the Deccan, Messrs. Davidson and Wender record it as common; and Dr. Fairbank says it is especially abundant in the Ahmednugur district. It is found throughout the open country in the Carnatic, and I have no doubt it is an inhabitant of the island of Ramisserum. Jerdon remarks that it is rare in Malabar and other wooded districts, and generally so in forest districts. Mr. Ball notes it from the Godaveri valley, Nowagarh, and Karial, Orissa north of Mahanadi, Sambalpur, Bilaspur, Sirguja, Singhbhum, Lohardugga, Hazaribagh, Manbhum, and Bardwan, which localities compose the immense tract, from the Godaveri river to the Ganges, which this gentleman has worked; but in a former paper he remarks that it is not common anywhere in the division of Chota Nagpur. In Furreedpore Mr. Cripps informs us that it is a permanent resident, and common, which, indeed, it appears to be throughout Bengal. Mr. Hume records it from Etawah, Captain Marshall from Allahabad, and Mr. Brooks from the Delhi, Jhansi, and Saugor districts. It must likewise extend to the sub-Himalayan region, as Capt. Pinwell's specimens were procured, as I understand, beneath the N.W. Himalayas. Travelling westward we find that it is common in Sindh, Cutch,

to me the most tenable, viz., that it had escaped from confinement; and I accordingly do not give it a place in the Ceylonese avifauna as an ordinary straggler to the island. The spot where I met with it was in the Guinea-grass field attached to my quarters on the Galle face; there were about a dozen birds in the flock, and they came daily to the field for about a fortnight; they appeared again the following month (February), and after staying a short time again disappeared. In June following this a male appeared alone; and after I had procured it I saw no more until September, when a pair visited the field again for a day or two. In 1872 I observed one or two close to the Galle Fort, feeding on the esplanade just outside the ramparts.

No other instances of its occurrence are known to me; but it is possible that it may have bred in the island and thus become naturalized, provided that it did not take its own place in our lists. Jerdon thus sketches out its distribution:—"The Amaduvad is found throughout all India, more rare in the south, abundant in the north. In the south of India I have seen it tolerably frequent on the lower hills of the Nilghiris in Mysore, here and there throughout the Carnatic, but rare in the Deccan and the lower tableland generally. It is more common in Central India, and abundant in Oudh and Lower Bengal, extending into the lower ranges of the Himalayas as well as to Assam and Burmah."

It ascends the Nilghiris to an elevation of 6000 feet to breed; near Mahabaleshwar it is rare according to Dr. Fairbank; further north it occurs, as an instance of local distribution, at Mount Aboo, but is not found, writes Mr. Hume, in any part of Cutch, Kattiawar, or Jodhpoor, although it is common in Sindh during the inundation. "In the bare portions of the N.W. Provinces and Rajpootana," he says, "I have never known it as more than a passing visitor; but wherever the country is well watered and either well wooded or abounding in high grass,—in Meerut and the districts of the Doab northwards, in many places in Oudh and Rohilkund, Saugor, Chanda, Raipoor, in the Central Provinces, in the more fertile portions of Sindh, in all our Dhoons and Terrais—I know of it nesting." Mr. Cripps once observed it in Furreedpore; and Mr. Ball found it at Manbhum, Sirguja, and Lohardugga. It is a visitor to N.E. Cachar, arriving in October and departing in March (*Inglis*).

Habits.—I noticed that the little flock of Amaduvads which frequented my field were constantly on the move, the restless little birds flying up and settling down continually; they clung actively to the stalks, and reached out their heads, plucking out the seeds of the grass with great avidity. In June the male bird uttered a low sweet little song when perched on the top of a grass-stalk, which scarcely bent its head beneath the tiny weight. They are caught in great numbers in Bengal, and sent abroad to Europe and various parts in the East. Blyth says that the popular name of Amaduvad "took its origin from the city of Ahmedabad, whence it used to be imported into Europe in numbers" (*Jerdon*). In India it is said to affect bushy ground, gardens, and sugar-cane fields, as well as grass; and the male, according to Jerdon, fights with much spirit, being kept for that purpose by the natives.

Nidification.—This little bird has two broods in the year, and breeds in the plains from November till February and from June till August; but in the Nilghiris, writes Mr. Hume, the breeding-season lasts from May till December. The nest is described as an oblate spheroid mass, loosely but not untidily built of fine grass, and lined with fine seed-down; the entrance circular and at one side. Miss Cockburn observes that they are fond of placing their nests at the roots of bushes. The eggs are pointed ovals in shape, pure white, and of course very small, averaging in size only "0.55 to 0.43 inch."

Kattiawar, Guzerat, and Jodhpoor, although it is one of those birds which we miss from Mr. Hume's interesting paper on the birds of the latter region (Str. Feath. 1878, p. 52), it having been evidently driven out of it by the drought of fifteen months which the writer refers to. At the Sambhur Lake it is, according to Mr. Adam, very common.

Habits.—This little Finch frequents bare open commons, barren land surrounding the salt-lagoons and estuaries of the north and east coasts, as also dry pasture-fields and such-like localities in the interior, &c. It feeds entirely on the ground, rarely alighting on trees; and congregating in large flocks, often in company with the Finch-Lark, trips about in closely packed little troops. I have seen it during the harvest-time in paddy-fields with *M. punctulata* and *M. striata* attacking the ripe grain; but its usual food consists of various small grass-seeds. Its note is a strong chirrup and the usual plaintive pipe common to these "Finches." When paired, the sexes demonstrate much affection for each other, as on one occasion after shooting a female example I noticed that its mate flew round and round it in great distress, alighting close to it on the ground and piping out a mournful little whistle. During the rainy weather at Christmas I used often to observe flocks of these Munias on the esplanade at Trincomalee, where also numbers of Pipits, Finch-Larks, and small Shore-Plovers collected to feed. When disturbed the Munias would rise in a dense little pack and fly round and round very swiftly until they realighted not far from where they were put up, when they would move along all in the same direction, picking out the seeds from the short turf-grass.

Jerdon says that this species frequents hedgerows, thickets near cultivation, and groves of trees, often entering gardens, and is met with in the south and in Central India near every village. Mr. Cripps found them in Furreedpore in small parties of five to fifteen in number, frequenting hedgerows and cultivated fields. Col. Sykes likens its cry to *cheet, cheet, cheet*.

Nidification.—This Munia breeds in the north of Ceylon during the cool season from December until March, and builds the usual loose large nest of grass, which appears to vary considerably in size, either having a rather protuberant opening at the top, one in the side of the egg-chamber, or two with a dividing dome or roof between them. It is generally placed in a bush about four or five feet from the ground, and often lined with flowering-stems of grasses.

From Mr. Hume's article on its nesting, contained in his useful work, we glean that this little Finch builds sometimes in various situations, such as a haycock, in the eaves of a verandah, or even in the nest of an Eagle; and Col. Sykes has frequently found them in possession of the deserted nests of the Common Weaver-bird. Mr. Blewitt writes to Mr. Hume concerning a pair which built in the body of a large Buzzard's nest, which was at the time occupied by a Tawny Eagle (*Aquila fulvescens*), and thus describes the circumstance:—"As my man ascended the tree to fetch the Eagle's eggs I saw a pair of the small *M. malabarica* hopping about from branch to branch near the nest in great anxiety, chirping loudly all the while. Taking the binoculars to look at the birds and their, as it seemed to me, strange movements more closely, I saw one of them suddenly enter and disappear in a small hole in the underpart of the large nest. . . . Not knowing what the hole could be for, I directed the man to inspect it, when to my astonishment it turned out to be a nest in a nest. The Munias evidently selected that of the Eagle to make their own in, to receive warmth from their mighty companion. From the position of the under nest, the Munias at any time when in it could not have been more than two inches separated from the sitting Eagle."

Captain Marshall mentions an instance in which he took some eggs of this bird and four of the Common Sparrow from a nest in his verandah, and suggests that the nest had been probably built by the Sparrow. The eggs vary in number from six to twelve; but sometimes more than one pair lay in the same nest. Theobald, as quoted by Jerdon, found once as many as twenty-five together in different stages of incubation. They are white, like those of other Munias, spotless of course, and smaller than those of any of the foregoing species, as the bird is much smaller in body than they are. The average size is 0.6 by 0.47 inch.

PASSERES.

Fam. ARTAMIDÆ*.

Bill wide at the base, somewhat conic in shape, the culmen and margin both curved, the gape slightly angulated, the tips of both mandibles notched in some species. Wings long and pointed, the 1st quill minute, not exceeding the primary-coverts. Tail short, of 12 feathers. Legs short.

Sternum posteriorly wide, with a deep notch in each half of the hinder margin.

Genus ARTAMUS.

Bill with the characters of the family, very stout at the base; the nostrils lateral, circular, and pierced in the horny substance of the mandible; gape curved; rictal bristles moderate. Wings very pointed, exceeding the tail; the 3rd quill slightly shorter than the 2nd, which is the longest; the secondaries falling short of the primaries by nearly the length of the tail. Tail even at the tip. Tarsus not exceeding the middle toe and claw, covered in front with stout transverse scales. Toes short, strongly scaled; outer toe slightly syndactyle, and longer than the inner; claws stout and well curved.

ARTAMUS FUSCUS.

(THE ASHY WOOD-SWALLOW.)

Artamus fuscus, Vieill. N. Dict. d'Hist. Nat. xvii. p. 297 (1817); Blyth, Cat. B. Mus. A. S. B. p. 199 (1849); Kelaart, Prodrum, Cat. p. 124 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 128; Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 161 (1854); Jerdon, B. of Ind. i. p. 441 (1862); Beavan, Ibis, 1865, p. 420; Blyth, Ibis, 1866, p. 369; Holdsw. P. Z. S. 1872, p. 440; Hume, Nests and Eggs, i. p. 194 (1873); Ball, Str. Feath. 1874, p. 403; Hume & Oates, ibid. 1875, p. 102; Ball, *t. c.* p. 291; Blyth & Walden, B. of Burmah, p. 126 (1875); Armstrong, Str. Feath. 1876, p. 321; Inglis, ibid. 1877, p. 30; Fairbank, *t. c.* p. 401; Davison & Hume, B. of Tenass., ibid. 1878, p. 223; Ball, ibid. vii. p. 211; Cripps, *t. c.* p. 273.

Artamus leucorhynchus (Linn.), M'Clell. P. Z. S. 1839, p. 158.

Ocypterus leucorhynchus (Linn.), Jerd. Cat. B. S. India, Madr. Journ. 1839, x. p. 237.

* The Swallow-Shrikes are among the most singular of Old-World birds, and are so isolated that they might be considered to rank as a distinct family. Mr. Wallace, who was the first to place them near the Starlings, ably designates them as a "short-legged *Hirundine* modification of the *Sturnoid* type" of bird. They have been placed by some naturalists (Swainson and others) among the Shrikes, their notched bills and mode of feeding probably fostering this classification. By others, their long wings and aerial habits have been considered to indicate an affinity to the Swallows. The wing-structure, however, is that of a Starling and not a Swallow; and in the contour of the bill, the *slightly* angulate gape, and also in the structure of the sternum they resemble the former type.

Murasing Chatterer, *Brown-coloured Swallow*, Latham; *Ash-coloured Swallow-Shrike*, *The Ashy Swallow-Shrike*, Jerdon. *Murasing*, Mussulmen in Bengal; *Tari ababil*, Hind. in South, lit. "Palmyra-Swallow;" *Talchatak*, Bengal., and *Tati pitta*, Telugu, likewise "Palmyra-Swallow; *Silliangchi pho*, Lepchas. *Madam Poru*, Tamils in Ceylon.

Adult male and female. Length 7.1 to 7.4 inches; wing 5.1 to 5.3, expanse 15.0; tail 2.2 to 2.3; tarsus 0.65 to 0.75; middle toe and claw 0.75; bill to gape 1.0.

Iris dark brown (paler or reddish brown in the female); bill milky blue, with the tips of both mandibles blackish; legs and feet dusky bluish, claws dark plumbeous.

Females have, as far as my observations go, the base of the mouth yellow, while the male has the inside entirely black.

Head and hind neck soft slate-grey, changing into reddish cinereous on the back, scapulars, and rump, and passing round to the throat and fore neck, which are slightly dusky; lores and round the base of both mandibles blackish; upper tail-coverts whitish, the terminal portion only showing beneath the rump-feathers; wings and tail dark cinereous blue, the secondaries and shorter primaries with a fine terminal light edging; tail broadly tipped with whitish, the central rectrices with pale tips only; beneath, from the chest, dove-grey, tinged with rufescent, and paling to white on the under tail-coverts, which are crossed with narrow, wavy, grey bars.

The moulting-season commences about July in the southern districts, and birds in new feather are in the plumage above described. When the tips of the feathers wear off, the upper surface has a reddish-brown or rusty appearance, and the under surface becomes a sullied creamy white; the tail-feathers almost entirely lose their white tips, as do also the upper tail-coverts.

Young. In yearling plumage the young are dull earthy brown on the head and back, the feathers faintly margined with a paler colour. Secondaries and inner primaries *broadly tipped with white*; throat duskier than in the adult, blending gradually into the hue of the breast, which is ruddier than in the adult.

Obs. Examples in the national collection from Nepal and Behar measure 5.2 and 5.3 inches in the wing; two from Madras 5.15 and 4.95; several others, locality not indicated, 5.0, 5.2, and 5.3—showing that, on the whole, they average about the size of our birds. As a rule, these examples are *slightly* redder beneath than the Ceylon race, and there does not seem to exist in them that *faint* trace of obsolete barring which is observable in some Ceylonese specimens; in a larger series, however, this unimportant character might be revealed. *Artamus leucorhynchus*, Linn., now united to the Australian *A. leucopygialis*, Gould, was, it appears, formerly confounded with this species, and appears in Kelaart's 'Catalogue of Ceylon Birds,' on what authority we know not. It inhabits the Andaman Islands, the Philippines, Java, Borneo, Sumatra, and other islands of the Malay Archipelago, as well as Australia, and is a very distinct species from the present; the head and neck are bluish slate, and the back and wings chocolate-brown; the under surface from the throat downwards, together with a broad band across the rump, pure white; tail blackish. A Labuan example measures in the wing 5.5 inches, tail 2.6, bill to gape 1.1; Andaman specimens, according to Mr. Hume, average smaller than others; but the Marquis of Tweeddale did not consider them specifically separable. The size of wing given in 'Stray Feathers,' 1874, p. 214, for Andaman birds, is 5.0 to 5.25 inches.

The Indian bird is more closely allied to *A. personatus*, Gould, from Australia. This latter has the ear-coverts, as well as the lores, black; the chin and upper part of the throat blackish slate, not coming down so far on the fore neck as the dark hues in *A. fuscus*; breast and flank reddish ashy, paling into white on the vent and under tail-coverts; back greyer than in our bird, with no white bar across the tail-coverts; tail grey, tipped with white. It differs in many more particulars, but has a general resemblance to our bird.

This interesting genus is mainly developed in Australia, eight species being represented in Mr. Ramsay's recent list of Australian birds (Proc. Linn. Soc. N.S. Wales), and thirteen inhabiting the entire *Australian region*.

Distribution.—The Wood-"Swallow" is widely distributed throughout all the low country, inhabiting most numerous open lands and the borders of lagoons in the maritime districts, especially along the east coast, and down the west side as far as Negombo. Further south, where these open tracts disappear (except at Panadure, where it is again numerous), it is chiefly found in the interior, being very common even in the wooded districts of Saffragam. In the northern forest tract it chiefly frequents the open lands round the

great inland tanks. From the Eastern Province it ranges into Uva and Haputale, in both of which parts it has been observed on patnas and bare hills up to 5000 feet; but in the Kandy district it is not so common. It is found in the northern islands, as well as in the Erinativoe group. Mr. Holdsworth found that it quitted the Manaar district in the south-west monsoon; it is, however, resident close to Colombo all the year round.

Jerdon writes that this Swallow-Shrike is spread throughout the whole of India, but locally distributed; "for you may pass," he says, "over large tracts of country, apparently well suited for them, and not see one." He found it most abundant in the Carnatic, the Malabar coast, the northern circars, and Bengal, very rare in the Deccan and Central India; he also met with it on the sides of the hills at Darjiling. Captain Beavan observed it at Barraekpore in the month of January, and likewise at Darjiling, at an elevation of about 5000 feet. The Rev. Dr. Fairbank procured it also at 4500 feet on the Palani hills, but he does not record it from the Deccan. Mr. Ball met with large flocks of it at Singhbhum, and records it from the Godaveri valley, Sambalpur, and other places northwards to the Rajmehal hills. From Bengal it extends into Burmah and as far as Assam in a northerly direction. Dr. Armstrong remarks that he found it very abundant throughout the entire Irrawaddy delta from China Ba-keer to Rangoon, and that it was especially numerous near villages. Southwards it seems to diminish, as it is only noticed by Mr. Hume as a rare straggler in Tenasserim proper. It seems to avoid the western side of the peninsula altogether, as I do not find it recorded by any observers from Sindh or any of the surrounding districts; and, in the sub-Himalayan region, Nynee Tal seems to be its most westerly point.

Habits.—The favourite localities with this bird in Ceylon are open hill-sides or clearings in the low country studded with dead trees, the paddy-fields surrounding the brackish lagoons in the Western Province, open tracts bordering estuaries on the east coast, palmyra-groves and the borders of plains in the north, while in some districts in the Western Province it frequents open places in the midst of heavy forest; in the Kandyan Province it affects bare hill-sides and patnas dotted with trees. It is exceedingly fond of scattered groves of palmyras close to the sea-shore, resting on the fronds of these trees when not hawking for insects, and roosting on them at night. It associates in small flocks, perching together in closely packed rows, and sallying out in twos and threes after its food, which it catches on the wing, circling round, and sometimes mounting, with a buoyant flight, high in the air, where it will occasionally soar for a considerable time with outstretched wings. It is always of a most sociable nature; and when a flock is scattered by the shooting of one of their number, they speedily reunite on a neighbouring tree. It is partial to the vicinity of water, as in hawking above the surface of tanks and lakes it finds an abundance of food. In its mode of feeding it resembles the Drongo-Shrikes, beating its prey (which consists largely of beetles) to death on its perch before it swallows it. Its ordinary note resembles somewhat that of the Red-breasted Swallow, and is mostly uttered while the bird is on the wing; Jerdon likens it to the cry of the *Shikra*, but more subdued of course. He writes of it, "At times I have seen an immense flock in the air, all together, hunting for insects, and remaining on the wing for a much longer period. A small party may occasionally be seen skimming over the surface of a tank, picking up an insect now and then, and returning to a high bough of a tree overhanging the water."

I may mention here that one species in Australia (*Artamus sordidus*) has the singular habit of clustering in numbers like bees to the dead branches of trees.

Nidification.—The breeding-season of the Wood-Swallow is in February and March, both in the north and central districts. It builds in the former region, to a great extent, in the palmyra-palm, placing its nest between the bases of the fronds. A nest which I found so situated in Erinativoe Island was composed of grass and roots, massive in exterior and rather slovenly put together; the interior was a shallow cup about $2\frac{1}{2}$ inches in diameter, and contained three nestlings. Mr. Bligh informs me that he has found the nest in the hole of a tree situated in a coffee-plantation.

Layard writes that they "build a cup-nest, composed of fibres and grasses, in the heads of cocoaunt-trees, on the base of the large fronds. . . . When the nestlings have left their cradle," he says, "they may be seen sitting side by side on a branch, whilst the old birds fly off for insects and return to feed their offspring by turns. Even after the young birds can shift for themselves they keep up their gregarious habits, and return to their bough after each hunting-excursion."

Jerdon found the nest in a palmyra-tree ; and I am of opinion that this tree is probably resorted to, in districts where it grows, more than any other. He describes the nest as cup-shaped and deep, made of grass, leaves, and numerous feathers. It contained two eggs, white, with a greenish tinge, and with light brown spots, chiefly at the larger end. Mr. Gammie found a nest, however, in a hole in a dead tree near Darjiling, about 40 feet from the ground ; it was made of coarse roots, devoid of lining. The eggs were three in number, narrow ovals, pointed towards one end ; "the ground-colour was creamy white, and the markings almost entirely confined to a broad ring round the large end, and the space within it consisted of spots and clouds of very pale yellowish brown, intermingled with clouds and specks of excessively pale, nearly washed-out lilac." Dimensions 0·92 to 0·97 in length by 0·7 to 0·72 inch in breadth.

Mr. Cripps, in his recent paper, writes of some nests taken in date-trees (*Phoenix sylvestris*) ; they were built at the junction of the leaf-stem and trunk, though in two instances they were placed on a ledge from which all the leaves had been removed to enable the tree to be tapped for its juice. In every instance the nest was exposed, and if any bird, even a Hawk, came near, the courageous little fellows, says Mr. Cripps, would drive it off. "The nests were shallow saucers, made of fine twigs and grasses, with a lining of the same, and contained two to four eggs each."

PASSERES.

Fam. STURNIDÆ.

Bill straight or slightly curved ; very stout in some, moderate in others ; the tip notched, the gape *receding* and *angulated* in most genera ; the base of the bill feathered down to the nostril on each side of the culmen* ; gape smooth. Wings with the 1st quill less than or equal to the primary-coverts ; the 2nd and 3rd the longest. Tail of 12 feathers, shorter than the wing. Legs and feet stout. Tarsus shielded with broad, stout, transverse scutes ; lateral toes subequal ; hind toe and claw large.

* *Saraglossa*, Hodgson, appears to be an exception as regards Asiatic genera, the base of the bill not dividing the frontal plumes.

Genus ACRIDOTHERES.

Bill stout, rather straight, the tip notched and the gape strongly angulated; nostrils placed in a depression, the frontal feathers concealing them. Wings long and pointed; the 1st quill less than the primary-coverts, the 3rd the longest, and the 2nd longer than the 5th. Legs and feet very strong. The tarsus longer than the middle toe and its claw, covered in front with four stout scales; toes strongly scaled, the outer syndactyle and longer than the inner, and both considerably shorter than the middle; hind toe and claw very large.

Orbital region nude; head crested, the feathers narrow and much attenuated.

ACRIDOTHERES MELANOSTERNUS.

(THE CEYLONESE MYNA.)

(Peculiar to Ceylon.)

Acridotheres tristis, Blyth, Cat. B. Mus. A. S. B. p. 108, spec. E, F, ex Ceylon (1849); Kelaart, Prodrumus, Cat. p. 125 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 218; Horsf. & Moore, Cat. B. Mus. E. I. Co. ii. p. 532 (1856) (in part); Jerdon, B. of Ind. ii. p. 325 (1863) (in part); Holdsw. P. Z. S. 1872, p. 462; Hume, Str. Feath. 1873, p. 440; Legge, Ibis, 1874, p. 23.

Acridotheres melanosternus, Legge, Ann. & Mag. Nat. Hist. 1879, iii. p. 168.

The Paradise Grackle (Kelaart); *Martintro*, Portuguese in Ceylon; *Field-Myna* of Europeans. *Na-canam patchy*, Tamils, *apud* Layard.

Gon kawada, *Gon kowdichya*, Sinhalese.

Ad. similis A. tristis, sed ubique saturatio, et gutturis nigredine magis extensâ et per pectus medium deductâ.

Adult male and female. Length 9.2 to 10.75 inches; wing 5.4 to 5.8; tail 3.2 to 3.4; tarsus 1.5 to 1.7; middle toe and claw 1.45; bill to gape 1.3 to 1.38.

Iris variable, pink-brown and pinkish grey in some, in others whitish mottled with fine specks of dark colour; bill yellow, blackish at the sides near base of lower mandible; legs and feet sickly yellow; orbital skin yellow, this extends round the eye, but, being very narrow above, is hidden by the superciliary feathers.

Head, nape, upper part of hind neck, chin, and throat black, the feathers of the head and nape long, narrow, and lanceolate, forming a crest; hind neck, back, scapulars, tertials, wing-coverts, sides of the chest, and the flanks buff-brown, with the black of the chest descending in a stripe down the centre of the breast, blending into the adjacent colour and passing round above the abdomen, which, with the vent and under tail-coverts, are white; quills, the primary-coverts partially, and the tail brown-black; the bases of the primaries, the outer webs of some of the primary-coverts and the inner webs of others, the edge of the wing, and the under wing-coverts white, as are also the tips of all but the centre tail-feathers, decreasing towards the centre; thigh-coverts blackish brown.

The tail in this species becomes remarkably abraded, the white tips sometimes entirely disappearing.

Young. Rufous above, deepening into blackish brown on the occiput and head, with which the face, chin, and throat are concolorous; feathers of the head not elongated; wings and tail paler brown than in the adult; sides of the chest and breast light russet-brown; down the centre of the breast the feathers are blackish slate (that is, not so dark as in the adult), and the white of the abdomen advances further up and is not bordered with blackish; the feathers of the neck and back have faint tippings of rufous-grey, more pronounced in some than in others.

Obs. The Ceylonese Myna forms a closely allied race or subspecies of the Indian bird (*A. tristis*), differing from the latter in its darker plumage, both as regards the back and flanks, and likewise in the *black coloration of the centre of the breast and upper border of the white abdomen*, on the strength of which latter character I have established its rank as an island race. Blyth first pointed out that it was darker than the Indian form, but does not seem to have noticed the black breast, which is entirely different from this part in any continental specimen that I have seen. Jerdon likewise remarks that it appeared to be darker. I have before me eighteen examples belonging to the national collection from all parts of India, as well as from Burmah, and from Réunion and Mauritius, in which islands they were acclimatized from India; and they all have the centre of the breast somewhat paler than the surrounding plumage, which varies from a pale, though sullied, isabelline to a fine russet colour. The centre of the lower part of the breast is slightly pervaded with the pallid hue of the abdomen, the converse of which is the case in the island bird. The only approach made to this character in any Indian specimens I have seen exists in the case of two specimens from Malabar, which have the *inner webs* of the feathers at the *centre of the upper part of the breast* blackish brown; but this presents a totally different appearance to the black band down the whole sternal region of the Ceylonese race. The wings of Indian examples of *A. tristis* vary from 5·3 to 6·0 inches—5·5 inches being the usual dimension, judging from the series I have measured.

Mr. Hume observes (*loc. cit.*) that he does not find the Indian birds any paler than Ceylonese; he, however, does not comment upon the dark *breasts* of the latter. It is possible that he may have noticed the same character in some continental birds; but as none of the specimens in the tolerably large series I have examined exhibit any further tendency to it than that above noticed in the Malabar examples, the Ceylonese race, in my opinion, is a good one.

Distribution.—This well-known bird is exceedingly abundant in the cultivated portions of Ceylon, frequenting both sides of the island alike, and being as numerous in the hot districts of the north as in the more humid region comprised in the south-west corner. In districts where large tracts of pasture-land or of paddy cultivation prevail the Myna shows up in great numbers. About the Panadure and Bolgodde Lakes, between Matale and Galle, in the Batticaloa rice-fields, in the green pastures on each side of the Virgel, and in the open fields of the Jaffna peninsula it is to be seen in hundreds. But it is not always in such places that it throngs, for I found it numerous in the hill-begirt lands of the western part of the Pasdun Korale and in similar localities in the Galle district. It ranges into the Central Province to a considerable altitude, reaching its highest limit, I believe, in the dry cool season. Mr. Forbes Laurie has seen it in Maturatta at 3500 feet, and in Kalebokka at 3000 feet, and I have seen it at Uva higher than either of these elevations.

Its near ally in India is a very abundant bird and is scattered over all the low country of the empire, extending into Burmah and Tenasserim. It ranges into the mountains to a considerable altitude, breeding at Mussoori, and occurring in the Palanis up to 4000 feet.

It may not be out of place to mention here that it has been successfully acclimatized in Victoria, where it may be seen in Melbourne frequenting the villas in the suburbs and everywhere making itself at home upon the housetops. It has also been introduced, with the same result, into the Mauritius.

Habits.—This Myna takes the place in Ceylon of the English Starling. It is one of the most familiar species in the island, taking up its abode in the native husbandman's paddy-field and assiduously attending on his cattle and buffaloes, about which it obtains an abundance of food, in the way of flies attracted by the animals, ticks living on them, and other insects to be found about oxen. Each field has its little party of half a dozen or more, which pass their time between the pastures and the surrounding cocoanut-trees, and at evening fly away towards the common roosting-place, where the Mynas, for many miles around, resort with common consent to pass the night. Such a colony as this I once discovered on the shores of the Bolgodde Lake; here a large reed-bed was the nightly rendezvous, and from all points of the compass were to be seen little flocks flying low and swiftly across the broad expanse of water, and settling down with much chattering, fighting, and squabbling in the tall and sheltering reeds. On my firing a gun the whole rose *en masse*, like a dark eloud, and filled the air for the moment with a booming sound. Another but a smaller colony I found taking up its quarters in an isolated knoll in a paddy-field in the Pasdun Korale. In the Central Province it frequents open patnas, where the cattle of the Singhalese villagers are to be found grazing, and roosts in the areca- and sugar-palms near the villages. It feeds on caterpillars and worms as much as any thing else, and scratches in the ordure of cattle for grubs; it may often be seen perched on the backs of cattle and scrutinizing their skins with as much audacity as the Crow! Its walk is erect, and its

general deportment rather stately. Its flight is steady and straight, being performed with regular beatings of the wings. It lives well in confinement, and is a favourite caged bird with the natives, who teach it to speak; but it is not so proficient a talker as the Grackles, nor are its ordinary notes and whistles to be compared, in point of clearness or power, with those of the Glossy Mynas. It is noteworthy that in Ceylon it has not the same familiar habits in dwelling about houses and in towns as its Indian ally, whose domestic propensities are particularly noticeable in Australia, where it has been acclimatized. Blyth remarks that this latter species mingles in Calcutta frequently with the Crows, and that a pair not unfrequently entered his sitting-room and treated him to a loud screeching song. Another writer says that it is "a brisk, lively bird, apt to learn words and to whistle, and becomes very attached to its master—so much so that instances are known in which it has been allowed to range abroad during the day with a confidence of its return at night."

Concerning the Ceylon race Layard writes:—"They frequent meadows in search of worms and grubs of insects, not refusing perfect Coleoptera when they come in their way; they scratch among the ordure of cattle (whence their native appellation), and scatter it far and wide over the fields, thus assisting the lazy native husbandman."

Nidification.—This species breeds in Ceylon from February until May, nesting perhaps more in the month of March than in any other. It builds in holes in trees, often choosing a cocoanut-palm which has been hollowed out by a Woodpecker, and in the cavity thus formed makes a nest of grass, fibres, and roots. I once found a nest in the end of a hollow areca-palm which was the cross beam of a swing used by the children of the Orphan School, Bonavista, and the noise of whose play and mirth seemed to be viewed by the birds with the utmost unconcern. The eggs are from three to five in number; they are broad ovals, somewhat pointed towards the small end, and are uniform, unspotted, pale bluish or ethereal green. They vary in length from 1·07 to 1·2 inch, and in breadth from 0·85 to 0·92 inch.

Layard styles the eggs "light blue, much resembling those of the European Starling in shape, but rather darker in colour."

The figure in the Plate accompanying my article on *Eulabes ptilogenys* is from a specimen shot in the Pasdun Korale.

Genus PASTOR.

Bill not so stout as in *Acridotheres*, compressed, slightly curved at the tip. Wings very pointed; the 1st quill small, the 2nd the longest, the 3rd and 4th slightly shorter. Tail moderate and even. Legs and feet stout, but not so much so as in the last genus.

Head furnished with a long crest. Highly gregarious in habit.

PASTOR ROSEUS.

(THE ROSE-COLOURED STARLING.)

Turdus roseus, Linn. Syst. Nat. i. p. 294 (1766).

Pastor roseus (Linn.), Temm. Man. d'Orn. p. 83 (1815); Gould, B. of Europe, vol. iii. pl. 212 (1837); Jerdon, Cat. B. S. India, Madr. Journ. 1840, xi. p. 23; Blyth, Cat. B. Mus. A. S. B. p. 111 (1849); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 217 (1854); Horsf. & Moore, Cat. B. Mus. E. I. Co. ii. p. 539 (1856); Jerdon, B. of India, ii. p. 333 (1863); Gould, B. of Gt. Britain, vol. iii. pl. 55 (1863); Shelley, B. of Egypt, p. 157 (1872); Holdsw. P. Z. S. 1872, p. 462; Dresser, B. of Europe, pt. 21 (1873); Ball, Str. Feath. 1874, p. 419; Hancock, Cat. B. of Northumb. p. 43 (1874); Ball, Str. Feath. 1875, p. 208; Butler & Hume, *t. c.* p. 498; Scully, *ibid.* 1876, p. 164; Newton, ed. Yarrell's Brit. B. pt. xii. p. 243 (1878); Davidson & Wender, Str. Feath. 1878, p. 85; Ball, *t. c.* p. 221.

The Rose-coloured Pastor, *The Pastor* of some writers; *Cholum-bird*, Europeans in Madras; *Juari bird* in Bombay. *Golabi maina*, Hind., also *Tillyer* in the south; *Pariki pitta*, Telugu; *Sura kuravi*, Tamil; *Bya*, Sindh; *Sách* in Turkestan.

Adult male and female (from a series of European and Indian examples). Length 8·0 to 9·5 inches; wing 5·0 to 5·4; tail 3·0 to 3·3; tarsus 1·05 to 1·1; middle toe 1·0; hind toe 0·55, its claw (straight) 0·3 to 0·4; bill to gape 1·05 to 1·2.

Iris brown; "bill orange-yellow at the base, then pinkish, and brown at the tip" (*Jerdon*); legs and feet dusky fleshy red.

Autumn plumage. After the annual moult the head, crest, neck, and throat are black, the feathers tipped with greyish white, almost covering the plumage on the chin, face, and below the ear-coverts; on the back and breast the bases of the feathers are roseate, and the tips brownish or sunff-colour; wings and tail black, the feathers margined with greyish. This plumage is retained throughout the winter, at the latter end of which the grey margins of the feathers wear off, and the plumage assumes the pure and brilliant colours characteristic of the species, and which I shall describe as the *breeding-plumage* :—

Head with long occipital crest, entire neck down to the interscapular region above and the centre of the chest beneath glossy purple-black; back and rump with the scapulars, breast, abdomen, flanks, and lower part of the sides of the neck pale delicate rose-colour; wing-coverts, innermost secondaries, and upper tail-coverts deep glossy greenish black; quills blackish, the outer margins glossed with greenish, most conspicuously on the secondaries; inner webs pale brownish; tail black, glossed with a less bluish green than the wing-coverts; under tail-coverts, thighs, and superlying flank-plumes green-black, the longer covert-feathers tipped with white; under wing blackish brown, the feathers tipped with white, the under secondary-coverts broadly edged with roseate.

The above description is taken from a beautiful specimen shot in June at Genoa, and in the national collection. All examples killed at the same time, however, are not in such perfect nuptial attire: some have the dark head and throat and the roseate plumage perfect; but the bases of the body-feathers are more or less black, and there is a black stripe down the inner edge of the scapulars; the feathers at the edge of the wing above the metacarpus, and those beneath it, as well as the under tail-coverts and lower flank-plumes, are broadly edged with white. Specimens collected in Northern India by Mr. Hodgson are in this plumage; and I conclude that these must have been procured just before the birds left the country, and while they were acquiring the breeding-attire.

The female in autumn plumage is duller in colour than the male, but otherwise resembles it; the crest is said to be smaller.

Young (Colombo: November 1876). Iris brown; bill above brownish; gape and base of upper mandible yellowish, tip of the lower dusky; legs and feet fleshy.

Head and hind neck sandy brown, paling to albescent on the throat; the crest absent; across the throat and round the lower part of the hind neck a black zone or band defining what would be the edge of the black throat in the adult; back, scapulars, rump, breast, and abdomen impure roseate, mixed on the back with darkish feathers and washed with a sandy hue; some of the quills and the wing-covert feathers, as well as some of the tail-feathers and the under tail-coverts, black, the latter broadly edged with white; the remaining feathers in these parts dun-brown, which is the colour assumed in the nest-plumage.

Obs. Few species exhibit, in so plain a manner, the change that can be brought about in a bird's plumage by abrasion as the Rose-coloured Starling. We have only to lift up the feathers in the grey-tipped autumn attire, and we at once discover the brilliant rosy tint of the chief portion of the feather. Mr. John Hancock, one of the most accurate ornithological observers living, in a long article on this species contained in his interesting catalogue of the birds of Northumberland, remarks that the young, after the first moult, when they are in the plumage above described as "Autumn," could, in a short time, "with the aid of a pair of scissors, be made to assume the rosy tint and fine glossy black of the breeding birds." He is of opinion that many of the birds said by Jerdon to be in immature plumage on their arrival in India are in reality in the adult autumn dress just after their moult. This may be the case; but, on the other hand, it must be remarked that young birds of a wandering species do migrate, as a rule, more than adults; and I suspect that the majority of the "Rosy Pastors" which visit the south of India are young. All the specimens which were procured out of the flock which visited Ceylon in the autumn of 1876 were immature, some of them being in the act of acquiring their first autumn plumage, which certainly was not that of the adult, for the back-feathers were not rosy enough at the bases and there was no crest.

Distribution.—The Rose-coloured Starling, in the same mysterious way in which it appears in other countries, has from time to time visited the island in large flocks, consisting of young birds, the time of its arrival, on one or two occasions, having been, singularly enough, during the season that it is said to breed in Western Asia. Layard notices in his catalogue that large flocks appeared at Pt. Pedro during July, when, as Jerdon remarks in the 'Birds of India,' p. 335, the young would only just have been fledged. This circumstance favours the opinion that the species breeds, as has been stated, in the south of India; but this fact requires confirmation. Subsequent to the above occurrence, as is also noticed by the same author, flocks appeared at Puttalam; and Mr. Holdsworth is of opinion that he saw a flock at Aripu in 1856. In November and December (1876) a flock visited the Cinnamon-gardens, Colombo, frequenting the bushes and trees in the "Circular;" and several specimens were shot, some of which are mounted in the Colonial Museum. As in other instances, the birds remained about for a few days, and then disappeared as suddenly as they came. On inquiry I learnt that a Singhalese, who had shot some of these birds, was acquainted with them, having once or twice seen them in the west of Ceylon prior to that occasion. Captain Wade, 57th Regt., met with a flock at Wackwella, near Galle, about the same time, and informs me that the natives there said they had never seen the bird before.

It is difficult to assign any particular region as the home of this singular bird. Its head-quarters may, perhaps, be said to be parts of Western Asia, from Turkestan to the Caspian. To the north-west of this region it migrates in vast hordes into Europe, visiting South-eastern Russia, Turkey, and other districts on the Mediterranean in great numbers, and wandering thence in more or less extensive tribes into Hungary, South-eastern Germany, France, and Spain, into which country it is, as also to Great Britain, a rare visitant; isolated examples have likewise reached Finland, Lapland, and Sweden, but not Norway. Its visits, however, to Europe are uncertain; it is not looked for as an annual arrival, but surprises people by making a sudden appearance in myriads, and after breeding departs as mysteriously as it came. It was first observed in England at Norwood, where an example was killed in 1742, and noticed by Edwards. It has not unfrequently, according to Mr. Haueock, been procured in Northumberland and Durham; and its occurrence in Cornwall, the Scilly Isles, Wales, and all parts of Scotland is, in accordance with the testimony of numerous observers, recorded in the new edition of Yarrell by Professor Newton. It makes its appearance in Russia and Turkey in the month of April, which is about the time when it leaves India, after its visit to that country during the cool season, for Western Asia. It breeds, according to Severtzoff, in Turkestan; and the birds which rear their young in that country may be those which have wintered in India. Dr. Scully remarks that it is said to be common in Khokand and Badakhshan, but that the Yarkandi bird-catchers say it only occurs as a mere straggler in Kasgharia, a few birds being occasionally seen in the summer, after the prevalence of strong north-west or

westerly winds. It appears to avoid the districts immediately to the west of the Indus, not being found anywhere in that direction, save in the north-east of Persia. It is a visitor to Palestine, breeding there. It arrives in India about August (indeed Mr. Ball saw them in the Suliman hills at the end of July), and during the interval between that and the following month, myriads, says Mr. Hume, pass through the plains of India. They make their appearance in the Carnatic and the Deccan about November, and they quit the south of India in March, passing through Sindh in April on their way back. The Rev. Dr. Fairbank writes that it visits the Deccan in vast flocks, and remains until April. In Chota Nagpur it is, according to Mr. Ball, a regular visitor in February, remaining as late as April. In that district he records it from Manbhum, Sirguja, and Gangpur, and also from Sambalpur and other places north of the Godaveri river, so that it would appear not to visit the eastern portions of the empire until near its time for leaving India. I find no record of its occurrence to the eastward of the Bay of Bengal; but Col. Tytler mentions its having visited the Andamans in January; since this, however, the bird has not been seen by any subsequent observer. Finally, as regards its wanderings to the south, Sundevall records two young individuals coming on board the ship he was sailing in while crossing the Indian Ocean, one of which alighted on the vessel "halfway between Ceylon and the north point of Sumatra, at least 100 geographical miles from each, and 80 or 90 miles from the Andaman Islands."

The strangest feature in its distribution is its avoiding the African continent while it visits the opposite shores of the Mediterranean in such numbers. But one instance of its capture on the soil of Africa is recorded, and this is by Von Heuglin, who mentions a young bird being killed at Cairo in 1864.

Habits.—This handsome bird frequents open land, interspersed with bushes and low jungle, grain-fields, and cultivated country, in which it commits devastations at crop-time. It feeds on seeds of grass and plants, fruit, grain, and also, according to Jerdon, on insects. Concerning its habits in South India, a writer (Mr. Elliot) quoted by Jerdon remarks that it "is very voracious and injurious to the crops of white 'Jowaree' (*Andropogon sorghus*), in the fields of which the farmer is obliged to station numerous watchers, who, with slings and a long rope or thong, which they crack dexterously, making a loud report, endeavour to drive the depredators away. The moment the sun appears above the horizon they are on the wing; and at the same instant shouts, cries, and the cracking of the long whips resound from every side. The 'Tillyers,' however, are so active, that, if they are able to alight on the stalks for an instant, they can pick out several grains. About 9 or 10 o'clock A.M. the exertions of the watchmen cease; and the Tillyers do not renew their plundering until evening. After sunset they are seen in flocks of many thousands retiring to the trees and jungles for the night." Layard found the young birds at Pt. Pedro very wary; but those which appeared in the cinnamon-gardens in 1876 were far from shy; they settled on the tops of low trees and were easy of approach. It is very omnivorous in diet, feeding much on insects, fruit, and even flowers, as well as on grain. "According to Chiesney," says Dr. Jerdon, "they are called locust-eaters in Persia;" and they have been said by other writers to devour large quantities of these pests. In the north of India they devour large quantities of mulberries, being there called the "Mulberry-bird" in consequence. Hutton relates the same of it at Candahar. Both Mr. Blyth and later writers in 'Stray Feathers' observe that they are much in the habit of frequenting the cotton-tree when it is in flower, feeding, no doubt, upon its flowers. Sundevall relates that the two captured on the ship above mentioned fed on cockroaches.

The Rose-coloured Starling has a steady straight-on-end flight, and proceeds in closely-packed flocks from place to place. The note of the male bird is described by Sig. de Betta as being a continuous babble, mixed with harsh and disagreeable notes; and the cry of the female is equally stridulous and peevish.

Nidification.—April, May, and June are the months during which the "Pastor" has been found to breed in Europe. It nests in company, vast flocks laying their eggs on the ground in nests made of sticks, straw, wool, and whatever other miscellaneous material the locality besieged by the invading horde can afford. Von Nordmann says the nest is a largish, round, bowl-shaped structure, neither firm nor very neat, the materials being gathered assiduously by both cock and hen. In writing of a vast breeding-colony which he visited in 1844 near Odessa, he says that the birds "took possession of every wall or heap of stones that offered a chink for the nest," and that stone-quarries were equally inhabited throughout the whole neighbourhood. The eggs were from six to nine in number, but generally there were six or seven in

each nest . . . So soon as the broods were flown, they repaired to the nearest gardens, where they clustered on the trees by thousands, while their parents fed them with locusts brought from the neighbouring steppes; and these assemblages were scenes of the greatest noise and confusion imaginable." The Marquis O. Antinori gives an interesting account in 'Naumannia,' 1856, p. 407, of a wonderful breeding-assemblage at Smyrna, where the nests were by thousands in the neighbouring hills, "some quite open and uncovered, others so hidden under blocks of stone that these needed turning to examine them; some were at the depth of about a foot, others could not be reached by the arm." In this case the nests were built without any skill, "the bird being content with a cavity scraped in the soil, in which were to be found sundry straws or leaves of the *agnocasto*, and very seldom a border of grass-stalks." Wonderful as must have been these colonies of the Rose-coloured Starling, they must have been outdone by another established so late as June 1875 at Villafranca, and concerning which Signor de Betta has written in the 'Atti del R. Istituto Veneto,' ser. 5. I append the following extract of his account, taken from Professor Newton's edition of Yarrell's 'British Birds':—"In the afternoon of June 3rd, 1875, a flock of about twenty birds alighted on the high ruins of the castle at that place, and was presently followed by another of about a hundred, which by their cries attracted the notice of the inhabitants. Later in the evening there arrived many thousands more, which joined the first comers, and at dusk all dispersed in numerous troops over the country. Before daybreak the next morning, however, the people were awakened by the cries of some 12,000 to 14,000 Starlings, which met at the castle and completely took possession of it, ejecting, after a sharp struggle, the other birds which were its ordinary occupants, and, since its walls did not then even afford sufficient accommodation, overflowed to the neighbouring housetops. The new arrivals at once set to work clearing out the rubbish from the holes and fissures they had thus gained, and, that done, on the morning of the 5th they began to build their own nests of twigs, straw, hay, and other dry plants, leaving a hollow, lined with roots, leaves, moss, and feathers, in the middle for the eggs. The next few days were occupied by constant strife for sites and fierce contests between the males, who showed, however, the most ardent attachment for their partners; and it was not until the 17th that Sig. de Betta (who made several visits to Villafranca at this interesting period) was able to ascertain that eggs, five or six in number, were laid; yet by July 10th the young, having been most assiduously fed with locusts by their parents, were able to take flight with them on the 12th. On the 14th all the remainder were seen to depart, and Villafranca, to the great regret of its inhabitants, was absolutely deserted by its unusual visitors."

The eggs are like those of the Common Starling, but more glossy and of a paler blue; they are described in Yarrell's 'British Birds' as being of a glossy French white, with a very faint tinge of bluish green or greenish blue, measuring from 1.12 to 1.08 by 0.85 to 0.81 inch.

Genus STURNIA.

Bill rather small, compressed, moderately straight; nostrils exposed; gonys-angle imperceptible. Wings with the 1st quill very minute, the 2nd and 3rd subequal and longest, the 4th scarcely shorter. Tail short, the tips of the feathers pointed; under tail-coverts lengthened. Legs and feet not so stout as in the last genus; tarsus covered with stout scutes, and equal to the middle toe with its claw.

Of light form; head usually highly crested. Of mostly arboreal habit.

STURNIA PAGODARUM.

(THE BRAHMINY MYNA.)

Turdus pagodarum, Gmel. Syst. Nat. i. p. 816 (1788).

Temenuchus pagodarum (Gmel.), Cabanis, Cat. B. Mus. Hein. i. p. 204 (1851); Jerdon, B. of Ind. ii. p. 329 (1863); Holdsw. P. Z. S. 1872, p. 462; Adam, Str. Feath. 1873, p. 386; Hume, Nests and Eggs, ii. p. 432 (1874); Ball, Str. Feath. 1874, p. 419; Legge, Ibis, 1875, p. 398.

Pastor pagodarum (Gmel.), Wagler, Syst. Av. *Pastor*, sp. 8 (1827); Sykes, P. Z. S. 1832, p. 95.

Sturnia pagodarum (Gmel.), Blyth, J. A. S. B. 1844, xiii. p. 363; id. Cat. B. Mus. A. S. B. p. 110 (1849); Fairbank, Str. Feath. 1877, p. 407; Ball, *ibid.* 1878, vii. p. 221.

Heterornis pagodarum (Gmel.), Gray, Gen. Birds, ii. p. 335 (1846); Kelaart, Prodrömus, Cat. p. 125 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 217.

The Black-headed Myna, Jerdon, B. of India; *The Pagoda Starling*, *Pagoda Myna* (Kelaart). *Popoya Maina*, Hind. (Jerdon); *Monghyr Pawi*, Bengal.; *Puhaia*, Upper Provinces of India (Blyth); *Martintro*, Portuguese in Ceylon.

Adult male and female. Length 8·0 to 8·3 inches; wing 4·1 to 4·3; tail 2·3 to 2·7; tarsus 1·05 to 1·2; middle toe and claw 1·1; bill to gape 1·05.

Iris white or greenish white; bill with the basal half blue, which extends to the inside of the mouth, terminal half gamboge-yellow; legs and feet pale or sickly yellow; claws yellow.

Lores, head above, round the gape, and point of chin shining black, the feathers of the occiput and nape much attenuated and very long, forming a crest 1·5 inch long in fine examples, and which reaches down to the back; neck, throat, and all beneath, except the abdomen, red-buff, the centres of the feathers on the throat, chest, and hind neck, where they are attenuated as in the crest, paler; back, wing-coverts, tertials, the greater part of outer secondary webs, lower flanks, thighs, and central tail-feathers dove-grey, the latter with a shade of brown; primaries, winglet, inner part of secondaries, and remaining tail-feathers brown-black, the primaries washed with greyish at their tips; under wing-coverts and tips of tail-feathers white, which extends half up the lateral pair; abdomen and under tail-coverts white, washed with buff.

In abraded plumage the centres of the throat and chest-feathers become very light, giving a striated appearance to these parts.

Young. Birds of the year in nestling plumage have the iris bluish white, slightly mottled, and with a dark inner rim; the bill coloured as in the adult, but with the colours duller; feet not so yellow.

The head is brown and crestless and dusky ashy grey in colour; the wing-coverts and tertials pervaded with brownish and the quills not so black as in the adult; beneath, the throat and breast are fawn-grey, paling to albescent on the belly and under tail-coverts. Before acquiring the adult dress the grey plumage appears to become paler; and during the change examples may be obtained in a curious-looking attire, some having the whole of the lower parts (both on the breast and back) in adolescent plumage, sharply defined against the duller lines of the head and neck in the dress of the nestling.

Obs. Indian specimens from the Himalayas southwards are identical with Ceylonese; they vary *inter se* in the length of the crest (probably due to age), intensity of the red under-surface coloration, distinctness of the chest- and neck-striae, and the amount of white at the tips of the tail-feathers. Mr. Ball gives the dimensions of a Chota-Nagpur example (Sirgnja) as—wing 4·2 inches, tail 2·8, tarsus 1·1; two males in the national collection from the N.W. Provinces have the wings 4·1 and 4·3 inches, and the bills to gape 0·95 and 0·96 inch respectively; one from Kamptee—wing 4·2 inches, bill 0·98 inch; two from the N.W. Himalayas—wings 4·1 and 4·2 inches, bills 0·92 and 0·96: the latter has an unusually long crest (1·9 inch), and the coloration of the underparts very rich, with the striae scarcely indicated.

Sturnia malabarica, Gmelin (the Grey-headed Myna), inhabits the peninsula of India from the north to the southern portion, and might perhaps some day occur in Ceylon. It may be well, therefore, to note, for the information of my Ceylon readers, that this species is dusky lavender-grey on the back, with the head grey and the feathers of that part and the hind neck attenuated; primaries blackish, tipped with grey; lower parts in the male chestnut, and the terminal portions of the four outer tail-feathers deeper in hue than the belly; wing 3.95 to 4.1 inches. The female is paler beneath.

Sturnia nemoricola, Jerdon, from Burmah and Tenasserim, is allied to the last-named species; the under surface in the male is as pale as that of the female in *S. malabarica*, and the winglet and primary-coverts are more or less white.

Distribution.—This pretty bird is not very well known in Ceylon, being confined to the dry parts of the island, in which it is somewhat local. Layard found it at Point Pedro, and remarks that it is not uncommon in the north; from that part southwards as far as Chilaw it occurs at various localities; on the east coast it is not uncommon. Kelaart mentions it as being found at Trincomalie, and in that district I have met with considerable flocks in localities between Tirai and the port; to the south of the Bay of Kottiar it occurs about the Virgel, and in the Batticaloa district is not uncommon, frequenting the lowlands around the Kalmuni Lake. Thence southwards I have no doubt it is found where the sea-board tract of country is favourable to its habits; and in the Hambantota district I can speak from experience as to its being numerous, although even there it appears to restrict itself to particular places. I found large flocks of it between Kirinde and Yāla. I am not aware that it inhabits the interior, as I have never met with it many miles from the sea-shore.

On the mainland it is by no means restricted to maritime districts, occurring throughout the Indian peninsula, particularly where there are temples and other large buildings. It is, however, found in Ramis-scrum Island and on the coast of the Carnatic, in parts of which territory it is abundant; but Jerdon remarks that it is rare on the Malabar sea-board. The Rev. Dr. Fairbank records it from the base and "well up the sides" of the Palanis, and remarks that it is everywhere found in the Khandala district; Messrs. Davidson and Wender likewise record it from the Deccan, and say that it breeds at Satara. Its range extends far towards the north-west, for it is found in the Mount Aboo, Guzerat, and Sambhur-Lake districts, and has lately been procured at Trainhee in Sindh; in Kattiawar and about Kutch it is scarce. Turning, however, towards the east we find that, according to Mr. Ball, it is sparingly though universally distributed throughout Chota Nagpur, being more plentiful in Sirguja than elsewhere. In his list of the birds found between the Ganges and Godavari rivers he cites the Rajmchal hills, Manbhum, Lohardugga, Sambalpur, Orissa north and south of the Mahanadi river, Nowagarh, and Karial as places in which he found it; to which Mr. Hume adds Raipur. In the N.W. Provinces it is a common resident, and to Lower Bengal it is a casual visitor at the end of the hot season, being, as Blyth says, often procurable from Calcutta bird-catchers. In the lower regions of Nepal and Cashmere, and also in the lesser ranges of the latter province, it is likewise, according to Jerdon, found. In Burmah it is replaced by *S. burmanica* and *S. nemoricola*; but Jerdon states that it is found in Assam and Arrakan, whether correctly or not I am unable to say, as the above-mentioned species, together with *S. malabarica*, are the only members of the genus recorded in 'Stray Feathers' from that side of the bay.

Habits.—The Brahminy Myna frequents open bushy plains, bare fields, low scrubs, clearings in the jungle, &c. It feeds on the ground, associating in moderately sized flocks, which alight on the tops of bushes or small trees when disturbed. They are wary birds and difficult to approach, flying on before their pursuers from bush to bush. In Ceylon I never saw it in company with the *Acridotheres* about cattle; but in India it is said to have this habit. In fact with us it frequents the dry arid portions of the country, where the Common Field-Myna is not very common. I have found its food to consist chiefly of insects and Coleoptera of various kinds; but it also feeds on seeds, buds, and small fruits. Its ordinary note is a rather mellow whistling call, which it utters both on the wing and when feeding in company. It has a strong straight flight, and flies in closely packed little flocks, which, when going home to roost, settle on the tops of trees, rest awhile, and then take wing again. It roosts in the foliage of low shady trees, retiring early.

In Lower Bengal Blyth says that at the end of the cold season it frequents the arboreal cotton-trees, feeding on the insects which are attracted to their flowers; in Cashmere it is said by Adams to eat the seeds and buds of pines; while in Madras, as above noticed, it has the habit of feeding on the ground among cattle

in company with the Common Myna, picking up grasshoppers and other insects. Jerdon remarks that it has a variety of calls and a rather pleasing song, and that it is frequently caged and domesticated, imitating any other bird placed near it.

Nidification.—In the northern parts of Ceylon this Myna breeds in July and August, and nests, I am informed, in holes of trees; the same is the case in Northern India; but in Madras it is said by Jerdon to build about large buildings, pagodas, houses, &c., although some correspondents of Mr. Hume testify to its preferring trees to these latter situations. Mr. Blewitt, an experienced Indian oologist, has found the nest in mango-, tamarind-, and jamun-trees from May until July, and says that feathers, grass, and sometimes an odd piece of rag are loosely placed on the bottom of the hole for the eggs to repose on. The eggs are smaller than those of the Common Myna and very pale in colour, varying from “bluish white to pale blue or greenish blue;” they average in size, according to Mr. Hume, 0·97 inch in length by 0·75 inch in breadth.

Subgenus STURNORNIS.

Bill larger, longer, and less compressed than in *Sturnia*; the culmen straighter; under mandible stout. Tail longer in proportion to the wings, with the under tail-coverts less lengthened than in *Sturnia*; 2nd quill considerably shorter than the 3rd, which is the longest.

STURNORNIS SENEX.
(THE WHITE-HEADED STARLING.)

(Peculiar to Ceylon.)

Pastor senex, Bonap. Consp. Av. p. 419 (1850) (*ex* Temm. Mus. Lugd.).

Heterornis albofrontata, Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 217.

Temenuchus albofrontatus (Lay.), Blyth, Ibis, 1867, p. 299.

Temenuchus senex (Temm.), Gray, Hand-l. B. ii. p. 20. n. 6296 (1870); Holdsworth, P. Z. S. 1872, p. 462; Legge, Ibis, 1874, p. 23.

Ad. suprâ schistascenti-griseus, vix metallice virescenti nitens: colli postici plumis conspicuè albo medialiter lineatis: alis caudâque nigris metallicè viridi nitentibus: fronte et vertice ut et facie laterali totâ gulâque purè albis: pileo postico dorso concolori, plumis ad basin albo mixtis: corpore reliquo subtus cinerascens, scapis plumarum linealiter albis: subcaudalibus cinerascens-albis: subalaribus et axillaribus nigricantibus, illarum scapis albidis: remigibus subtus nigricantibus, intus brunnescentioribus: rostro cærulescenti-corneo, ad basin et ad rictum cærulescentioribus: pedibus plumbescenti-cæruleis: palpebrâ cærulescente: iride albâ.

Adult male. Length 8·3 to 8·5 inches; wing 4·25 to 4·4, expanse 13·1; tail 3·0 to 3·1; tarsus 1·0 to 1·1; middle toe and claw 1·0; hind toe and claw 0·7; bill to gape 1·05 to 1·15.

Adult female. Length 8·2 inches; wing 4·25.

Iris dull whitish, with a narrow brown inner circle; orbital skin and eyelid dull bluish; bill, gape, and base plumbeous blue, the apical half pale bluish brown; legs and feet bluish plumbeous, claws bluish.

Forehead, front of crown, face, chin, throat, and under tail-coverts white, dullest on the latter part; centre of crown, nape, hind neck, back, wings, and tail black, with a greenish lustre; the edges of the back-feathers in some perceptibly ashy, and those of the hind neck with whitish shafts more or less conspicuous according to the amount of white on the head; fore neck, chest, breast, and flanks dusky lavender-grey, paling on the lower part of the breast, and blending into the white of the throat, each with a white mesial stripe; under wing-coverts dull blackish; under surface of quills brown.

Young. Iris brown, with a faint grey outer edge; this increases, and in birds evidently still in the first year the proportions of white and brown in the iris are about equal, the former gradually increasing until it leaves the narrow brown inner circle; bill, legs, and feet as in the adult.

In nest-plumage the forehead, head, and hind neck are concolorous and of a dull brown hue; a whitish superciliary stripe passes from the nostrils over the eye; the ear-coverts are sullied white, but the white of the throat seems to extend lower down, and to change abruptly into the dark grey of the chest; the lower parts, however, are not always equally dark; some examples have them pervaded with whitish; but the chief character of the under surface in the immature bird is the absence of the white mesial stripes, contrasting strongly with the grey of the rest of the feathers. The white of the forehead appears during the first year and increases with subsequent moults, which take place in August.

Obs. This species has of late been placed in the genus *Sturnia* (*Temenuchus*); but inasmuch as it differs markedly in the points above indicated, I have placed it in a new subgenus; the feathers of the head and occiput are likewise not so attenuated as in typical *Sturnia*.

The under surface in adults is subject to variation. In some examples the mesial lines are narrow and very clearly defined; in others they blend into the surrounding dark colour. These latter are probably not fully adult.

I have never seen a specimen with the frontal white extending further back than the centre of the crown. In my notes in 'The Ibis,' 1874, I erroneously stated that the female had more white on the head than the male. At that time I had not procured males as old as the specimens of the other sex which had fallen to my gun; afterwards I obtained both sexes in precisely the same plumage. A Ceylon specimen of this species in the Museum of Leyden was named *P. senex* by Temminck; but its habitat was erroneously given by Bonaparte, who first published the title



STURNORNIS SENEX, ad ♀, juv.

in the 'Conspectus Avium,' p. 419, as Beugala—the consequence of which was that Layard, when he obtained it, was not sure that it was referable to Temminck's species, and described it as new, writing as follows:—"It may be *Pastor senex*, Temm., as it agrees tolerably well with the short description given in Prince Bonaparte's *Consp. Av.* p. 419; but that description is so concise that I cannot be sure of it; I therefore name it provisionally *H. albofrontata*."

Distribution.—This arboreal Starling, which is one of the most interesting of the species peculiar to Ceylon, is very scarce in collections, and has always been looked upon as one of our rarest birds. The fact is, that the portions of the island which it inhabits are wild hill-forests seldom trodden by Europeans, and hence its scarcity in the cabinets of collectors; but nevertheless in these primeval solitudes it is numerous. It is a bird of local distribution, being chiefly confined to the great forests on the Peak range which stretch from the Kuruwite Korale round to Belihul-oya and the upper forests of the southern ranges, including the Singha-Rajah, and other extensive jungles stretching through the northern and lower part of the Kukul Korale into the Pasdun Korale. As regards the latter locality, which is the lowest at which it has yet been observed, I found it in some of the valleys through which the southern affluents of the Kaluganga find their way to the main stream, and not far from the remote village of Moropitiya, at an altitude of a few hundred feet above the sea-level. There appears to be a continuous stretch of hilly forest extending northward of this place for twenty miles to the Kaluganga; and the White-fronted Starling will probably occur throughout this region. Above Gillymally I found it very abundant in forest of about 1200 feet elevation, and equally so 2000 feet higher up. It appears to cross over into some of the western coffee-districts from the Maskeliya jungles, for Mr. Bligh procured it in 1872 in Kotmalie. Layard does not seem to have procured specimens of this bird himself, as he only speaks of it as existing in Mr. Thwaites's collection; and in what part of the hill-zone this latter gentleman procured it I am unable to say. There is a specimen in the British Museum procured by Mr. Boate and labelled Nuwara Eliya. Mr. Bligh tells me he has never seen it in Haputale; but I do not see why it should not extend along the entire southern base of the Kandyan mountains. It will assuredly be found on the eastern slopes of the Kolonna and Morowak Korales.

Habits.—The White-headed Starling frequents fruit-bearing trees in high forest, cheena- and patna-woods. It is frequently found, too, about the edges of jungle or by the sides of sylvan paths. It is entirely arboreal, never descending to the ground, but feeding sociably in parties in the topmost branches of thickly foliaged trees. It is passionately fond of the wild cinnamon and of the luscious fruit of the Kanda-etta tree. In the Singha-Rajah forest I found it feeding on the berries of a small tree, *Macaranga tomentosa*, which grew in the gorges of the mountains, and likewise searching about Jack-trees near some of the forest hamlets for insects, in the pursuit of which I have also seen it in company with a troop of *Layarda rufescens*. Its powers of voice seem to be somewhat limited, as I never heard it utter any note but a quick Starling-like chirp, which it is particularly given to when assembled in flocks. While feeding it is not at all shy; and so intent is it on devouring the berries and fruits of its choice that a number may be shot one after the other in the same tree. Mr. Bligh noticed that it was fond of mulberries, coming into the garden attached to his bungalow in Kotmalie in search of them. When encamped in the Peak forest during the month of August I noticed that this bird roamed about the patnas towards evening, flying in small parties of half a dozen or more; it was then very shy, settling on the tops of dead trees and keeping up a quick chirping until it took wing on my approach.

I regret to say that nothing is known of the nidification of this bird.

The figures of this bird in the Plate accompanying the present article are those of an adult female shot in the Singha-Rajah forest, and a young bird procured in the Gillymally jungles.

Genus EULABES*.

Bill very stout, deep at the base, the gape without the rictal curve of the members of the preceding genera; the culmen well curved, the under mandible slightly broader than the upper at the base; nostrils basal, rather small and round, placed in a depression. Wings long, the 3rd and 4th quills the longest. Tail short and even. Legs and feet very stout, and covered with strong transverse scutes; tarsus longer than the middle toe. Claws much curved.

Head adorned with naked skin and wattles of a yellow colour.

EULABES RELIGIOSA.

(THE SOUTHERN BLACK MYNA.)

Gracula religiosa, Linn. Syst. Nat. i. p. 164 (1766); Jerdon, Cat. B. S. India, Madr. Journ. 1840, xi. p. 24; Blyth, Cat. B. Mus. A. S. B. p. 108 (1849); Kelaart, Prodromus, Cat. p. 125 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 216; Horsf. & Moore, Cat. B. Mus. E. I. Co. ii. p. 522 (1856).

Eulabes religiosa, Jerdon, B. of Ind. ii. p. 337 (1863); Blyth, Ibis, 1867, p. 40; Holdsw. P. Z. S. 1872, p. 463; Hume, Nests and Eggs, ii. p. 435 (1874); Legge, Ibis, 1874, p. 23; Fairbank, Str. Feath. 1877, p. 407; Ball, ibid. 1878, vii. p. 221.

Gracula minor, Jerdon, Cat. B. S. India, Madr. Journ. 1844, xiii. p. 134.

The Minor, Edwards, Birds, pl. 17; *The Jungle-Grackle*, *The Jungle-Myna*, *The Southern Hill-Myna* (Jerdon); *The Black Myna*, or *Glossy Myna*, in the south of India. *Kokni-maina*, Hind.; *Konda gorinka*, Telugu (Jerdon).

Selalaheniya, Southern Province; *Halalaheniya*, Northern Province, Sinhalese.

Adult male and female. Length 9.5 to 10.25 inches; wing 5.7 to 5.8; tail 2.7 to 3.0; tarsus 1.2 to 1.25; middle toe and claw 1.4; hind toe from base 0.7; bill to gape 1.4.

Iris brown, the outer edge white, darkly mottled; bill orange-yellow; legs and feet citron-yellow; lappets and cheek-spot rich yellow, the latter tinged with blue at the upper edge.

The wattles or ornamentation of the head consist of a naked yellow patch on the cheek, a similar stripe running from the eye to the side of the nape, where it expands into a broad lappet, running forward again at each side of the occiput to the top of the head in a narrow "plaited" stripe.

Entire plumage glossy black, with strong metallic reflections of rich purple on the head, cheeks and hind neck, and on the rest of the upper surface and throat with green; wing-coverts and lower parts margined with green; chest and sides of breast margined with bronze and purple; primaries with a white bar across the middle, commencing on the inner web of the 2nd, and ending on the outer web of the 8th.

Young. These have the flaps slightly developed; they are very short, and with the rest of the lappet are of a dull yellow;

* The Grackles or Glossy Mynas, together with some allied genera, differ in their stout curved bills, unangulated gape, and metallic plumage from the true Mynas and Starlings, and are grouped by most systematists in a distinct subfamily. They constitute the Lamprotorninæ of Jerdon. Ornithologists, however, do not agree as to the various Asiatic and African genera which fall within the limits of the subfamily, and it is not necessary in this work to adopt it. The Lamprotorninæ appear, as Jerdon remarks, to grade into the Starlings through the genus *Calornis*; and the aberrant *Saraglossa spiloptera* (the Spotted-winged Starling), which has been placed in this subfamily, does not appear to belong to it.

the coronal stripes are not fluted, as in the adult, and the cheek-patch is very small. The reflections of the plumage are duller than those of mature birds, and the belly is edged with greyish.

Obs. The dimensions given of a pair of Southern Indian examples (Str. Feath. 1877, p. 407) are:—♂, length 10·0 inches, expanse 18·0, wing 5·8, tail 3·0, tarsus 1·2, bill from gape 1·4; ♀, length 10·0, wing 5·6, expanse 17·6, tail 3·0, tarsus 1·2, bill from gape 1·4. The iris of the male is recorded as brown, fading out into grey. The wing of a male from Travancore is given at 5·56 inches. Specimens which I have examined from Malabar vary in the wing from 5·3 to 5·5 inches.

This species is closely allied to the Central-Indian Myna, *E. intermedia*, and its allies *E. javanensis* and *E. andamanensis*. These three races are in themselves so closely allied that Mr. Hume states he is scarcely able to draw the line between them when a large series is taken into consideration, and, indeed, as regards the last-named, he recently remarks (Str. Feath. 1878, p. 398, B. of Tenass.) that he would not separate it from *E. javanensis*. *E. intermedia* and its allies, however, differ materially from the present species in having no naked cheek-patch, and in not possessing the narrow loose fold running forward on the head on each side of the occiput. It has likewise a larger bill. It replaces the Ceylon and South-Indian bird in Chota Nagpur, Sambalpur, and Raipur. The Malaccan bird, *E. javanensis*, has a larger bill than *E. intermedia*, and the Andaman race a slenderer one than the Malaccan. Examples of *E. javanensis* in the national collection measure in the bill, from tip to gape 1·4 to 1·55 inch, and in height at the nostril 0·55 to 0·6; in *E. andamanensis* the height of the bill is barely 0·5 inch.

Distribution.—The Southern Hill-Myna is a bird of local distribution in Ceylon, being confined to particular forests, the banks of certain rivers, and the neighbourhood of tanks in the Eastern Province. It is numerous on the hilly banks of the Gindurah, and in the forests of the south-western hill-district between that river and Matara; likewise in the Pasdun Korale and on the banks of the Kaluganga; also in various parts of the Western Province, such as Panadure, the forests of the Hewagam Korale (particularly the Ikadde-Barawe jungle), those of the Rayigam Korale, and the wooded ranges between Avisawella and Kurunegala. In the Eastern Province I found it plentiful in the Nilgalla district and in the forests on the Friars-Hood group of hills. Layard speaks of it as being common at Puttalam, and says that it extends sparingly into the Kandyan province. Mr. Parker writes me that it is found in forest near Uswewa. Its distribution is somewhat affected by the presence of open country adjoining heavy jungle, which latter it avoids when it is unbroken; this character is exemplified in its haunting the vicinity of tanks, and was particularly noticeable to me on the occasion of a trip from Ratnapura to Kalatura: in the heavy forest in the centre of the Pasdun Korale it was not seen; but directly the partly open country between the villages of Moropitiya and Baduleriya was reached the Black Myna made its appearance.

I have not observed it above an altitude of 1500 feet, up to which I have found it ranging in the Bala-eadua and Lunugalla passes, and likewise in the Peak forests near Gillymally.

In Southern India, where this species is common, it appears to be more essentially a hill-bird, ranging into the hills to a much higher elevation than in Ceylon. The Rev. Dr. Fairbank, for instance, records it as being obtained by him between 1000 and 5000 feet in the Palani hills; and in the Travancore hills Mr. Bourdillon says it is one of the commonest of birds, being found in equal numbers at all elevations. It is not recorded from the Deccan or from the Khandala district; but Jerdon says it is found in the forests of the northern circars as far as Gumsur, extending west into the wooded portion of the Nagpore territories. Mr. Ball likewise notes it from Gumsur and the northern circars. It is, according to Jerdon, most abundant in the Ghâts, the Wynaad, Coorg, and other elevated districts up to 3000 feet or so.

Habits.—This showy bird frequents high jungle and forest, being especially fond of the vicinity of rivers, and likewise of open clearings in the woods which are studded with tall dead trees. In the Pasdun Korale, between the Maguru ganga and Kalatura, where it is common, it is found about native villages situated in wooded knolls, and affects the kitool-palms there more than other trees. Like the next species, it has a habit of launching itself out into the air with a shrill whistle and returning to its perch. Its note is higher than that of the Hill-Myna and more metallic-sounding. It is caught and kept as a caged bird by the natives in parts of the western and southern provinces, and is said by them to talk well. It usually associates in pairs, except when feeding on the fruit of some favourite tree, when I have found it in small parties. It is not a

shy bird, having very little fear of a gun-shot; indeed I have shot several out of the same tree without any member of the little party taking flight. It feeds on various berries and fruits, which it swallows whole. Jerdon testifies to the same local propensity which I have observed to obtain with it in Ceylon; he says:—"It seems partially distributed, as you may pass through miles of forest without seeing a single specimen. It is generally found in small parties of five or six, frequenting the tops of the loftiest trees, and feeding on fruit and berries of various kinds. I never found that insects had formed any portion of its food. The song of this bird is very rich, varied, and pleasing . . . it is not often seen in cages in India; but it is very highly prized both for its powers of song and speech, which are said to surpass those of all other birds in distinctness. It has probably been from erroneous information that this species was named '*religiosa*' by Linnaeus, as I am not aware of its being considered sacred by the Hindoos." Elsewhere ('Birds of India') he suggests that the great Swedish naturalist probably confounded it with *Acridotheres tristis*, a bird attired in "sad-coloured" plumage, and was thus led to apply to it its inappropriate title.

Nidification.—The Black Myna was breeding on the Pasdun Korale on the occasion of a visit I made to that part in August; but I did not procure its eggs. It builds in holes made by Barbets and Woodpeckers in soft-wood trees, and is said not to lay its eggs on the bare wood, but to line the bottom of the cavity with grasses, roots, feathers, &c. Mr. Bourdillon writes that in Southern India it makes its nest of straw and feathers in a hole a considerable height from the ground. The eggs are described as "very gracefully elongated ovals;" the shell is smooth and fine, with a rather faint gloss; ground-colour greenish blue, more or less profusely spotted or "splashed" with purplish, chocolate-brown, and very pale purple. Dimensions 1.35 to 1.37 inch in length by 0.87 to 0.9 inch in breadth.



EULABES PTILOGENYS.

ACRIDOTHERES MELANOSTERNUS.

EULABES PTILOGENYS.

(THE CEYLON MYNA.)

(Peculiar to Ceylon.)

Gracula ptilogenys, Blyth, J. A. S. B. 1846, xv. p. 285; id. Cat. B. Mus. A. S. B. p. 108 (1849); Kelaart, Prodromus, Cat. p. 125 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiii. p. 216.

Eulabes ptilogenys, Blyth, Ibis, 1867, p. 299; Holdsw. P. Z. S. 1872, p. 463; Legge, Ibis, 1874, p. 25.

Dr. Templeton's Myna, Kelaart; *The Black Myna* in the planting districts.

Mal-kawada, Sinhalese, Saffragam; *Selalaheniya* of the Kandyans.

Ad. suprâ viridescenti-niger, purpureo varius: pileo et facie laterali velutinis nigris: corpore subtus toto viridescenti-nigro, pectore magis purpurascente: alis caudâque nigris viridi vel purpureo extus lavatis, primariis 2^o-7^{um} albo notatis fasciam alarem conspicuam formantibus, primario secundo intus tantum notato: rostro aurantiaco, ad basin nigro: pedibus pallidè flavis: iride albâ: carunculis flavis.

Adult male and female. Length 10.75 to 11.1 inches; wing 5.9 to 6.25; tail 2.5 to 3.0; tarsus 1.3 to 1.4; middle toe 1.1, its claw (straight) 0.4; bill to gape 1.6. Lappets 0.9 inch in length, 0.7 in breadth, springing from each side of the nape, and meeting at the base in old birds.

Iris (male) greyish white, dappled with brown, (female) white or yellowish white; bill orange-red, with the upper mandible black from gape to nostril, and the lower for nearly half its length; legs and feet gamboge-yellow; claws blackish; lappets rich yellow.

Entire plumage glossy black, with strong metallic reflections of purple on the head, hind neck, upper back, breast, and thighs, and of greenish bronze on the back, wings, and belly; across the wing a white bar, extending from the inner web of the 2nd to the outer web of the 7th quill, and in some specimens only to the 6th.

Young. Birds of the year have the iris quite brown; bill with more black about the base, and not so long as in the adult; lappets smaller and widely separate at the base; lower parts faintly edged with greyish. In this stage they breed.

Obs. I record the colour of the iris in the adult female as *white* because I have found it so in all specimens I have shot; I believe Mr. Bligh has observed the same to be the case. Whether the eye of the male becomes white with age I am unable to say; I have always found greyish or brown tints in it, and they are usually in the form of dots or stipplings. The fact of the eye in the young bird being brown augurs strongly in favour of a change eventually to the same colour in both sexes; and it may be that I have not succeeded in getting a fully-aged male. The subject is worthy of consideration at the hands of my readers.

Distribution.—The Ceylon Myna is chiefly confined to the mountains of the Kandyan Province, the southern ranges, and the subsidiary high forests on the south bank of the Gindurah and the northern portions of the Kukul Korale which are continuous with the Singha-Rajah or "Lion-King" forest. On the eastern and southern slopes of the central zone I have never found it below 1500 feet; but this is by no means the case as regards the western slopes lying between Maskeliya and Pelmadulla, through the continuous forests of which it descends into the low country, and spreads over the Three Korales, as well as the Kuruwite and perhaps the adjoining borders of the Rayigam Korales, wherever there is tall forest. It is tolerably common about Avisawella, which is nearly on the level of the sea; and in that neighbourhood I have procured it as far seawards as the twenty-eighth mile-post from Colombo. Mr. C. Byrde, of the Ceylon Civil Service, informs me that it breeds yearly at Avisawella; and I found it nesting myself in the timber-forests of Mr. Charles de Soyza's estate, Kuruwite. In the main range and on the Nuwara-Eliya plateau it is more abundant in the cool season than at other times; but it does not appear ever to cross the Totapella range to the upland of Horton Plains, as I nowhere observed it in the mossy forests of that region.

This Myna, which has always been considered one of the finest of the Passerine forms peculiar to Ceylon, was discovered by Dr. Templeton, and the specimens he obtained were transmitted to Blyth for examination and description. Like the Ceylon Jay, its numbers in the hills have decreased since the districts now planted in coffee have been denuded of their primeval clothing, its chief stronghold at present being the large forests in the main and Peak ranges; and should these be invaded to a great extent by the woodman's axe, the Myna will no doubt betake itself much more to the low country than it has done up to the present time. It is not unlikely that its presence in the low-lying forests at the foot of the Ambegamoa district may be due to the felling of its native forests on those hills. The Blackbird is much oftener seen in open coffee-estates now than a few years back; and it is evident that so great an alteration in the face of nature in the Central Province must needs produce a corresponding change in the habits of many of the birds which frequent it.

Habits.—This handsome bird frequents for the most part the tops of tall trees; it associates in small parties, and is very partial to the sides of deep ravines, lofty precipices, and overhanging woods. It is fond of launching itself out into mid-air from these dizzy heights, uttering its shrill metallic-sounding whistle and loud calls; and circling round, it returns to its lofty perch on the top of some huge Doon-tree, and there continues the exercise of its vocal powers. Its well-known voice consists of a piercing and not unharmonious whistle repeated several times and then followed by a series of loud guttural calls, some of which resemble the syllables *chōōoke*, *chi-ōōope*; these are, however, only uttered as call-notes while it is perched. The Myna talks well, and is eagerly sought after as a caged bird, and much prized by the Kandyans as a pet, as it is extremely difficult to procure from the nest. It is a restless bird, particularly towards roosting-time; and in forests where it is abundant I have often seen it roaming about in small parties, dashing down the gloomy gullies, and sweeping backwards and forwards with frequent rapid descents, which cause a loud rustling sound. After alighting on the tallest tree to be found, these restless parties indulge in sundry piercing whistles, and then start off again on their peregrinations until a suitable spot for their night's quarters, in the foliage of some vast tree, is found.

In its habits it is, like the rest of the Graekles, entirely arboreal, and its diet is frugivorous. Among the many fruits to be found in the forests of Ceylon there are none of which it is so fond as the wild cinnamon and the nutmeg. The latter they swallow whole, digesting the mace from the exterior of the nut, which they afterwards reject. The habit ascribed by Layard to this species of frequenting pastures and perching on the backs of cattle probably appertains to the Common Myna (*Acridotheres melanosternus*), for it is essentially an arboreal bird and does not descend to the ground at all.

Nidification.—This species breeds in June, July, and August, laying its eggs in a hole in a rotten tree, or in one which has been previously excavated by the Yellow-fronted Barbet or Red Woodpecker. It often nests in the sugar- or kitool-palm, and in one of these trees in the Peak forest I took its eggs in the month of August. There was an absence of all nest or lining at the bottom of the hole, the eggs, which were two in number, being deposited on the bare wood. The female was sitting at the time, and was being brought fruit and berries by the male bird. While the eggs were being taken the birds flew round repeatedly, and settled on an adjacent tree, keeping up a loud whistling. The eggs are obtuse-ended ovals, of a pale greenish-blue ground-colour (one being much paler than the other), sparingly spotted with large and small spots of lilac-grey, and blotched over this with a few neutral brown and sepia blots. They measure from 1.3 to 1.32 inch in length by 0.96 to 0.99 in breadth.

The figure in the Plate accompanying this article is that of a low-country female bird shot in the Kuruwite Korale.

PASSERES.

Series D. FORMICARIOID PASSERES.

Wing with 10 primaries, the first well developed and typically long.
(Cf. Wallace, Ibis, 1874, p. 413.)

Fam. PITTIDÆ.

Bill moderately stout and straight, notched at the tip; gape smooth. Wings very ample, proportionately long, with the secondaries lengthened. Tail of 12 feathers, very short, scarcely exceeding the tarsus; under tail-coverts lengthened. Tarsus long.

Of terrestrial habit.

Genus PITTA.

With the characters of the family. Bill scarcely compressed; gonys somewhat deep; nostrils oval and oblique, exposed; culmen keeled and greatly curved to the tip. Wings with the 2nd, 3rd, and 4th quills nearly equal; the 3rd usually the longest; the 1st shorter than the 5th. Tail rounded. Tarsus longer than the middle toe and claw, shielded in front with wide, smooth, transverse scales; toes short, middle toe considerably exceeding the lateral ones, of which the outer is the longer; hind toe rather long, its claw curved.

PITTA CORONATA.

(THE INDIAN PITTA.)

Turdus coronatus, P. L. S. Müller, Natursyst. Anhang, p. 144 (1766).

Corvus brachyurus, var. *bengalensis*, Gmelin, Syst. Nat. i. p. 376 (1788).

Turdus triostegus, Sparrm. Mus. Carls. fasc. iv. pl. 84 (1788).

Pitta brachyura, Gould, Cent. Him. Birds, pl. 23 (1832); Jerdon, Cat. B. S. India, Madr. Journ. 1839, x. p. 251; Kelaart, Prodromus, Cat. p. 122 (1852); Layard, Ann. & Mag. Nat. Hist. 1853, xii. p. 269; Holdsw. P. Z. S. 1872, p. 445; Ball, Str. Feath. 1878, vii. p. 213.

Pitta triostegus (Sparrm.), Blyth, Cat. B. Mus. A. S. B. p. 157 (1849).

Pitta bengalensis (Gm.), Horsf. & Moore, Cat. B. Mus. E. I. Co. i. p. 184 (1854); Jerdon, B. of Ind. i. p. 503 (1862); id. Ibis, 1872, p. 133.

Brachyurus bengalensis (Gm.), Elliot, Mon. Pittidæ, pl. iv. (1863).

Brachyurus coronatus (Müller), Elliot, Ibis, 1870, p. 414.

Pitta coronata, Hume, Nests and Eggs, p. 224 (1873); Ball, Str. Feath. 1874, p. 406;

Butler & Hume, *ibid.* 1875, p. 470; Fairbank, *ibid.* 1876, p. 257; Ball, *ibid.* 1877, p. 416.

Madras Jay, Ray; *Bengal Quail*, Albin; *Short-tailed Pye*, Edwards, *Birds*, pl. 324; *Ant-Thrush*, *Painted Thrush* of Europeans; *The Indian Ground-Thrush*, *Yellow-breasted Ground-Thrush* of Indian writers. *Nourang*, lit. "Nine-coloured bird," Hind.; *Shumcha*, Beng.; *Pona inki*, Telugu; *Tota-collan*, lit. "Garden Thief," Tamil, *apud* Layard; *Ara Mani kuruvi*, Coolies on coffee-estates (lit. "Six o'clock bird").
Avitchia, Sinhalese (from its cry); *Ayittā*, N.W. Province.

Adult male and female. Length 6.5 to 7.0 inches; wing 4.1 to 4.2; tail 1.5 to 1.7; tarsus 1.35 to 1.45; middle toe and claw 1.1; hind toe and claw 0.7; bill to gape 1.05 to 1.1.

Iris brown, variable in depth; bill orange-reddish along the ridge and on basal half of lower mandible, with the sides of both mandibles towards the tip dusky brown; legs and feet flesh-colour or pale reddish grey; toes in some specimens brownish at the joints.

Lores, cheeks, hind neck, back of head, and a broad stripe running forward to the forehead and skirting the nostril, primaries, secondaries, the inner webs of tertials, primary and under wing-coverts, under surface of wings and tail black; chin, throat, a patch below the eye, and a superciliary stripe white, the latter is surmounted by a broad band of yellowish brown commencing at the nostril and running back with it to the back of the neck, where they both overlie the black feathers; a white band across the quills commencing on the inner web of 1st primary and ending on the outer web of the 7th; tips of the primaries smoky grey, those of the secondaries white, the outer portion of the latter feathers and the terminal parts of the greater wing-coverts greenish blue; median wing-coverts, outer webs and tips of tertials, scapulars, and back leaf-green; the back more or less washed with brownish on its upper part; least wing-coverts and upper tail-coverts brilliant turquoise-blue; tips of tail-feathers greenish blue; beneath from the throat fawn-colour, the flanks somewhat dusky; lower part of belly, vent, and under tail-coverts scarlet.

Obs. Some females appear to have the scarlet less bright than the males, and the back shaded with brown. Variations, however, occur in the plumage of both sexes, probably dependent on age, and consist in the greater or less breadth of the white wing-bar, in the brilliancy of the upper tail-coverts, and in the amount of white at the tips of the secondaries. Some examples, which appear to be immature, have the white feathers at the side of the throat tipped with brownish.

Indian specimens I have examined are similar in size and colouring to those which visit Ceylon. An example, however, from Nepal measures 4.5 inches in the wing, being somewhat larger than our birds. There are some allied species in the green-backed, fulvous-breasted group to which our bird belongs, and among them *P. oreas*, Swinh., from Formosa, is, according to Elliot, the nearest to *P. coronata*. It is distinguished from this latter by having the crown dull reddish brown and the under wing-coverts jet-black, "without any trace of the white feathers which form so conspicuous a mark in its ally": wing 5.0 inches. *Pitta moluccensis*, Müller, from the countries on the east of the Bay of Bengal, likewise belongs to this group; but is a handsomer bird, having the beautiful lazuline-blue wing and upper tail-covert patches larger, the brown of the head is darker, and the black of the face runs past the gape upon the chin: wing 4.7 to 4.8 inches. *Pitta megarhyncha*, Schlegel, is allied to the last, and inhabits likewise the province of Tenasserim. I have not had the opportunity of examining specimens; but Elliot remarks that, in addition to having a black bill, "the reddish brown of the head extends to the nape without being broken by a black bar."

Another group of Pittas is characterized by their green under surface, and another (*Melanopitta*) by having portions of the plumage, especially the head and throat, black, to which latter Mr. Hume's beautiful new species, *P. gurneyi*, from Tenasserim, appears to belong.

This singular group of birds, characterized by a more beautiful plumage than is to be found in any series of Passerine birds, save perhaps the Sun-birds, is essentially a Malayo-Asian family. Mr. Elliot, in his synopsis of the family (*Ibis*, 1870, p. 408), gives a list of 32 species as then known to or recognized by him. Subsequently others have been described, and some which he combined together under one title are now found to be distinct from one another. The following table will show what a large proportion of species is found in the Malay archipelago:—

MALAY ARCHIPELAGO.

Pitta maxima, Forst. (Gilolo).
P. megarhyncha, Schleg. (Banka).
P. concinna, Gould (Lombok, Sumbawa, Flores).
P. irena, Temm. (Timor, Sula Islands).
P. venusta, Temm. (Sumatra).
P. celebensis, Forsten (Celebes).
P. rubrinucha, Wallace (Bouru).
P. rufiventris, Cab. & Heine (Gilolo, Batchian).
P. cyanonota, Gray (Ternate).
P. baudi, S. Müller (Borneo).
P. forsteni, Elliot (Celebes).
P. novæ-guinææ, Müll. & Schleg. (N. Guinea).
P. bankana, Schleg. (Banka).
P. guiana, P. L. Müller (Java).
P. schwaneri, Temm. (Borneo).
P. mülleri, Bp. (Borneo).
P. sanghirana, Schleg. (Sanghir Islands).
P. rosenbergi, Schleg. (Soek).
P. ussheri, Sharpe (Borneo).
P. arcuata, Gould (Borneo).
P. mayforeana, Schlegel (Mayfor Island).
P. cæruleitorquata, Salvadori (Sanghir Islands).

PHILIPPINES.

P. erythrogastra, Temm.
P. sordida, P. L. Müller.
P. steerii, Sharpe.

MALAY ARCHIPELAGO, MALAYO-CHINESE REGION,
AND AUSTRALIA.

Pitta oreas, Swinh. (Formosa, Borneo).
P. moluccensis, P. L. Müller (Malacca, Amoy, Siam, Java, Sumatra, Borneo).
P. vigorsi, Elliot (Banda Islands, Australia).
P. granatina, Temm. (Malacca, Borneo).
P. mackloti, S. Müller (Papua, Australia).
P. boschi, S. Müller (Sumatra, Malacca).

INDO-MALACCAN REGION.

P. cærulea, Raffles (Sumatra).
P. nepalensis Hodgs. (Nepal).
P. coronata (India, Ceylon).
P. gurneyi, Hume (Tenasserim).
P. davisoni, Hume (Tenasserim).
P. cucullata, Elliot (Malacca, Nepal, Assam).
P. cyanea, Blyth (Arrakan).
P. oatesi, Hume (Tenasserim).
Anthocincla phayrei, Blyth (Burmah, Tenasserim).

AUSTRALIA.

P. strepitans, Temm.
P. iris, Gould.

JAPAN AND CHINA.

P. nympha, Temm.

AFRICA.

P. angolensis, Hartl. (Sierra Leone).

The Sanghir-Island species, *P. sanghirana*, and the Bornean, *P. mülleri*, were united by Elliot with *P. sordida*, from the Philippine Islands. Salvadori, however, considers that the Bornean bird is distinct; and the Sanghir-Island Pitta has, I believe, lately been figured (Rowley, Orn. Misc. vol. ii. p. 329, pl. lxx.) as distinct. I have therefore included these two species in the Malayan list; and among the Indian members I have placed the remarkable horned "Ground-Thrush" or Pitta (*A. phayrei*).

Space has been devoted to this list in order to give my readers in Ceylon who may be interested in this beautiful genus some idea of its distribution. It is probable that I may have omitted some recently described species from among the 44 here enumerated; but I may mention that Mr. Gould is about to publish a monograph of the Pittas, which will, doubtless, contain every known species properly discriminated.

Distribution.—The Indian Pitta is a cool-season visitant to Ceylon. It arrives about the same time as the Snipe, or perhaps, on the whole, a little later, for it is not very numerous before the first or second week in October. During that month it arrives in vast numbers in the island, occupying almost every little copse and grove as well as all the forests in the low country, while it is spread throughout all the jungles of the Central Province up to the Nuwara-Eliya plateau, where, however, it is not nearly so numerous as at 3000 feet lower down; and at the Horton Plains I did not hear it at all during my visit in 1877. Mr. Holdsworth remarks that he has heard it more than once in August at Nuwara Eliya; so that individuals remain throughout the year at that elevation, and perhaps breed, as they do in many parts of India. I have never myself met with it between the months of May and October; and it is very certain that by the beginning of the former month it has entirely left the low country on its northward migration. Mr. Bligh writes me, in 1876, from Haputale:—"They arrived in October this year in large numbers; they rarely come up so high as this (4500 feet), though I have flushed them at over 5000 feet; but I never heard one call at so high

an elevation in this district. On the other hand, if I step down to a friend's 1500 feet below me, at 6 o'clock their peculiar cry (like attempting to whistle the words 'quite clear' in a moderately high key) can be heard on all sides calling each other to roost." This Pitta is very abundant throughout the northern forest tract; and near Trineomalie they may be heard everywhere, even close to the sea-beach where the shore is lined with scrub. Its well-known cry I have often listened to in the woods just beyond the cinnamon-gardens; and throughout the Western Province it is very numerous; but I do not think its numbers are so great in the south-western wooded districts, as there is a considerable quantity of humid timber-forest in that part, and which is the only kind of country that I have noticed it avoid.

Jerdon remarks of its distribution in India as follows:—"This prettily-plumaged Thrush is found throughout the whole of India, from the sub-Himalayan range to Cape Comorin; but it is never found on the east side of the Bay of Bengal. . . . In the Carnatic it chiefly occurs in the beginning of the hot weather when the land-winds first begin to blow with violence from the west; and the birds, in many instances, appear to have been blown by the strong wind from the Eastern Ghâts, for, being birds of feeble flight, they are unable to contend against the strength of the wind."

These remarks tend to show that there is a seasonal movement of this Pitta; but in this case it is noted as from west to east. Its migration to and from Ceylon, however, shows that the chief movement is from north to south and *vice versa*; they avoid the cold climate of Northern India and the Central Provinces; and when this is over, about May, great numbers have been observed to move towards those districts from Southern India and Ceylon. Mr. Hume thus dwells upon its migrations (Str. Feath. 1877, p. 416) in connexion with a remark of Mr. Ball's concerning its movements from the south to the Central Provinces:—"In regard to the present species I may remark that the migration extends much further than the Central Provinces. They arrive in Bareilly about the beginning of the rains, sometimes earlier; in the Dhoon they become very common early in the hot weather. In this latter place some few may be permanent residents, but the great bulk of the birds are migrants from the south. To the Berars and to the forests about Hoshungabad it is a regular migrant. It straggles up even into the semi-desert country of Kattiawar, Northern Guzerat, and the Sambhur Lake. It comes up in numbers to the northern districts of Oudh and Behar. I have caught a specimen in my house at Chowringee, Calcutta, in May. Throughout the length and breadth of the country it moves, during April, May, and June, from the extreme south to all suitable localities in the north (at any rate west of the Brahmapootra), great numbers reaching the bases of the Himalayas or sub-Himalayan ranges."

The Rev. Dr. Fairbank speaks of having seen three in the city of Ahmednagar, and says that numbers arrive in the Khandala district in May. Mr. Ball met with it in sal-forest in Gaugpur, and records it from many places between the Ganges and the Godaveri, but not from the Rajmehal hills. It is, as has been already remarked, only a straggler into the north-western parts of India. Captain Butler considers it very rare about Mount Aboo; and Mr. Adam only notes a single specimen obtained near the Sambhur Lake.

Habits.—This handsome bird, so well known to the Singhalese as the "Avitehia," is, almost more than any other migratory bird to Ceylon, a denizen of thick cover. It rarely shows itself in the open; and those who do not take particular pains to make its acquaintance might listen to its familiar evening cry, season after season, without ever seeing it. It especially loves copses, thick woods, underwood, and overgrown waste land, and in forest districts is usually found where the timber has been cleared and secondary jungle has grown up. Nevertheless while wandering about in tolerably open forest anywhere north of Kurunegala I have frequently seen it and flushed it near pathways; and in damp muggy weather, or on very cloudy days, listened to its strange cry all day long, and over and over again seen it fly to the low limb of a large tree, where it would sit for an instant cocking its tail up with a quick Rail-like movement, and then dart off into the surrounding cover. More than two are, I should say, scarcely ever seen together, and it is a rare thing to find even two in close proximity. They utter their cry in the morning until about 8 o'clock, and commence it again as the sun is nearing the horizon, becoming most noisy at sundown. At this time, when calling to each other, they fly about in search of roosting-places. Their flight is quick and irregular, reminding one of that of the Lapwing, and they dart round the trunks of trees very adroitly. Its note, which I have alluded to, and which Mr. Ball just as aptly renders by the words *whēet-pe-ū*, is preceded often by a shrill churr or call; that is to say, this note is heard usually before the long-drawn cry, this, I imagine, being only uttered as a call-note

when the birds begin to answer one another. Mr. Ball says that when uttering the *whēet* (or, as the Singhalese render it, *avīt*) the head is drawn back as far as possible and then jerked forward again as the bird concludes with the *pe-ñ*. He has heard it (in the breeding-season I conclude) utter a sweet Thrush-like song resembling that of the *Shāma*.

Though very shy and wary it is possessed of considerable inquisitiveness. While standing still under the shelter of dense jungle I have not unfrequently had it approach me within a few yards, flitting from the ground to a low branch and quietly scanning me with its bright eye, its head cocked on one side and its tail erect. While I remained motionless it would continue to scrutinize me, but on the least stir it would dart off into the surrounding cover.

When it first arrives it wanders into strange places—gardens, compounds, and even houses. Jerdon writes of capturing one in the General Hospital, Madras. My friend Mr. Forbes Laurie related to me that one night, on returning from dining at a friend's, he found one running about among the flowers in his garden at Tunisgala; on bringing a lamp upon the scene he easily caught it. Mr. Bligh, too, informs me that they are frequently caught on coffee-estates in the bungalows on cold stormy days, and that one so captured in his district lived for many weeks, chiefly on worms; it was kept in a lumber-room with only a small window in it and seemed quite happy, standing a good deal on one leg and nervously moving its tail up and down. He tells me that they come some distance to roost, as they are fond of bushy trees like the lime and orange, which are not plentiful on the coffee-estates; and he has seen them making their way across a coffee-plantation by short flights or stages.

It feeds entirely on the ground, picking up beetles, termites, ants, and other insects which it finds in the soil and among dead leaves, its bill being usually covered more or less with earth when it is shot. Layard says that it resorts to the same ant-hill for days together.

I have already referred, in my article on *Turdus spiloptera*, to a Singhalese legend connected with the Pitta; and Mr. Parker sends me the following as bearing on its name (*Ayittā*) in the North-west Province:—“It is said that this bird once possessed the Peacock's plumes; but one day when he was bathing the Peacock stole his dress; ever since that he has gone about the jungle calling for them, ‘Ayittam, ayittam’ (my dress, my dress).”

“Another legend is that the Pitta was formerly a prince who was deeply in love with a beautiful princess. His father sent him to travel for some years, as was in olden times the custom with princes here. When he returned the princess was dead, and the unfortunate prince wandered disconsolately about, continually calling her by name, ‘Ayittā, Ayittā.’ Out of pity to him, the gods transformed him into this bird.”

There is something peculiar, in fact startling, in this bird's curious cry, proceeding from dense thickets, where it cannot itself be seen; and this fact, combined with its beautiful plumage and its sudden appearance in the island as a migrant, which is not intelligible to the untutored native mind, has naturally made it the subject of legends with the Singhalese.

Nidification.—In the Central Provinces of India this Pitta breeds in July and August, according to Mr. Blewitt, who has taken numbers of its eggs. The nests are described by Mr. Hume as “large globular structures, fully 9 inches in horizontal diameter and 6 inches high, with a circular opening on one side; they are composed internally of fine twigs, notably of the tamarisk, and grass-roots; externally of dry leaves, many of them ‘skeletons,’ held in their places by a few roots or twigs. The internal cavity may be about 4 inches in diameter. The nests are placed in brushwood and scrub-jungle, either on the ground or on low branches close to it.”

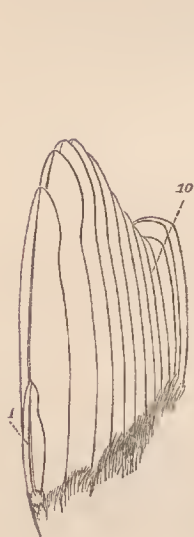
“Few Indian eggs are,” says the same author, “more beautiful than those of this species. In shape they are excessively broad and regular ovals; they are excessively glossy; the ground-colour is china-white, sometimes faintly tinged with pink, sometimes creamy, speckled and spotted, and sometimes also painted, with fine hair-like lines of deep maroon, dark purple, and brownish purple as primary markings, and pale inky purple as secondary ones. The primary markings are scattered, in some instances pretty thickly, in others very sparingly, over the whole surface of the egg, but are always much denser towards one end, to which in some eggs they are entirely confined; and here alone the secondary markings are at all conspicuous.... I should note that there is one not uncommon type in which the whole egg is devoid of markings, except

within a broad zone near one end, and even here they only consist of widely scattered and minute specks of maroon and pale lilac."

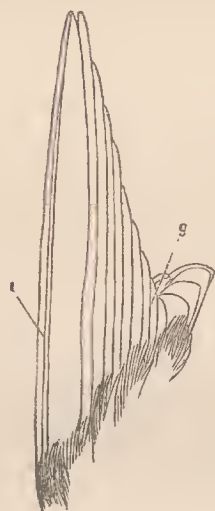
The average size of fifty eggs is recorded as 1.01 by 0.86 inch.

The accompanying woodcuts are intended to illustrate Mr. Wallace's system of classification of the great *Passerine* Order which I have followed in this work.

They represent the underside of the wing, so that the 1st quill may be seen to advantage, and are drawn to $\frac{3}{4}$ size.



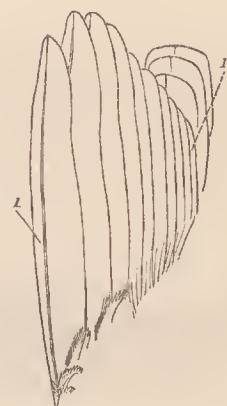
TURDOID PASSERES
(see p. 345).
Wing of *Turdus spiloptera*.



TANAGROID PASSERES
(see p. 574).
Wing of *Hirundo rustica*.



STURNOID PASSERES
(see p. 630).
Wing of *Sturnus vulgaris*.



FORMICARIOID PASSERES
(see p. 687).
Wing of *Pitta coronata*.



PALUMBUS TORRINGTONIÆ, *ad. juv.*

Order C O L U M B Æ *.

Bill with the basal half straight and soft, covered with a fleshy skin, in which the nostrils are placed; the tip horny, curved, and vaulted inside; gape wide and smooth. Wings pointed, of 10 feathers. Tail variable in the number of its feathers, usually of 12 or 14, in some 16. Legs short, feathered to the knee; the tarsus fleshy and very stout, scutate in front, except in one genus. Toes stout, flattened beneath, forming a broad sole.

Sternum narrow, with a high keel, and two notches on each side of it in the posterior margin; chest with a large double crop.

Fam. COLUMBIDÆ.

Bill rather narrow, the gape moderately wide, the horny tip less in extent than the fleshy base; nostrils opening to the front. Wings pointed. Tail broad, short, and even in some, long and graduated in others, of 12 feathers. Tarsus somewhat lengthened and not very stout. Toes lengthened; lateral toes subequal; the hallux moderately short.

Of both terrestrial and arboreal habits.

Genus PALUMBUS.

Bill moderately stout, the tip well curved; nostrils placed in a groove and beneath a capacious membrane. Wings with the 3rd quill the largest, and the 1st shorter than the 4th. Tail shorter than the wings, even or rounded at the tip. Tarsus moderately stout, shorter than the middle toe, with transverse scutes in front. Toes rather slender; middle toe lengthened.

PALUMBUS TORRINGTONIÆ.

(THE CEYLON WOOD-PIGEON.)

(Peculiar to Ceylon.)

Palumbus elphinstoni, var., Blyth, J. A. S. B. 1851, xx. p. 178.

Palumbus torringtonii, Kelaart, Prodromus, Faun. Zeylan. p. 107 (1852); Jerdon, B. of Ind.

iii. p. 466 (1864); Blyth, Ibis, 1867, p. 306; Hume, Nests and Eggs, iii. p. 499 (1875).

Carpophaga (Palumbus) torringtonii (Kel.), *C. elphinstonii*, var., apud Blyth, Kelaart, Prodr., Cat. p. 130 (1852).

* This interesting order of birds is chiefly developed in the great Malayan Archipelago, its focus, as Mr. Wallace, in his able article on the Pigeons (Ibis, 1865), terms it, being in the Austro-Malayan region, comprised of New Guinea, the island of Celebes, and the Solomon Islands. In the article in question it is shown that out of the three hundred and odd species known, no less than 118 (some of these are now united, but, on the other hand, others have since been discovered) inhabit the Malay Archipelago, while on the vast continent of America there are only 80, and in Africa less than 40, Australia possessing 43. Mr. Wallace's remarks on this condition of the distribution of Pigeons are as follows:—"These numbers show that the Malay Archipelago is preeminently the metropolis of the Pigeon tribe. It is now well known, how-

Carpophaga torringtonii (Kel.), Layard, Ann. & Mag. Nat. Hist. 1854, xiv. p. 59.

Palumbus torringtoniæ (Kel.), Holdsw. P. Z. S. 1872, p. 466; Legge, Ibis, 1874, p. 25.

Lady Torrington's Pigeon, Kelaart; *Blue Pigeon*, *Black Pigeon*, *Wood-Pigeon*, Coffee-planters.

Mila-goya (*goya* being the name for Pigeon), Sinhalese in Central Province; *Mahavillagoya*, apud Layard.

Ad. suprâ pulchrè schistaceo-niger: interscapulio lilascenti-viuaceo, dorsi summi plumis vix quoque lilacino adumbratis: teetrichus alarum dorso coucoloribus: remigibus brunneis, schistaceo extûs lavatis, secundariis intimis dorso concoloribus, primariis angustè pallidiore brunneo limbatis: capite undique vinaceo, colli postici jugulique plumis viridi nitentibus, illius plumis albo terminaliter maculatis: corpore reliquo subtûs pulchrè lilascenti-viuaceo, subcaudalibus longioribus schistaceo-nigris, reliquis vinaceis ad basin schistaceis: subalaribus et axillaribus schistaceo-nigris: rostro pallidè cærulescente, ad basin plumescente: pedibus carnescenti-albis, tarso antico rubescente: iride pallidè rubrâ, plagâ orbitali carneâ.

Adult male. Length 13·5 to 14·3 inches; wing 7·7 to 8·0; tail 5·25; tarsus 1·1; middle toe 1·2, its claw (straight) 0·4; bill to gape 1·1.

Iris pale red; orbital skin pink; bill, basal half plumbeous, the apical or corneous portion bluish; tarsus in front and top of the toes red, posterior tarsus and sides of toes with the soles paler; claws fleshy white.

Head, nape, and upper throat vinaceous ashy, paling to albescent on the chin, and passing on the chest and under surface into a more vinous hue, which pales into reddish albescent on the belly, and passes round on the hind neck and upper part of interscapular region into fine reddish brouze, richly illumined with metallic green, the head and fore neck being more faintly illumined with the same; a broad black demi-collar across the hind neck, with white tips to the feathers; rest of upper surface and wings bluish plumbeous, the tail blackish slate and the quills deep brown, with fine light margins to the primaries; under tail-coverts dark cinereous ashy, passing into reddish brown at the tips of the feathers.

Female. Length 13·2 inches; wing 7·2; tail 5·0; tarsus 0·9; bill to gape 1·0.

Legs and feet not so red, with the posterior part of tarsus and sides of toes fleshy white.

Head, chest, and under surface more ruddy than in the male, and the cupreous hue of the lower hind neck deeper; under tail-coverts and flanks redder.

Young. Birds of the year have the iris yellowish grey, with generally a narrower outer ring of pale red (the normal colour of the adult); bill dusky at the tips; legs and feet dull red anteriorly, dusky fleshy behind.

Upper surface ashy plumbeous; forehead and face slightly ruddy; neck-patch not developed, the feathers of the nuchal collar being blackish, with ashy-whitish tips, not pure white; the metallic hues of the hind neck faintly developed; chest ruddy plumbeous; the under surface vinaceous slaty, washed with fulvous-brown on the breast. Some examples have the wing-coverts edged with rusty, and the chin and gorge more albescent than in the adult.

Obs. This fine Pigeon, which was at first considered to be a variety of the Nilghiri Woodchat, *P. elphinstoni*, is closely allied to that species, differing from it merely in the colour of the back, scapulars, and wing-coverts, which are copper-colour in the continental form. An example in the British Museum has the head slaty, with a slight bronze tinge; the lower part of the hind neck, the back, scapulars, and wing-coverts are of a brouzed copper-colour; tail not so "slaty" as in *P. torringtoniæ*; throat greyish; chest light slaty, tinged with green; the breast and lower parts iridescent slaty grey, wanting the vinaceous tint of the Ceylon bird; the bill is stouter, and the wing measurement 8·7 and 8·5 inches respectively in two examples which I have measured.

The genus *Palumbus* is a somewhat limited one, comprising in India, besides the two species already noticed, the Himalayan Cnshat (*P. casiotis*, Bp.), which is the representative of the European Cnshat, and the northern ally of the Nilghiri Wood-Pigeon, *P. pulchricollis*. The latter is a very handsome bird, differing from *P. elphinstoni* chiefly in its brilliantly-coloured neck and also in its redder under surface. The feathers of the neck-patch are rigid, black at the base, changing into reddish, and tipped with white. *P. casiotis* differs from the "Ring-Dove,"

ever, that this part of the world belongs to two distinct zoological regions—the Indian and the Australian; and in these the Pigeons are very unequally distributed; for the western and larger portion (the Indo-Malayan subregion) contains nine genera and forty-three species, while the eastern and smaller portion (The Austro-Malayan subregion) has fifteen genera and eighty-four species. Here, therefore, the species of Pigeons become more condensed and more varied than in any other part of the globe: here is the focus of the order; and it was probably from this part of the world that the original dispersal and modification of the group chiefly took place. This condensation is carried to its greatest height in New Guinea, in which, although only a few points on its coast have been visited, no less than 25 species of Pigeons have been obtained."

according to Jerdon, "in having the neck-patch clayey buff instead of white, and much contracted in size; also in the less extent of the white border to the primaries." It is a very fine species; wing $10\frac{1}{4}$ inches.

Distribution.—Essentially a bird of the mountain forests, this splendid Pigeon is well known to all Europeans in the Central Province. It is very abundant in the Nuwara-Eliya plateau forests and on all the surrounding wooded slopes down to an elevation of about 3000 feet; below this it is not numerous. Kelaart speaks of examples being procured at Gampola; but this was in the days of forest; now that the whole country round that district is denuded, the visits of the Torrington Pigeon to it must be few and far between. I met with it at Nuwara Eliya in May, and found it plentiful on the Horton Plains in January; it seemed then to prefer the singular isolated groves on the plains to the surrounding forest, no doubt owing to a greater abundance of food obtaining at that time in the former. It is very numerous in the Peak forests, where I procured it under 3000 feet; and I have no doubt those vast jungles stretching along the high mountain-chain up to the Horton Plains now form its chief stronghold. In the Morowak Korale I have killed it at Aning-Kanda Estate as low as about 2400 feet, and between there and the Kukul Korale it is, I understand, abundant at times.

Mr. Holdsworth remarks that it "changes its locality according to the season and the time at which the fruit of particular trees ripens;" he found it numerous at Nuwara Eliya at the end and beginning of the year. Mr. Bligh has noticed that a migratory movement takes place just previous to the "bursting" of each monsoon; which, together with its wanderings in search of fruit, will probably account for its somewhat periodical appearance in many districts.

This species was named *torringtoniæ* by its discoverer Kelaart, in compliment to the Viscountess Torrington.

Habits.—Frequenting, for the most part, lofty trees in the primeval forests of the mountains, and being of a very shy and wary disposition, this fine Pigeon is generally a difficult bird to procure; but, notwithstanding, it is much sought after on account of its excellent flesh, and frequently falls to the planter's gun. It is entirely a fruit-eating species, and feeds more on the wild cinnamon-fruit than any other kind; on this it gorges itself to such an extent that I have found its crop burst wide open with the shock of falling to the ground: when thus satiated it is not so watchful as usual, and may sometimes be approached without the cracking of a twig or the noise of leaves crushed under foot frightening it off. It comes very early to roost; and I found that it resorted to the same trees night after night, coming home from its forest wanderings about 4 p.m., and settling down either in or somewhere near its intended roosting-place. It then commences its *coo* (which is a fine deep note, but not so guttural or resounding as that of the Imperial Pigeon), now and then moving about among the adjacent trees, but not flying away to any distance. By waiting in such places it may be more easily shot than in any other manner. About 10 o'clock in the morning, after feeding, I have found it resting on the under branches of moderately sized trees in the Nuwara-Eliya district; but, as a rule, it selects the loftiest branches to perch on. Its flight is very strong and swift, and it takes a good shot to bring it down as it darts out of some lofty tree in its forest haunts; Kelaart says that "it flies high and in long sweeps." In common with other Pigeons it drinks in the morning; and I have found it at mountain-streams as late as 9 p.m. Mr. Bligh informs me that it is unusual to find many together while feeding; but I imagine this depends on the quantity of fruit there may be on any given tree; he tells me he once saw 30 or 40 on a large tree in the Dambetenne gorge, but never observed so many together on any other occasion.

Nidification.—I was never fortunate enough to find this Pigeon's nest, nor to obtain much information from my friends in the Central Province concerning its nesting-habits. Mr. Bligh writes, "I have seen their nests both in spring and autumn as late as October; they generally build in lofty forest trees; but I once frightened a large young one from a nest on a small tree some 15 feet above the ground." Kelaart merely remarks, "Their nests are found on lofty trees." Its nest and eggs probably closely resemble those of its South-Indian ally, *P. elphinstoni*, which builds a "slight platform" of a nest, and generally only lays one egg—a broad oval, pure white, measuring from 1.46 to 1.56 inch in length by 1.07 to 1.2 inch in breadth.

The figure in the Plate accompanying this article is that of a male shot at Palabaddala on the pilgrims' path through the Peak forest.

Subgenus ALSOCOMUS.

Tarsus shorter and tail longer than in *Palumbus*.

ALSOCOMUS PUNICEUS.

(THE PURPLE WOOD-PIGEON.)

Alsocomus puniceus, Tickell, J. A. S. B. 1842, xi. p. 462; Blyth, Cat. B. Mus. A. S. B. p. 233 (1849); Layard, Ann. & Mag. Nat. Hist. 1854, xiv. p. 58; Jerdon, B. of Ind. iii. p. 462 (1864); Beavan, Ibis, 1868, p. 373; Holdsw. P. Z. S. 1872, p. 466; Ball, Str. Feath. 1874, p. 424, et 1878, vii. p. 224; Armstrong, ibid. 1876, p. 337; Davison & Hume, ibid. 1878, B. of Tenass. p. 418.

Kurunda kobæya, *Neeyang kobæya*, lit. "Season Pigeon" (*apud* Layard), Sinhalese.

Adult male. (Brit. Museum, Tenasserim) Wing 8·5 inches; tail 6·0; tarsus 1·0; bill at point 0·7. (Tenasserim) "Length 14·12 to 15·6; wing 8·2 to 8·5, expanse 25·0 to 26·25; tail 5·5 to 6·6; tarsus 0·9 to 1·1; bill from gape 1·1 to 1·2."

Female. "Length 14·75 inches; wing 8·4, expanse 25·25; tail 5·5; tarsus 1·0; bill from gape 1·2" (*Hume*). (Irrawaddy delta, *Armstrong*) "Length 15·75 inches; wing 8·65; tail 6·1; tarsus 1·0; bill to gape 1·05."

"Iris orange; bill purplish, tipped with horny; legs and feet purplish red" (*Armstrong*).

"Irides deep orange or pale yellow; eyelids bright red; orbital skin purplish pink; horny portion of bill bluish white, rest of bill and gape lake-pink; legs and feet purplish or lake-pink" (*Hume*).

(British Museum.) Forehead, lores, crown, and nape pale slaty greyish; lower part of face, ear-coverts, throat, and neck light coppery sienna, intensifying or becoming more vivid on the fore neck and under surface, and illumined with greenish bronze on the chest and hind neck; back, scapulars, wing-coverts, and inner secondaries copper-colour, blending into the paler hue of the crown, and the feathers broadly tipped with metallic amethystine red; primary-coverts, primaries, and secondaries slaty brown, the primaries pale on the inner webs; under tail-coverts dark ashy slate, blending into the colour of the lower breast; under wing-coverts bronze-red.

The female is said to be duller in its tints than the male.

Obs. The small genus to which this Pigeon belongs is an Indian one, and consists of two species only, the second of which (*A. hodysoni*) inhabits Nepal and other mountains of the sub-Himalayan districts. These birds differ but little from the true Wood-Pigeons, and might well be classed in the genus *Palumbus*. *A. hodysoni* is a larger bird than the present, measuring, according to Jerdon, 9 to 9½ inches in the wing. It differs chiefly in having the median wing-coverts and flanks spotted with white, and the sides of the neck and underparts with a ruddy mesial streak to each feather.

Distribution.—Layard is the only naturalist who has recorded this Pigeon as a Ceylonese bird; and there is a specimen of his collecting in the Poole museum. His remarks on the species are as follows:—"This bird is but rarely a visitant of our island. I believe it appears during the fruiting of the cinnamon-tree; the natives all assure me of this." Had not Layard actually obtained specimens, and satisfactorily identified the bird, I should be inclined to doubt its occurrence in Ceylon. But it cannot well be a seasonal visitor, depending on the fruit of the cinnamon, otherwise it would occur annually, which it certainly does not, and it can only be looked upon as a rare straggler to the island. I once met with a flock of Pigeons, which I found frequenting cinnamon-bushes near Borella, early one morning at the latter end of 1869. I did not, however, succeed in procuring any, as they were very shy and took flight at once. They were about the size of the present species and of a brown colour, so that it is probable that they were the Purple Wood-Pigeon, as there is no other kind which would answer to the description. As it visits Ceylon it is strange that it has not been detected in Southern India; neither Jerdon nor any subsequent naturalist has met with it in the south of the peninsula. Jerdon

states that it is only found "in the eastern portion of Central India, extending to near the sea-coast in Midnapore, and probably southwards towards Cuttaek." He was of opinion that it was more common in the countries to the east of the Bay of Bengal, in Assam, Arracan, and Tenasscrim, and instances the island of Ramree, off the coast of Arrakan, where it is numerous. I do not find, however, that it is common on the Irrawaddy delta, for Dr. Armstrong procured but one specimen in evergreen forest near China Ba-kecr. In Tenasserim it is, according to Messrs. Hume and Davison, sparingly distributed throughout the northern and central parts of the province. The latter gentleman, in fact, writes of it, "I have found this Pigeon very rare in Tenasserim, meeting with one now and then, and always singly. Captain Bingham tells me that they are not rare in the Sinzaway reserve forest on the Younzaleen." Tiekell met with it in Singbhum, and Captain Beavan procured it in Maunbhum, on the banks of the river Cossye; elsewhere in the same region Mr. Ball has seen it on the Mahan river and its tributaries in Sirguja, but finding it very shy did not procure a specimen.

Habits.—Tiekell met with the "Purple Wood-Pigeon" in small parties of four or five, always along the banks of rivers which were shaded by forest trees. It is, according to Jerdon, wary and difficult of approach; and the observations of subsequent naturalists corroborate this statement. In the 'Birds of India' it is stated to feed on the fruit of the Jamoon (*Eugenia jambolana*) morning and evening, and to roost, during the heat of the day, on the uppermost branches of lofty trees. Captain Beavan found that it likewise subsisted on the fruit of the *Strychnos nux-vomica*; he writes that "it is excessively wary and can seldom be procured, except by a flying shot, as the birds dart out of the thick foliage on hearing a step below them on the ground."

We learn nothing concerning its nidification from any source, and its eggs, therefore, remain to be described.

Genus COLUMBA.

Bill longer and more compressed than in the last genus; tumid portion swollen. Wings long and firm, the 2nd quill the longest. Tail rather short, very firm and rounded at the tip. Tarsi and feet more slender than in *Palumbus*, but with the claws short and very deep.

COLUMBA INTERMEDIA.

(THE INDIAN ROCK-PIGEON.)

Columba intermedia, Strickland, Ann. & Mag. Nat. Hist. 1844, xii. p. 39; Kelaart, Prodromus, Cat. p. 130 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiv. p. 59; Jerdon, B. of Ind. iii. p. 469 (1864); Blyth, Ibis, 1867, p. 149; Holdsw. P. Z. S. 1872, p. 46; Hume, Str. Feath. 1873, p. 217; Ball, ibid. 1874, p. 425; Hume, Nests and Eggs, iii. p. 499 (1875); Legge, Ibis, 1875, p. 400; Ball, Str. Feath. 1875, p. 208; Butler & Hume, ibid. 1876, p. 3; Ball, ibid. 1878, vii. p. 224; Cripps, *t. c.* p. 296.

Columba ænas, Burgess, P. Z. S. 1855, p. 34.

Columba livia, Adams, P. Z. S. 1859, p. 187.

Columba livia, var., Blyth, Cat. B. Mus. A. S. B. p. 233 (1849); Schlegel, Mus. Pays-Bas, p. 63 (1873).

The Blue Rock-Pigeon of Sportsmen in India; *Rock-Pigeon*, Europeans in Ceylon. *Kabutar*, Hind.; *Gudi-pourai*, lit. "Pagoda-Pigeon," Telugu; *Kovilpora*, Tamil; *Parvi*, Mahr. (Jerdon); *Māda-prāā*, Ceylonese Tamils.

Adult male and female. Length 13·2 to 13·5 inches; wing 8·6; tail 4·25; tarsus 1·1 to 1·2; middle toe and claw 1·25; bill to gape 0·95 to 1·0; expanse 24·6. Weight 12 oz.

Iris buff, mottled at the outer edge with red specks; eyelid plumbeous; bill blackish leaden; cere grey; legs and feet pinkish red, claws black.

Immediately after death the iris becomes yellowish red.

Head and upper part of throat unglossed dark bluish slate, the ear-coverts and cheeks generally the darkest, and blending into the metallic green and amethystine reflections of the entire neck, chest, and upper part of the interscapular region; back, wing-coverts, and secondaries pale slaty blue; the greater coverts and secondaries crossed by two black bands, the latter of which extends to the terminal portion of the tertials; primaries slaty brown; rump, upper tail-coverts, tail, and lower parts *darker slate-blue than the back*; the tail with a subterminal black band; abdomen and thigh-coverts paler than the breast; under wing-coverts and under surface of the quills at the base whitish.

Young. Iris sullied yellowish; legs and feet dusky reddish; head and neck brownish, the latter with very slight metallic reflections; wings brownish, with the dark bands narrow. Birds probably not quite mature have the lower part of the hind neck less illumined with the metallic reflections, and the wing-bars narrower, with less black on the tertials than in old birds.

Obs. The Indian Rock-Pigeon differs from the European one in having the rump dark slate, instead of pure white. The Ceylon race of this Pigeon is typical *C. intermedia*, having the rump as dark as any specimens I have seen from India. The species varies in this respect on the continent. Mr. Hume remarks that those he shot at the Vingorla rocks and St. George's Island on the west coast were the most typical he had seen from any part of India; they must therefore have been quite as dark as our Ceylonese birds.

Strickland, who first discriminated and described the Indian Pigeon under its present title, thus remarks concerning it:—"Distinguished, besides the banding and grey rump, by its black beak, and by the metallic-green feathers entirely surrounding the neck." The last character is, I think, worthless; but in the matter of its very dark colour above and beneath, and of its rump, *darker than the back*, the typical *C. intermedia* is a good subspecies or local race of the European bird. In the south of India and Ceylon there is scarcely any variation in the plumage, and the birds inhabiting these parts constitute the subspecies. In the north-west of India and parts of the Himalayas the intermediate races are evidently formed by the interbreeding of the two species, as everyone knows how prone Pigeons are to interbreed. There is much difference of opinion as to the validity of our Indian species, owing to the existence of intermediate forms; but I incline to the belief that there were originally two very distinct forms—the one (*C. livia*) *pale grey*, with a pure white rump, the other (*C. intermedia*) *leaden colour*, with the rump darker

than the back; and any races with at all a whitish rump, whether the albescent coloration be of small or great extent, I would class as strictly belonging to *C. livia*. The real character of the Indian species is that *its rump is darker instead of lighter than the back*.

Columba rupestris, Pallas, "The Blue Hill-Pigeon," the Asiatic pied race of *C. livia*, might equally well be styled a variety of the present species, and differs from it mainly in the white colour of the tail; the lower back, rump, and a broad bar across the tail are *white*; but the *upper tail-coverts* and the base of the tail are *slate-grey*, and the tip of the latter is very dark grey; the interscapular region and wings are pale slate-grey, the chest vinaceous, and the lower breast and abdomen albescent slaty grey. An example from the Altai Mountains measures—wing 8·5 inches, tail 4·5. It is found in Central Asia and Turkestan, and has been killed in Kumaon.

An example of *C. livia* from Mesopotamia measures 8·4 inches in the wing, and has the interscapular region and wing-coverts pale grey, and the *lower back and rump pure white*; the hind neck is not so highly illumined with green and copper-colour as in the Indian bird; the under surface is pale bluish grey. A Jericho specimen is slightly darker beneath. I notice these two as examples of this Pigeon from regions not very remote from India. In Cashmere Mr. Hume says an intermediate form exists with less of the pure white on the rump; but he has received the true *livia* from Sindh; and I observe that he allows Mr. Cripps's identification of it in Furreedpore to stand.

Distribution.—There are several isolated colonies of this fine Pigeon round the coast of Ceylon; but they are not restricted to two localities, as Layard and others have supposed. His remarks are:—"Extremely local, being confined to two places, 'Pigeon Island,' off Trincomalic, and a rock off the southern coast near Barberry. From these it, of course, makes incursions into the interior, and I have heard of specimens being shot at Vavonia-Vlancolom, on the great central road, about fifty miles from Trincomalic."

The truth is, there are more colonies of these birds in the interior than one supposes. Those seen at Vavonia-Vlancolom evidently have their home in some of the isolated rocky masses which are characteristic of the northern forests. It is possible there may be a colony near Mahintale. There is a large one in a precipitous gorge through which the stream flows, which is crossed by the bridge just to the north of Nalanda. Here my friend Mr. Simpson, of the Indian telegraph-department, who informed me of the existence of the colony, has, on several occasions, had good sport, and thither people resort from Matale to shoot the Pigeons. There is another colony at the Hatagalla rocks, about 15 miles west of Hambantota; and I dare say there are others round the east coast, between there and Batticaloa. From inquiries I made at Ambalangoda, I imagine that the Barberry rocks near Bentota are deserted, and consequently I did not visit them, but I may have been misinformed. The rocky islet which is so much frequented by these Pigeons, near Nilāvele, is not Pigeon Island itself, but a small island of about two or three acres in extent, half a mile nearer the shore, and about 13 miles

MACROPYGIA MACROURA, Gmelin (*Tourterelle à large queue du Sénégal*, Buffon, Pl. Enl. 329).—This Cuckoo-Dove was said by Bonaparte to inhabit Ceylon; but no one has ever seen it in the island, as far as I, or any other person who has paid any attention to the ornithology of Ceylon, can ascertain. It is not likely that a large bird like a Cuckoo-Dove could have been passed over all these years; it would have been recognizable on the wing by reason of its long tail, even if it had not actually been procured. The only evidence we have as to this Pigeon being a Ceylon bird is contained in the simple statement by Bonaparte (Consp. ii. p. 57), "ex Ceylon, nec Senegal."

The Marquis of Tweeddale, in a note to Mr. Holdsworth on this subject, remarks that it is doubtful whether Bonaparte ever saw the bird, the diagnosis given by him (*loc. cit.*) only containing "the prominent characters discernible in Buffon's plate." Buffon, who figured this Pigeon from a Senegal example presented by Adanson under the name of "*Tourterelle à large queue du Sénégal*," is, writes the Marquis, "most circumstantial in his account of the locality whence his bird was obtained; and the fact that the specimen bore a title given by Adanson strongly corroborates the Senegal origin." I am under the impression myself that Bonaparte got his information from a perusal of Temminck's remarks (Hist. des Colombes, p. 345) in reference to this Cuckoo-Dove—"Levaillant m'a dit avoir vu des individus rapportés de Ceylon." There could be no more broken reed to trust to in a matter of geographical distribution than Levaillant!

There are examples in the British Museum labelled as this species, one of which measures in the wing 6·3 and in the tail 8·5 inches. It is of a dusky coppery red on the back and upper tail-coverts; tail brownish copper-colour; head and sides of neck vinaceous, illumined with bronze-colour; chest and underparts fulvous tawny, with bronze reflections, each feather with a black wavy cross bar; flanks and under tail-coverts light cinnamon-colour. Species of Cuckoo-Dove found in the Indo-Malaccan region are:—*M. tusalia*, Hodgson, from the Eastern Himalayas; *M. ruficeps*, Temm., and *M. assimilis*, Hume, from Tenasserim; and *M. rufipennis*, Blyth, from the Nicobars.

from Trincomalie. They are met with in many places on the adjacent mainland; and I have seen them flying over the Peria-kerretje salt lake towards the remarkable rocky eminences rising up on its eastern shores. Here there is probably a colony.

In India it is a very abundant bird, and, contrary to its habit in Ceylon, is found much about "large buildings, such as churches, pagodas, mosques, tombs, and the like, frequently entering the verandahs of buildings and building in the crevices. Holes in walls of cities or towns, too, are favourite places; and in some parts of the country they prefer holes in wells, especially, I think, in the west of India, the Deccan, &c. The celebrated falls of Gaissoppa are tenanted by thousands of Blue Pigeons, which here associate with the large Alpine Swift" (*Jerdon*).

In the Deccan and in the Khandala district it is said to be very abundant and universally distributed; along the west coast there are various colonies, one of which is at the well-known Pigeon Island; and another at the Vingorla rocks, where there is a cliff pierced from side to side by a tunnel-like cave, which, Mr. Hume tells us, is tenanted by numbers of these birds. From either side of the peninsula it ranges west and east, and in the former direction is numerous. Captain Butler remarks that it abounds in the Guzerat province. In Sindh Mr. Hume found it abundant on the plains during the day, returning to the hills to roost, and when grain is ripening large flocks visit the neighbourhood of Jacobabad. It extends northward of Sindh, ranging into the Suliman hills, where Mr. Ball noticed it, as well as its European relative. Along the sub-Himalayan districts it is found as high up as Kotegurh, according to Herr von Pelzeln; and he also records it from Pangi, which has an elevation of 9000 feet. In Lower Bengal it is common, and in Chota Nagpur it is frequent, according to Mr. Ball, in deep rocky gorges cut by the rivers in Sirguja and Udipur, as also in other suitable localities throughout the division; he likewise records it from Sambalpur and Orissa north of the Mahanadi river, and from other localities in this eastern territory, while Mr. Hume notes it from Raipur. In Furrcepdore it is very common, according to Mr. Cripps, frequenting the ruins of indigo-factories and temples. Blyth asserts that it is common in Burmah; but I notice that Mr. Oates did not procure it in Pegu, nor Dr. Armstrong in the Irrawaddy delta. Speaking of Teuasserim, Mr. Hume remarks that it occurs nowhere in the province. If it occurs in Northern Burmah, it must extend thither across to Siam; for in the national collection I have seen a specimen from that country not to be separated from Indian ones. Regarding its range northward of the Himalayas, it is difficult to speak with certainty; I find that it is doubtfully included by Dresser in Severtzoff's list of Turkestan birds, reference being made to a Pigeon said by the latter to breed throughout the country up to elevations of 4000 feet. Both *C. livia* and *C. rupestris* are found in Turkestan.

Habits.—In Ceylon the Blue Rock-Pigeon is essentially an inhabitant of out-of-the-way, wild, and little-frequented spots; the country does not, like India, abound in inland walled towns, temples, and pagodas, which there are the natural resort of the species; and it is consequently driven to such rocky localities as I have alluded to above, and is not therefore nearly such a well-known bird as in India. The eastern and northern divisions of the island, however, teem with so many remarkable rocky masses, towering far above the circumjacent forests, such as the Friars Hood, "Westminster Abbey," the Elephant rock, the "Gunner's Coin," Sigiri and Dambulla rocks, Rittagalla, Mahintale, and a host more of nature's mighty castles, the very resorts of all others for the "Blue Rock," that it has always been a wonder to me that the species is not far more numerous than it is—the only solution of the problem being that these natural strongholds are situated too much in forest-country, besides which there is a lack throughout Ceylon of the extensive cultivated tracts which are necessary to the existence of this Pigeon.

The islet off Nilāvele is a mass of rock, its coast-line consisting of enormous boulders, and its summit divided by large crevices into huge "humps" of stone, on which, as well as on the surrounding masses, the Pigeons perch in scores. They fly across to the mainland in the early morning, and make their incursions over the adjoining paddy-fields, returning about noon to their stronghold, where, though they are difficult of approach when not feeding, they seem to evince little fear, owing probably to their being crammed with food. On the occasion of a visit to this spot with a friend we shot numbers, but did not succeed in driving away the flock, for they flew round and round over the water, and speedily realighted on the rocks. About 3 o'clock they start off again to the mainland, flying very strongly; and they may be met with almost anywhere along the adjoining sea-board during the afternoon. I have seen two or three at times feeding on the salt flats round the Nilāvele

lake, but what they were picking up I do not know. They are very destructive to the paddy, and devour an enormous quantity at a time, extending their crops with it to such an extent that I have taken a moderately-sized salt-cellar full from a specimen I was skinning.

In India they assemble in vast flocks in the cold season, and there no doubt do great damage wherever there is grain. As I have already set forth in my quotation from Jerdon, they dwell chiefly in architectural and not natural strongholds, the many temples, mosques, tombs, &c. with which the country abounds affording them ample shelter in districts where there are no rocks and caves. These resorts are, *primâ facie*, building-places, but are used as nightly roosting-abodes, and the Pigeons can be strictly said to dwell there. The note of this Pigeon much resembles that of some of the domesticated varieties of the "Rock;" it is entirely a grain-feeder, and does not, as far as I am aware, perch on trees.

Nidification.—In the Trincomalie district these Pigeons breed in May and June; I have shot the young birds in October, but have never taken the eggs. In India Mr. Hume writes that the breeding-season lasts from Christmas until May-day, and observes as follows:—"The nest is chiefly composed of thin sticks and twigs, but is often more or less lined with leaves of the tamarisk, feathers, &c. When undisturbed they will breed in incredible multitudes. At the grand old fort of Deig in Bhurtpoor, where, as in most parts of Rajpootana, they are sacred, and even a European who molested them would risk his life, several hundred thousand pairs must live and breed; a gun fired on the moat towards evening raises a dense cloud, obscuring utterly the waning day, and deafening one with the mighty rushing sound of countless strong and rapidly-plied pinions."

The eggs are glossy pure white, varying a good deal in size and shape, and averaging from 1.45 to 1.12 inch.

GENUS TURTUR.

Bill slender, the horny apical portion much less than the soft basal part, and slightly arched. Wings moderately long and pointed, the 2nd or the 3rd quill the longest. Tail large, rounded at the tip; graduated in some. Legs and feet somewhat slender; the tarsus longer than the middle toe, covered with broad transverse scutes in front. Lateral toes equal.

Of delicate form. Head small. Neck ornamented with a demi-collar or patch of pale-tipped feathers.

TURTUR RISORIUS.

(THE COMMON INDIAN DOVE.)

Columba risoria, Linn. Syst. Nat. i. p. 285 (1760).

Turtur risorius, Blyth, Cat. B. Mus. A. S. B. p. 238 (1849); Kelaart, Prodrömus, Cat. p. 130 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiv. p. 59; Blyth, Ibis, 1867, p. 151; Swinhoe, P. Z. S. 1871, p. 397; Hume, Str. Feath. 1873, p. 218; Adam, *t. c.* p. 390; Hume, Nests and Eggs, iii. p. 506 (1875); id. Str. Feath. 1875, p. 165; Butler & Hume, *ibid.* 1876, p. 3; Fairbank, *ibid.* 1877, p. 409.

Turtur risoria, Jerdon, B. of Ind. iii. p. 481 (1864); Holdsw. P. Z. S. 1872, p. 467; Legge, Ibis, 1874, p. 26; Ball, Str. Feath. 1878, vii. p. 224.

The Common Ring-Dove, The Collared Turtle-Dove of authors; *Turtle-Dove, Grey Dove*, Europeans in Northern Province, Ceylon. *Pomba de Cinsa*, Portuguese in Ceylon; *Dhor fachta*, Hind. in the south; *Kalhak, Pauk-ghughu*, Bengal.; *Pedda bella-guwa*, Telugu (Jerdon); *Ringel Duyven*, Dutch in Ceylon; *Cally-prāā*, Ceylonese Tamils (from "Cally," *Euphorbia*), Layard.

Kobæya, Sinhalese.

Adult male and female. Length 11·8 to 12·5 inches; wing 6·2 to 6·5; tail 5·1 to 5·5; tarsus 0·95 to 1·0; middle toe and claw 1·05 to 1·2; bill to gape 0·9.

Iris crimson; orbital skin bluish white; bill blackish; legs and feet purple-red; claws black.

Head, nape, sides of neck, throat, fore neck, and breast delicate vinous grey, the head marked with ashy, the breast passing into delicate bluish ashy grey on the lower parts; chin white; round the hind neck to about the centre of its sides a black collar, the feathers above it edged with delicate bluish white; lower part of hind neck, back, wing-coverts, upper tertials, upper tail-coverts, and central tail-feathers above brownish grey, suffused with bluish ashy on the sides of the rump, and with the scapulars and lesser wing-coverts edged pale; primaries dark brown, with pale margins towards their tips; primary-coverts and secondaries with their coverts, together with the feathers at the point of the wing, bluish ashy; beneath, the basal part of all but the central rectrices black, with the terminal half white, the upper surface being suffused with bluish ashy, and washed outwardly with brownish towards the centre of the tail; on the lateral outer web the black projects towards the tip; under tail-coverts darker ashy than the lower parts, and the under wing-coverts ashy white.

Young. Immature birds are said to be reddish above: some that I have seen have the head vinous grey; these are probably not adults.

Obs. A comparison of examples from Kamptee with my Ceylonese skins enables me to say that our birds are not characterized by any tints not present in Indian birds; the birds in question are identical with mine as regards the hues of the back, head, and underparts: wing 6·4 inches. The specimens from Gor es Safiek, Palestine, are slightly paler than mine in the back, but otherwise the same; they are slightly larger—wing 6·6 and 6·7 inches respectively. A Baluchistan skin is brown on the back and head, and the chest is more ruddy than others.

Mr. Hume separates the Turkestan race (Str. Feath. 1874, p. 519) as *T. stoliczkae* on account of its larger size, broader and whiter nuchal collar, and more deeply tipped tail-feathers. The wing in his type specimen measures 7·35 inches. There is much difference of opinion as to which species the Domestic Ring-Dove sprung from originally; Blyth says:—"Of several kindred races I do not know one that can be satisfactorily assigned as the true origin of the common cage-bird." The note of the latter is quite different from *T. risorius* and it is smaller. The two interbreed well.

Distribution.—The Turtle-Dove is remarkably local in Ceylon, being apparently a bird of the driest districts of the north of the Jaffna peninsula and the west coast down as far as Puttalam. The note is so very peculiar and so totally unlike that of *T. suratensis*, the common Ceylon species, that it cannot fail to serve as a sure

guide to the distribution of the bird. I found it common all over the Jaffna peninsula, frequenting even the mangroves on the borders of the great swamp near Ethelumaduvil; it was also met with on the islands, and on the Erinativoe group, on the coast between Kalmunai Point and Mantotte, and in Manaar Island in great abundance. About Aripu and Salavatori it was more numerous than in the peninsula; and here Mr. Holdsworth records it as very abundant. I understand it is found near Puttalam as a straggler; but south of that place, at Chilaw, I only saw *T. suratensis*. It is never seen at Trineomalie; but it probably ranges down the coast to Mullaittivu, where the country is open. I did not see it anywhere on the south-east coast; but I cannot but think that it occurs there about Yāla, as Layard says it is found wherever the *Euphorbia*-trees abound. At present, as far as I know, its range is much the same as the Grey Partridge (*Ortygornis pondicerianus*). Mr. Simpson, who has travelled over all the north-west of Ceylon, both in the interior and on the coast, tells me that it does not extend far inland from Mantotte, but is essentially a bird of the coast-districts.

Throughout the whole Indian empire it is a common bird in suitable open country; Jerdon says that it is rare in Malabar, and generally in forest country. The Rev. Dr. Fairbank found it in the plains by the Palanis, but not so abundantly as in the Deccan, where it occurs, he says, everywhere. Following it first, as is my rule, in a north-westerly direction, we find that Messrs. Butler, Adam, and Hume all record it as abundant in the Sindh, Guzerat, and Rajpootana divisions; Captain Butler says that it abounds all over the plains, but does not occur in any numbers in the hills. Beyond the confines of India it extends into Baluchistan, where Mr. Blanford met with it; he was likewise informed by Major St. John that he saw a pair in captivity at Isfahan, said to have been taken from a nest there. Canon Tristram states that it is a permanent resident round the Dead Sea ('Ibis,' 1868, p. 211), and that in spring its numbers are largely increased, when it spreads itself throughout the greater part of Palestine to Mount Tabor, living in small flocks of eight or twelve. Mr. Taylor procured it at Constantinople, and there, as also in some of the Macedonian villages, Messrs. Elwes and Buekley state that it is common.

All across continental India to the Calcutta district it is of course found, and northwards of that region ascends the Himalayas as high as Mussoorie to breed. In that neighbourhood, says Captain Hutton, it arrives at the end of March, leaving again for the plains in October. Throughout Chota Nagpur it is found, and elsewhere Mr. Ball records it from Bardwan and Orissa north of the Mahanadi river. In Furreedpore Mr. Cripps records it as an abundant permanent resident. I do not know whether it extends from Dacca over into Cachar; but in Pegu, according to the experience of Messrs. Feilden and Oates, it does not appear to be common; and southward of that province it does not extend into Tenasserim. The Ringed Dove found in China is admitted to be the same as our species. Wallace includes "Chinese Asia" in the distribution of *T. risorius*; and Swinhoe identified a specimen from Tokio, in Japan, as belonging to it. Swinhoe records it from villages about the Great Wall, but not from Peking itself; and Oustalet remarks that it is found in the north-west provinces of China and on the confines of Mongolia.

Habits.—In Ceylon dry open country dotted with small trees and clumps of scrub is suitable to the habits of this Pigeon. It also affects isolated groves of mango and other trees and cocoanut and palmyra topes in the Jaffna peninsula; and in this district I likewise found it in mangrove-jungle. In the island of Manaar it dwells in the thorny scrub abundant near the town, seating itself often on the limbs of the huge baobab-trees, and giving out its melodious love-note. Its voice is much deeper than that of the Spotted Dove, and appeared to my ears to be well rendered by the words *coo-hōō-kuk* often repeated, the second syllable being deep and long-drawn in tone. Blyth, however, who remarks on its note being very different from that of the Domestic Turtle-Dove, considers that it may be expressed by *kookoo-koo*, *kookoo-koo*. It is a pleasing sound when heard in the early morning in the low scrubs lining the north-western coast of Ceylon; and I remember well, having beached my canoe at midnight on the sands beneath the ruins of the Dutch settlement at Aripu, being awake at dawn, as I lay in the little bamboo "crib" constructed on the outrigger-spars of the craft, by the soft cooing of the doves and the harsh cackle of the similarly distributed Grey Partridge, with which the low jungle on that coast abounds.

This Dove has a great partiality for *Euphorbia*-trees (*E. antiquorum*), and was considered by Layard to be abundant wherever this tree grew; be this as it may, it certainly is usually found about these trees in the north, and I was surprised that I did not hear its note anywhere in the south-east, where the *Euphorbia* abounds.

Its Tamil name in the north of Ceylon is derived from this liking to the tree in question. In the north-west portion of India it exhibits a similar taste, Captain Butler writing that "it is particularly partial to clumps of babool-trees, *Zizyphus*-bushes, and *Euphorbia*-hedges." It is essentially granivorous in diet, feeding on grass-seeds as well as corn of various kinds; and in crop-season is stated by Mr. Cripps to collect in flocks of ten to thirty for the purpose of feeding on grain. Its flight is strong, but not, I think, so swift as that of the Spotted Dove.

In South-eastern Europe it manifests a particularly tame disposition; for Messrs. Elwes and Buckley, in their paper on the birds of Turkey, say that it loves "the neighbourhood of dwellings, and may be seen sitting like a sparrow on the roofs of the houses, where it is never molested by the Turks."

Nidification.—Layard writes concerning the nesting of this Dove:—"It breeds in the spring, fabricating a loose careless nest of small twigs in the *Euphorbia*-trees, in which it deposits two oval and shining white eggs: axis 14 lines (1·14 inch), diameter 11 lines (0·84 inch)." When I was in the Jaffna district, in March 1876, I ascertained by dissection that it was then breeding, but did not find its nest.

In the Mount Aboo district, according to Captain Butler, it breeds in great quantities at the end of the rains, commencing to lay about the second week in August. Writing of a district on the opposite side of the peninsula (Furcedpore, near Calcutta), Mr. Cripps says, "This species breeds from December till July in small bushes and trees at from 6 to 12 feet from the ground, in very exposed situations. The nest is a mere apology of twigs, and never contains more than two eggs." Mr. Hume considers that it breeds throughout the year, having taken the eggs himself "in every month from December till August." Although the nest is usually placed on a tree or bush, it has been known to nest on bare ground; my late friend, Mr. A. Anderson, to whom we are indebted for so much information concerning the nesting of Indian birds, writes:—"On the 20th of November (1875), while drawing sandy downs covered with low flowering grass, such as the *Desert fox* delights in, a dove was flushed from off her nest, which contained a pair of fresh eggs. These clearly belonged to *T. risoria*; but not having seen the bird myself, and identification in a case of this sort being a matter of absolute necessity, I replaced the eggs, and subsequently shot one of the parent birds.

"The nest, if such it can be styled, consisted of a few dry twigs and grass-stalks which rested on the bare sand. There was no tree nearer than a mile; but the ground on all sides was covered with grass-seeds, which constitute the chief food of these birds; and this pair were evidently sensible enough to adapt themselves to the force of circumstances."

Mr. Hume describes the eggs as broad perfect ovals, white and glossy; the majority have a just perceptible ivory tinge, and average in size 1·16 inch in length by 0·92 inch in breadth.

TURTUR SURATENSIS*.

(THE SPOTTED DOVE.)

Columba suratensis, Gmel. ed. Syst. Nat. i. p. 778 (1788).

Turtur suratensis (Gm.), Blyth, J. A. S. B. 1845, xiv. p. 874; id. Cat. B. Mus. A. S. B. p. 236 (1849); Kelaart, Prodrum, Cat. p. 130 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiv. p. 60; Jerdon, B. of Ind. iii. p. 479 (1864); Blyth, Ibis, 1867, p. 150; Holdsw. P. Z. S. 1872, p. 467; Adam, Str. Feath. 1873, p. 390; Ball, ibid. 1874, p. 425; Hume, Nests and Eggs, iii. p. 504 (1875); Legge, Ibis, 1874, p. 26, et 1875, p. 275; Butler & Hume, Str. Feath. 1876, p. 3; Fairbank, *t. c.* p. 262, et 1877, p. 409; Ball, ibid. 1878, vii. p. 224; Cripps, *t. c.* p. 297.

Turtur ceylonensis, Reichenbach, Tauben, p. 73.

Tourterelle de Surat, Sonnerat; *The Speckled Dove*, Sportsmen in India; *Turtle-Dove*, Europeans in Ceylon. *Chitroka fachta* and *Chitla*, Hind.; *Chaval-ghughu*, Bengal.; *Poda bella guwa*, Telugu; *Pulipora*, lit. "Spotted Pigeon," Tamil; *Bode* of the Gonds; *Ku-er-pho*, Lepchas; *Piap-chu*, Bhotias; *Pomba de Cinsa*, Portuguese in Ceylon; *Mani-prāṭ*, lit. "Bead-Dove," Ceylonese Tamils.

Kobæya and *Allu-kobæya*, Sinhalese.

Adult male and female. Length 11·2 to 11·5 inches; wing 5·1 to 5·4; tail 5·25, lateral feathers 1·5 shorter than the central; tarsus 0·8 to 0·9; middle toe 1·05 to 1·1; bill to gape 0·65 to 0·7.

Females are, as a rule, smaller than males.

Iris mottled pink or reddish outwardly, with a brown inner circle; orbital skin red; bill dark leaden, in some slightly suffused with a reddish hue; legs and feet lake-red.

Head, nape, throat, fore neck, and breast vinaceous ashy (the ruddy tint of the lower parts variable), paling into whitish ashy on the forehead and cheeks, and albescent at the chin; a black line through the lores and a broad black patch reaching from each side of the hind neck across it, and blending into the smoky ashy brown of the back, scapulars, and tertials, each feather of the collar divergent at the tips and with two white terminal spots, those of the back with rufous-grey spots; the wing-coverts and tertials with a terminal black spot spreading up the shaft and set off by an isabelline or greyish-red spot on each side; quills blackish brown; point of the wing and the greater wing-coverts delicate bluish grey, the feathers on the former part with a black central stripe; upper tail-coverts and four central tail-feathers brownish ashy, the coverts with a dark terminal spot and a light one at each side of it; remaining tail-feathers black on the basal half and white on the rest, with the upper surface pervaded with ashy; lower parts albescent, blending into the ruddy of the breast; under tail-coverts white, frequently with blackish terminal spots.

Young. When first hatched the nestling is covered with white hair-like plumes above, and with slightly rufescent feathers beneath. Immature birds have the feathers of the breast and fore neck narrowly tipped with blackish grey.

Obs. The Ceylonese Spotted Dove was separated by Reichenbach from the Indian on account of its smaller size. I find, on comparing my specimens with others from India in the British Museum, that the wings of the latter do, as a rule, average larger than those of insular birds; but the difference is not sufficient, in a bird of the size of this Dove, to warrant our separating the Ceylon race. I find, for example, a specimen from the North-west

* This Dove, which belongs to Bonaparte's section of the Turtle-Doves (*Tigrini*), differs from the last in the spotted character of the neck-patch feathers, which are furcate at the tips; the tail is likewise graduated.

Himalayas, collected by Capt. Pinwell, measures 5·6 inches in the wing, which is only 0·1 more than large Ceylonese individuals. Some Indian specimens are characterized by a stronger blue tint on the head than is noticeable in most Ceylon birds.

Allied to the present species is *Turtur tigrinus*, from the Malay peninsula, Sumatra, Java, Celebes, Lombok, Timor, and other islands. It differs chiefly in its plain or unspotted back, and in the different colour of the spots on the wing-coverts, these being more rufous than in *T. suratensis*. It is, however, a darker bird, and has the abdomen and flanks of a warm fulvous colour, and the isabelline of the chest and breast deeper than in its Indian ally. The wings of four examples in the national collection, from the Malay archipelago, vary from 5·5 to 5·7 inches. A Labuan specimen has the under surface lighter than any others, and the head bluer. In the Malay peninsula and Tenasserim, and also in Burmah, this species, according to Mr. Hume, passes through intermediate races, approximating, in the latter region, to the Indian bird, where it has the vinaceous spots of true *suratensis* reduced to narrow lines, with the dark feather-centres and tips of *tigrinus*. This race would, however, in my opinion, be more related to the former than the latter species, which is distinguished by having no pale markings at all on the back. *T. chinensis* is another species, larger than *T. tigrinus*, and perfectly plain on the back, without the dark central lines, and with the under surface darker.

Distribution.—This is an exceedingly numerous bird in Ceylon, being more or less diffused over the whole of the low country, in parts of which it is remarkably abundant, and is likewise an inhabitant of the Kandyan province up to an altitude of 3000 feet or more. Common and well known in the immediate vicinity of Colombo, it is equally so throughout the interior of the Western Province, inhabiting suitable localities in the well-wooded district of Saffragam, and likewise in the equally sylvan and hilly tract of country in the south-west of the island. It is independent of climate, for it is almost quite as common in the dry section of country eastward of the southern ranges; and in the open tracts, surrounded by wood, of the Eastern Province, and thence north to Trincomalee, I scarcely ever failed to meet with it. It is found in the interior of the northern division of the island wherever there is open land, on the borders of tanks, paddy-fields, or clearings surrounding jungle villages. In the extreme north it is common, but in places not so abundant as the last. Layard found it numerous in the Jaffna peninsula, and so did Mr. Holdsworth at Aripu. I have observed it in Dumbara and in the Kuekles, Deltota, Hewahette, and Pusselawa districts, as also in Uva; but I do not think it ranges much higher than these upland valleys, where it affects the vicinity of the “terraced” paddy-fields of the Kandyans.

It is generally distributed throughout India from the extreme south to the Himalayas, which it ascends to an altitude of 7000 feet. “As a rule,” says Jerdon, “it is most abundant in forest districts or well-wooded countries, and is consequently rare in the bare Carnatic tableland, the Deccan, and the North-western Provinces generally; and most abundant on the Malabar coast up to Surat, Lower Bengal, and the foot of the Himalayas.” It breeds throughout Nepal, according to Mr. Hodgson, and in Upper India, says Mr. Hume, “chiefly affects the submontane districts, whence, as summer approaches, many migrate to the lower forest-clad hills and valleys, where also a good many are permanent residents. In dry tracts such as Cawnpore, Etawah, and Agra they are but rarely seen, and still more rarely found breeding, while at Bareilly, Bijnour, and Shahjehanpore they are the commonest Dove.” Of late it has been recorded by the Rev. Dr. Fairbank as the most common Dove at the base and on the lower ranges of the Palanis, and also as being abundant on the western slopes of the Mahabaleshwar hills; by Mr. Davidson as common at Sholapoor in the Deccan during the rains; by Mr. Ball as occurring at Bardwan, in the Rajmehal hills, at Midnapur, Manbhum, Lohardugga, Sambalpur, Orissa, Nowagarh, and Karial, and throughout Chota Nagpur, not being, however, so common there as the last species. In the north-west of the empire it is not so numerous, for Capt. Malden only met with it in Upper Sindh. In the wooded districts near Mount Aboo it is common, but near Deesa, according to Capt. Butler, it is only found during the rains; and this is also the case about the Sambhur Lake. In Furreedpore and about Calcutta it is common and resident. It does not seem to extend beyond Daeca towards the east, for I find no comment concerning it in the ‘List of the Birds of Caehar;’ while in Burmah it seems to exist in an intermediate form more nearly related to itself than to its Malayan ally *T. tigrinus*.

Habits.—Wherever there are trees surrounding, or encircled by, open places, this familiar little Dove

is sure to be found. It delights in the bushy trees which here and there have been left standing in the cinnamon-gardens, and after it has satisfied its appetite on the grass-seeds which it finds in abundance in this locality, flies about from tree to tree, or takes up its perch on an outspreading branch and coos to its mate. When perched it is very wary and scarcely ever lets one approach it within gun-shot; but when feeding in a newly-cut paddy-field, or about the native thrashing-places (which it constantly frequents, even months after the grain has been gathered in), or on a road where it scrutinizes the dried-up droppings of cattle or horses, or while elegantly tripping over some newly-burnt jungle-clearing (another favourite resort), it will not rise till approached within a moderate distance, when, taking a few hurried paces, it will fly off with a Pigeon-like clapping of its wings and settle down in the nearest inviting tree. In the interior every paddy-field, every clearing in the forest, and every cheena under cultivation has its attendant flock of Doves, which find abundant sustenance in the grain or grass-seeds of such resorts. Its *coo* is a plaintive note, not nearly so deep as that of the last species. It is, as Blyth remarks, difficult to express in writing, and he likens it to the syllables *oot-raow-oo-oot-raow-oo*.

Its flight is swift and graceful; and during the breeding-season it indulges in sundry careerings on the wing, rising in the air and then circling down with outspread wings to its perch, these performances being apparently for the mutual gratification of the happy pair during this joyous time of their existence.

From the clever pen of Layard we have the following passage eminently descriptive of this habit:—"The male bird will at such times soar away from the branch on which his 'meek-eyed' partner is reposing to a considerable altitude, rising almost perpendicularly and clapping his wings together over his back, then opening them and spreading his tail he sails downwards in decreasing circles and graceful curves to the object of his affections, who greets him with the tenderest and blindest cooings, and, while he struts and pouts before her, caresses his head and wings with her bill. The fervour of their love being assuaged, away they both soar in the fulness of their joy, to descend again in undulating curves, crossing and recrossing each other with the most easy and graceful flight, to the more sober and matter-of-fact work of collecting building-materials for the nest."

They feed in the mornings until about 9 A.M., and then again in the afternoon, commencing about 3 o'clock, when they may generally be seen on the ground at the edges of woods, copses, and groves, or on native compounds often not far from the cottages.

Nidification.—In the Western Province this Dove breeds from March until June, after which it no doubt lays again, for the eggs may be taken almost at any time of the year. I have found the nests in bushy umbrageous trees at about 10 or 15 feet from the ground, generally situated near the end of the branch, also on low date-palms (a favourite situation), placed near the trunk at the origin of the frond. They are made of fine twigs neatly laid over one another, some of them interlaced so as at times to form a firmly constructed fabric, in the centre of which there is a just perceptible hollow. The eggs are two in number, exact ovals, glossy, and pure white, measuring from 1.0 to 1.12 inch in length by from 0.8 to 0.15 inch in breadth.

According to most observers in India, its nest is generally very exposed and often placed on low bushes, where it can be seen by the most casual observer; and it is therefore no wonder that the eggs are frequently taken by such incorrigible thieves as the Indian Corby and Common Magpie (*Dendrocitta rufa*). Mr. Thompson, in writing of its nidification in the Lower Himalayas, where it is abundant, says:—"On a nest being robbed the parent birds will forthwith set to work and build another; and if that be robbed in its turn, they will still go on seeking new sites, building new nests, and laying fresh eggs."

"The female sits very close on her nest; but if forced from it she will at times fly or, in fact, throw herself down on the ground before the intruder, and will then mimic before his astonished gaze all the actions and efforts of a wounded bird trying to escape its pursuers, and thus endeavours to turn him from the nest." Mr. Hume gives the average of 33 eggs as 1.06 by 0.82 inch, which is no larger than that of the Ceylon bird, notwithstanding its slight inferiority of wing.

TURTUR TRANQUEBARICUS.

(THE INDIAN RED DOVE.)

Columba tranquebarica, Herm. Obs. Zool. p. 200 (1804), ex Tranquebaria.

Turtur humilis (Temm.), Blyth, Cat. B. Mus. A. S. B. p. 236 (1849); Kelaart, Prodromus, Cat. p. 130 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiv. p. 60; Jerdon, B. of Ind. iii. p. 482 (1864); Hume, Str. Feath. 1873, p. 218; Ball, *ibid.* 1874, p. 425; Hume, *ibid.* 1875, p. 165; *id.* Nests and Eggs, iii. p. 507 (1875); Butler & Hume, *ibid.* 1876, p. 3; Fairbank, *t. c.* p. 262.

Turtur tranquebarica (Herm.), Hume, Str. Feath. 1876, p. 293; Davidson & Wender, *ibid.* 1877, vii. p. 86; Ball, *t. c.* p. 224; Cripps, *t. c.* p. 297; Hume (List Ind. B.), *ibid.* 1879, p. 110.

The Ruddy Ring-Dove of some Indian writers. *Seroti-fachta*, Hind.; *Golabi-ghughu*, *Tumakhuri*, lit. "Rose-coloured or Copper-coloured Dove," Bengal.; *Rah-guwa*, lit. "Tile-coloured Dove;" also *Peri-aripu guwa*, Telugu.

Adult male. "Length 9.42 inches; wing 5.25, expanse 16.0; tail from vent 3.42; tarsus 0.80; bill from gape 0.81, at front 0.58; weight 3.5 oz." (*Cripps*). Jerdon's measurements are:—"Length 9.25 inches; wing 5.5; tail 3.25." Nepal (British Museum): wing 5.5 inches; tail 4.0; tarsus 0.75; middle toe 0.75; bill to gape 0.78.

Obs. This example would appear to be much larger than those from the low country, as exemplified by the above measurements and Mr. Hume's statement that 9.25 inches total length (wing 5.25) is the average of five males. "Iris brown; bill black; legs and feet horny black" (*Cripps*).

Male (Nepal). Head and nape slate-blue, paling on the face and forehead; below the neck a broad black demi-collar, set off above by a whitish edge; lower part of the hind neck, interscapular region, terminal portion of the wing-coverts, and the innermost secondaries, together with the fore neck, chest, and breast vinous red, paler and also pervaded with ashy on the breast and fore neck; back, rump, and upper tail-coverts dark plumbeous, paler on the tail-coverts than on the back; primaries brownish slate, with pale edges; secondaries the same, tinged with reddish on the outer webs; basal portion of the wing-covert feathers slaty; central tail-feathers brownish slate-colour, the lateral pair white on the outer webs and black on the basal part of the inner webs; remaining feathers whitish, tinged with slaty near the tips, and darkening into blackish at the bases; flanks leaden grey; vent and under tail-coverts bluish white; under wing *pale slaty grey*.

Female. Back and wings dull reddish brown, and the breast and under surface pale earthy grey, whitish on the lower parts; wing 5.1 inches.

Obs. I have adopted for the bird procured by Layard in the Jaffna peninsula the title used of late for the Indian Ruddy Dove, instead of that under which it was formerly known, and which is now considered to be better applied to the species inhabiting the Philippine Islands and China. Lord Tweeddale, in a paper on the birds of the Philippine Islands, has recently pointed out the distinction between the two races. The eastern form, *T. humilis* (with which Mr. Hume unites the bird inhabiting the Andamans, Tenasserim, and Burmah), differs in being larger and of a darker red beneath, with the head, rump, and under tail-coverts of a darker ash-colour than the Indian race; the under wing is also *dark ash-colour* instead of pale ashy. It is a matter of conjecture, however, which race Temminck referred to, for he united the two under his title of *humilis*, inasmuch as he remarks—"This species inhabits Bengal and the island of Luzon."

It matters not, however, whether Temminck referred to and figured (Pl. Col. 258, 259, 1838) the Indian or the Philippine bird as far as the former (that which we have to do with) is concerned, for Hermann's title is of thirty-four years' prior date to his; and as the specimen he named came from Tranquebar, in the Carnatic, the matter is settled.

Mr. Hume gives the measurements of the wing of *T. humilis* as generally 5.5 inches or more; but it will be seen that a Nepal specimen belonging to the Indian form measures as much as this. Hill specimens may, however, average larger than those from Bengal.

Distribution.—This little Dove appears to have visited the north of Ceylon many years ago, but does not seem to have been subsequently noticed in the island. Layard, its discoverer as a Ceylonese species, writes a long account of his meeting with it in a tope of cocoanut- and palmyra-trees, situated in the middle of the plain separating the cultivated district of Pt. Pedro from the fertile country between Jaffna and Chavagacherry. The writer cleverly describes the difficulty he found in crossing this waste in the hot season, when every thing was parched up by the burning rays of a tropical sun, combined with the drought that prevails at that time in the Northern Province. His duty compelled him to visit the tope in question; and after speaking of the effect which the heat had upon himself, his dogs, and the native attendants, he continues:—"The mirage deluded us with its pictures of limpid water and tall trees, my spirits almost sank, and I thought I never should reach the trees before us in the distance. How willingly would I, had I been a litigant for that miserable tope, have resigned it rather than have taken the trouble to walk to it! Suddenly—the first living thing I had seen for hours—a Pigeon darted past us in full flight towards the tope; I hardly cared to look at it with my half-closed aching eyes; but its pink-coloured back and small size at once roused me—it was something new! O, how eagerly I watched its flight to that now coveted tope, and longed to be there. The natives knew of no other species but the '*Cally*' and '*Māni prāās*,' and stoutly maintained there were none; I was equally positive the bird that flew by was neither of *them*, and hurried forward; thirst and heat were alike forgotten; and when I reached the spot, instead of partaking of the cocoanuts which the head-man's forethought had provided there for me, I sprang on the low wall and peered eagerly among the trees. *Turtur suratensis* and *T. risorius* perched about the branches in abundance, and—could I believe my eyes?—on a dry leafless 'matty' projecting from a palmirah tree, and supporting the twigs of a nest, sat a pair of the lovely little *T. humilis*. There they were, 'billing and cooing,' in sweet but dangerous proximity, for the same shot laid them both dead at my feet, and in another minute a native lad who had followed me brought down two shining, smooth, white eggs from their nest. This was not the only pair in the tope, and I soon procured half a dozen specimens, and might have killed as many more. An old head-man who was with me, and who had the reputation of being the best sportsman in my district, assured me he had neither seen nor heard of this description of Pigeon before; and so said all present, some of them old men who had spent their lives in that neighbourhood. I had lived more than a year in the district and killed dozens of Doves without finding one; nor did I ever after, though I often shot along the cultivation at the edge of the plain, meet with them. Had they bred there that year only? where did they come from? why did they select that lonely tope and keep so closely to it? I left the district and never could learn, nor did I ever find any native who had met with them in other parts of the island. Dr. Kelaart knew nothing of it, and only included it in his list on Mr. Blyth's authority, and I furnished the latter with data; so whether the little colony raised their young and departed, or breed there still, 'remains an untold tale.'"

Civil servants and others collecting in the north of Ceylon would do well to ascertain whether this Dove ever visits the island now.

Jerdon says that this species is "found throughout the whole of India to the foot of the Himalayas and the Punjab, avoiding the Malabar forests and generally the jungly and hilly countries; and not very common in Lower Bengal." These remarks appear to be very correct, for I do not find it recorded from either the Travancore or Palani hills. Concerning the low country of the Carnatic we have no recent information; but we know that Hermann's specimen came from Tranquebar, on the coast of that part which runs due north on the Indian side of Palk's Straits; and thence it probably visited Ceylon *via* Point Calimere. It is common in the Deccan, and found in the Ahmednagar district in flocks in the cold season. Further north on the same side of the peninsula it is recorded by Captain Butler as common in the plains round Mount Aboo, and met with in most parts of the hills; at the Sambhur Lake Mr. Adam says it is plentiful, breeding there throughout the year. Writing of the north of India, Mr. Hume remarks that it is very capriciously distributed. "It is common," he says, "in some dry well-cultivated districts like Etawah, where there are plenty of old mangroves. It is very common in some of the comparatively humid tracts like Bareilly, and again in the sâl-jungles of the Kumaon Bhabur and the Nepal Terai; on the other hand, over wide extents of similar country it is scarcely to be seen." Mr. Ball records it from Sambalpur and Orissa to the north of the river Mahanadi, and likewise from Lohardugga and Manbhum; while writing of Chota Nagpur generally, he says that it is found throughout the province, and most common in Sirguja. In Furreedpore, east of Calcutta, it is far from common, according to Mr. Cripps, although a resident species.

To the eastward of the Bay it is replaced by the larger darker form already alluded to, and which is recorded from the Irrawaddy delta, Rangoon, and Tenasserim. The Pegu specimens appear to belong to the Indian race (Str. Feath. 1875, p. 165).

Habits.—As already remarked, this pretty little Dove is capricious in its selection of country, there being something in its food or mode of life which restricts its distribution, but which naturalists do not seem to be acquainted with. In some districts, such as Sambhur, it is fond of arid places, and in others, such as Furreedpore, the converse is the case, for Mr. Cripps remarks that it frequents woods more than either of the two last species. Its food mainly consists of grass-seeds; but when grain is procurable it must levy heavy contributions on it, as do all its congeners.

Jerdon writes of it as affecting "large groves of trees near cultivation, often feeding under the shade of trees, but also betaking itself to fields, grass-downs, and bare spots near rivers and tanks. Its *coo* is short, deep, and grunt-like." Like other Doves, it thrives in confinement, and will, according to Blyth, breed in an aviary.

Nidification.—Layard does not mention at what season he procured his birds, which, it will be perceived, were nesting; but I conclude it was about April, as at that season the plain he speaks of is dried up. Mr. Hume writes:—"I have always found the nests at or near the extremities of the lower boughs of very large trees, at heights of from 8 to 15 feet from the ground, and laid across any two or three horizontal branchlets. As a rule the nests are excessively light structures, composed of a few slender sticks or grass-stems, or both, so loosely and sparsely put together that the eggs can generally be espied from below through the bottom of the nest." The eggs are two in number, and more elongated than the other species of Indian Doves' eggs, glossy, and generally of an ivory-white colour. They average in size 1·02 by 0·8 inch.

TURTUR PULCHRATUS.

(HODGSON'S TURTLE-DOVE.)

Columba pulchrata, Hodgs. in Gray's Zool. Miscell. p. 85 (1831).

Turtur orientalis (Lath.), Blyth, Cat. B. Mus. A. S. B. p. 236 (1849, in part); Layard, Ann. & Mag. Nat. Hist. 1854, xiv. p. 62; Dresser, B. of Europe, pt. lv. & lvi. (1876, in part).

Turtur rupicola (Pall.), Jerdon, B. of Ind. iii. p. 476 (1864); Blyth, Ibis, 1867, p. 149; Holdsw. P. Z. S. 1872, p. 467; Adam, Str. Feath. 1873, p. 390; Brooks, ibid. 1875, p. 256.

Turtur pulchrata (Hodgs.), Hume, Nests and Eggs, iii. p. 500 (1875); Butler & Hume, Str. Feath. 1876, p. 3; Hume (List Ind. B.), ibid. 1879, p. 110.

? *Turtur meena* (Sykes), Fairbank, Str. Feath. 1876, p. 262.

Adult (Nilambe). Wing 7·3 inches (abraded at the tip); tail 5·3 (abraded); tarsus 2·0; middle toe 0·95; bill to gape 0·9.

Iris orange (?); bill dusky slate, reddish at the base of the upper mandible; legs purplish red.

Head, back and sides of neck, and interscapular feathers ashy, shading at the margins into dull rust-colour, which is most prominent below the nape and almost absent on the forehead; the interscapular feathers slaty at the centres; back and rump ashy blue, pervaded on the upper tail-coverts with brownish, and the feathers there paling into rufous-grey at the tips; scapulars, lesser median, and inner greater wing-coverts black in the centre, passing with a slaty hue into broad *brick-red margins*; the outermost feathers of the lesser series, and nearly all the greater covert feathers, ashy blue, those adjoining the red-edged feathers shaded on the inner webs with rust-colour; primaries and secondaries slaty brown, pale at the tips and on the edge of the longer quills; winglet and primary-coverts darker brown than the quills; centre tail-feathers brownish ash, paling into grey at the tips, and tinged there with rusty; remaining feathers blackish, with broad slaty-white tips, the tip and outer edge of the lateral feather pure white.

Face and ear-coverts rusty ash-colour, passing on the throat and chest into rusty vinaceous, which pales gradually on the breast into vinaceous grey, and becomes albescent on the abdomen and almost *pure white* on the lower tail-coverts; chin whitish; flanks, axillaries, and under wing-coverts fine ashy blue.

Obs. In view of the present confused state of the synonymy of the Indian and Asiatic Red-winged Turtle-Doves, I adopt for our rare Ceylon visitant Hodgson's name of *T. pulchratus*, in doing which it seems to me that I cannot well err, inasmuch as Hodgson's bird was a Nepal specimen, and must, in all probability, have had white under tail-coverts.

There are two forms of these Rufous-winged Doves in India:—the one with whitish under tail-coverts, or *very pale* ashy, fading at the tips into whitish, which Jerdon and others call *Turtur rupicolus*, but which Mr. Hume thinks is better entitled to the name *T. pulchratus* of Hodgson; the other with uniform greyish-blue under tail-coverts, which Mr. Hume considers is the bird described by Sykes as *T. meena*, and which is apparently the same as the species (*T. gelastes*, Temm.) figured from Japan in Dresser's work, to accompany his article on *Turtur rupicolus*, or (as he uses an older title still) *T. orientalis*, Lath.

Latham unfortunately does not say what colour the under tail-coverts of his *T. orientalis* were. Mr. Dresser holds this species, however, to be identical with *T. gelastes*, Temm., from Japan, which has slate-blue under tail-coverts. I have seen the specimen he figures, and it closely resembles an example from Burmah in the national collection which Mr. Hume would, I think, refer to the bird described by Jerdon as *T. meena*, Sykes. Mr. Dresser writes me that he found such variations in the colour of the under tail-coverts in the specimens he examined that he was compelled to unite both forms under one title—*T. orientalis*, which appears to have been the first used.

To this decision Mr. Hume takes exception, and holds that in India the two forms are distinct, having a different distribution, the one being a resident form, while the other is migratory. He further remarks, in his valuable disquisition on the vexed subject (B. of Tenass. pp. 420–422), that though the sedentary species, *T. meena*, Sykes, undergoes, in its extension westward into a dry climate, a certain change (which is only to be expected), yet the

under tail-coverts are at all times distinct from the white, or nearly white, ones of the Himalayan migratory species.

It is thus satisfactorily demonstrated, I think, that there are two species in India. The dark under tail-coverted form is apparently the same as the Japanese; and if so must take the name of *T. gelastes*, Temm. Whether the other—which is the present species—is the same as *T. rupicolus* (*T. orientalis*?) I am unable to decide; but it is evidently the bird styled *T. pulchratus* by Hodgson.

I have compared the Ceylonese migrant, above described, with two specimens from Nepal in the British Museum. The first measures 7·8 inches in the wing (my bird would measure about 7·5 inches if the quills were perfect) and has the under tail-coverts very pale albescent ashy, with the tips whitish, in fact not so white, on the whole, as in my bird; the nape is more rufous and the chest more vinous. The second measures 7·4 inches in the wing, and the under tail-coverts are *very pale* bluish grey at the bases, and nearly white at the tips. Another specimen, from “North Burmah,” has the under tail-coverts as pale as the Nepal birds; they are whitish ashy.

Jerdon's description of this species is unsatisfactory; he says it is “brown beneath, becoming whitish towards the vent,” also “the back and rump ashy brown.”

The European Turtle-Dove, *T. auritus*, of which the species here treated of are the Asiatic representatives, differs from them in being bluish on the head and nape, with the rufous edgings of the scapulars and wing-coverts of a different hue; these are more yellow-rufous than in our bird; the interscapular region is not so rufous, but more of a brownish grey; the breast has a very delicate hue, being of a pink vinaceous colour; the hind neck above the collar is slate-blue and not rufous. It is a smaller bird; wing about 7·0 inches.

An allied form to *T. auritus* is the Egyptian species *T. sharpii*, Shelley, which has the head pale yellowish brown instead of ashy, the chest “rich pink,” and the rump, upper tail-coverts, and the two central tail-feathers “broadly edged with yellowish brown.” Captain Shelley calls it a desert form of *T. auritus*. It is beautifully figured, pl. x., ‘Birds of Egypt,’ along with the European species.

Distribution.—This handsome Dove has proved to be an occasional straggler to Ceylon. Its first recorded appearance is that testified to in Layard's notes as follows:—“I shot a young bird of this species from a small flock of Pigeons which flew over my head as I was travelling with the late Dr. Gardner in the Pasdun Korale in the month of December, 1848.” The locality and time of year mark this individual as a visitant to the island during the prevalence of the north or “long-shore” wind. In looking over a collection of my friend Mr. Bligh's at Norwich last year I detected an adult individual of this species; and on communicating with this gentleman he writes me from Catton as follows:—“The Dove *T. rupicola* was sent me in the flesh from Nilambe by Mr. G. S. Grigson, in 1871, during the cold season, and is the only one I have seen.”

It is highly probable that on the two occasions in question not a few examples of this species visited the island, and in the north it may put in an appearance oftener than is supposed.

I identify Layard's specimen with mine and not with the allied species with dark under tail-coverts, simply because the birds that have visited Ceylon must needs belong to the migratory form; and the latter Mr. Hume proves to be a resident species in continental India. There is a specimen, if I remember right, in the Poole collection, but so faded that it would be impossible to say whether it originally had dark or light under tail-coverts; but I think we may, on the grounds here advanced, safely conclude it belongs to the race with the latter characteristic.

The bird with the white under tail-coverts, whatever its right classical name may be, is an inhabitant in summer of Nepal and the sub-Himalayas beyond Nepal towards the north-west. In the cool season it migrates to the south, chiefly avoiding the desert country of Rajpootana, according to Mr. Hume, although Captain Butler says that it occurs rarely at Mount Aboo, and Mr. Adam obtained it in the Sambhur district. It is found at Mahabaleshwar in the cool season, but does not seem to have been procured in the Nilghiris or the Palani hills. Now, however, that we know that it has strayed as far south as Ceylon, it must of necessity pass by these districts to reach the island, and no doubt, when the species reaches our limits, some few examples lodge in them. Mr. Ball does not record it from any of the eastern districts which he has worked, having only met with the allied bird with the dark under tail-coverts, which, being resident there, seems to replace it in that part of India.

Habits.—I glean nothing of note concerning the economy of this Dove from the writings of Indian

naturalists. Its habits appear to be similar to those of other Turtle-Doves. It feeds on seeds and grain, has a rapid flight and a deep-toned *coo*.

Nidification.—The lower ranges of the Himalayas as far east as Sikhim, and at elevations from 4000 to 8000 feet, form, according to Mr. Hume, the breeding-grounds of Hodgson's Dove. Captain Marshall writes that it breeds in pine-forests in June. It makes "a loose but rather more substantial twig nest than many of its congeners, placed on some horizontal branch of a large tree, usually not far from the extremity." The eggs are two in number, pure white and glossy, and measure 1.22 by 0.93 inch.

C O L U M B Æ.

Fam. GOURIDÆ.

Bill usually lengthened; the gape not so wide as in Columbidae. Wings moderate. Tail-feathers varying in number from 12 to 16. Legs and feet lengthened; toes slender, fitted for progression on the ground.

Of large size in some genera (*Goura*, &c.), with hackled feathers in one genus (*Calœnas*).

Genus CHALCOPHAPS.

Bill slender, straight; tip moderately curved. Wings moderate, the feathers pointed, and the 2nd and 3rd quills the longest and slightly sinuated on the outer webs. Tail of 12 feathers, compact, shorter than the wing, rounded. Tarsus slender, longer than the middle toe, bare to the knee, slightly reticulated; inner toe longer than the outer; hind toe rather long.

Of small size; clothing-feathers with the shafts broad and flattened. Feeding entirely on the ground.

CHALCOPHAPS INDICA.

(THE BRONZE-WINGED DOVE.)

Columba indica, Linn. Syst. Nat. i. p. 284 (1766).

Columba javanica, Gm. ed. Syst. Nat. i. p. 781 (1788).

Chalcophaps indicus (L.), Blyth, Cat. B. Mus. A. S. B. p. 234 (1849); Layard, Ann. & Mag. Nat. Hist. 1854, xiv. p. 62; Jerdon, B. of Ind. iii. p. 484 (1864); Walden, Ibis, 1873, p. 315; Hume, Str. Feath. 1874, p. 269; Ball, ibid. 1878, vii. p. 225.

Chalcophaps indica (L.), Kelaart, Prodromus, Cat. p. 130 (1852); Swinhoe, P. Z. S. 1871, p. 397; Holdsw. P. Z. S. 1872, p. 467; Legge, Ibis, 1874, p. 26, et 1875, p. 400; Salvadori, Ucc. di Born. p. 299 (1874); Walden, Trans. Zool. Soc. 1875, ix. p. 221; Hume, Nests and Eggs, iii. p. 509 (1875); id. Str. Feath. 1875, p. 165; Bourdillon, ibid. 1876, p. 404; Inglis, ibid. 1877, p. 40; Fairbank, t. c. p. 409; Hume & Davison, ibid. 1878, B. of Tenass., p. 424; Cripps, ibid. 1878, vii. p. 298.

Chalcophaps bornensis, Bonap. Compt. Rend. xliii. pp. 947, 949 (1856); Wall. Ibis, 1865, p. 393.

Chalcophaps javanica (Gm.), Wall. Ibis, 1865, p. 393.

The Green-winged Dove, Edwards, Nat. Hist. i. pl. 14; *Tourterelle de Java*, Buffon, Pl. Enl.; *Imperial Dove*, Sportsmen in India; *Green Pigeon*, "Bronze-wing," *Beetle-winged Pigeon*, *Ground-Dove*, *Ground-Pigeon*, Europeans in Ceylon. *Ram-ghughu* and *Raj-ghughu*, Bengal.; *Andi bella guwa*, Telugu; *Pathaki prāā*, Ceylonese Tamils; *Pomba verde*, Portuguese in Ceylon.

Nila kobæya, lit. "Green Dove," Sinhalese.

Adult male. Length 10.0 to 10.5 inches; wing 5.3 to 5.8; tail 3.3 to 3.5; tarsus 0.9 to 1.0; middle toe and claw 1.05 to 1.1; bill to gape 0.9.

Examples from the hills appear to average larger than those from the low country; I have not procured many, and it is probable that some may exceed 5.8 inches in the wing.

Iris dark brown; bill coral-red, dusky about the base; legs and feet purplish or dark coral-red.

Forehead and a broad stripe above the eye down to the side of the nape white, blending into the fine ashy blue of the crown; whole neck, throat, and breast rich vinaceous brown, paling on the belly into reddish grey; in some specimens there is a broad stripe of blue-grey from the nape down the centre of the hind neck, spreading out over the ruddy brown just above the interscapular region; in others there is merely a wash of this colour down this part; interscapulars, scapulars, wing-coverts, the tertials, and the outer webs of the secondaries metallic emerald-green, beautifully illumined with a coppery bronze hue when viewed exactly from above; primaries and inner webs of secondaries brown, the basal portion of the inner margins cinnamon-red; lower back glossy sepia-brown, crossed by two broad bands of bluish white, the lower one blending into the dark ashy black-tipped upper tail-coverts, the dark interspace with a few small bronze spots near the tips of the feathers; tail cinereous blackish, the two outer pairs of feathers bluish white at the base and tipped with the same, having a broad subterminal blackish band; under tail-coverts at the sides bluish ashy, in the centre concolorous with the tail, tipped with bluish ashy; under wing-coverts cinnamon-red, and along the upper edge of the ulna the anterior webs of the feathers are pure white, changing to bluish ashy at the flexure of the wing, and forming a white shoulder-patch.

Female (low country). Length 9.2 to 9.5 inches; wing 5.1 to 5.3; legs and feet dusky red; bill not so bright as in the male.

Supercilium and forehead not so white as in the male, but overcast with bluish, and passing on the crown and nape into the deeper blue of the tips of the feathers, the bases being ruddy brown; the throat and fore neck are light chocolate-brown, passing into ruddy whitish on the chin and lower breast, and darkening on the hind neck into a

browner hue than the chest, with a trace of bluish in some specimens on the lower part; green portions of the upper surface more overcast with bronze than in the male; the pale rump-bands narrower; the upper and under tail-coverts and the tail warm ferruginous brown, the upper tail-coverts tipped with blackish, the lower with bluish grey; the three outer tail-feathers with a subterminal band of blackish, and the two outer pairs bluish at the base and tips.

Young (nestling: Travancore). "Warm brown above, with all the feathers except those of the head and quills broadly tipped with chestnut, and with a coppery-green lustre on the scapulars and the outer webs of the tertiaries and later secondaries, and with all the primaries margined with chestnut; below dusky barred with chestnut." (*Bourdillon*.)

Obs. I have not had an opportunity of comparing South-Indian examples of this Pigeon with those in my collection from Ceylon, and I am therefore unable to say whether such slight differences exist between the birds from these two localities as are perceptible in those which I have examined from a number of other places throughout its range in the Malay archipelago. As regards the size of those nearest to Ceylon on the mainland, viz. specimens from South Travancore, Mr. Bourdillon gives us the following data:—*Male*, length 10·25 inches, wing 6·1, tail 3·75, tarsus 1·06; *female*, length 10·0 inches, wing 5·75, tail 3·75. These dimensions exceed considerably those of every Ceylonese specimen I have measured; the bird is, however, a variable one in size as well as in its tints, and these may have been exceptionally large examples; a female from North India, collected by Capt. Pinwell, corresponds fairly with a specimen in my collection. Mr. Hume remarks that *Thayetmyo* specimens are identical with those from all parts of India, Tenasserim, the Andamans, and the Nicobars. The bird from the latter region was separated by Bonaparte as *C. augusta*; but Mr. Hume fails to find any valid difference in it from those obtained in the Andamans or India; and he remarks that the specimens from these islands have the rump-bands somewhat less strongly marked than in continental birds, and the white frontal band somewhat narrower. He further states (what I have myself observed in Ceylon specimens) that the bluish-grey stripe down the centre of the hind neck is an uncertain character, and has no reference to the breeding-season.

The Javan bird, *C. javanica*, Gmelin, which Wallace united (*l. c.*) with the species inhabiting Borneo, Flores, Lombok, and Sumatra, was originally considered distinct; but it is now admitted to be identical with the Indian, Malaccan, Formosan, and Philippine form. Examples I have seen from East Java are more purplish on the under surface than my Ceylon skins, the abdomen is not so pale, and there is more of the bronze tipping to the feathers of the upper rump-band. In one specimen the green of the back is less illumined with bronze: ♂, wing 5·8 inches, tail 4·0. The Celebean bird is likewise identical with the Javan.

Allied species are:—*C. cyaneopileata*, Bonnaterra, = *C. moluccensis*, G. R. Gray; *C. timorensis*, Bonap.; *C. stephani*, Homb. & Jacq.

C. cyaneopileata is nearest to the Javan and Indian bird. It is redder on the throat, neck, and breast, and the abdomen is darker; back more coppery, and the inner webs of the quills more covered with cinnamon-red and also of a brighter hue: ♂, wing 5·7 inches. The female, which I have not seen, is said by Wallace to have the head and upper part of the back earthy brown.

C. timorensis is a larger bird, and the *male* has no white forehead or eye-stripe, the head being vinaceous down to the base of the bill; back as in *C. indica*; the primaries with more cinnamon-colour, extending to the outer webs of the shorter feathers; lower parts redder than in our bird: wing 6·2 inches. The *female* has the head and hind neck coppery brown and the forehead ashy; tail coppery chestnut-colour, the lateral feathers bluish grey, with dark terminal bands.

C. stephani is ashy chestnut beneath; upper tail-coverts and tail chestnut-red; an olive-black rump-band, bounded above by a fulvous band, and beneath by a rufescent one; forehead white; back chestnut: wing, ♂, 6·0 inches. This is a very distinct species inhabiting North Celebes.

C. hombroni, another species described by Wallace, is smaller than *C. stephani*; "the forehead is slate-brown, and the lower back black, with two yellowish bands; middle and larger wing-coverts and ends of the tertiaries golden green."

Distribution.—This beautiful Pigeon is chiefly an inhabitant of the damp forests and well-watered wooded districts of Ceylon; but yet its habits are so essentially sylvan that it is found all through the forests of the northern half of the island. In the woods and jungles of the Western Province it is a common bird, being especially partial to bamboo-cheena, and it is consequently abundant throughout Saffragam and in the well-covered hills of the south-western portion of the island. In forest districts, such as the Knkul Korale and Pasdun Korale, it is very numerous. It is well diffused throughout the Central Province, being found up to

the altitude of Nuwara Eliya, but more particularly during the N.E. monsoon. Mr. Holdsworth says that at the end of the year it frequents the woods at the Sanatorium in great numbers. I am under the impression it inhabits the Horton-Plains jungles at this season; but I did not make a note of it when I was there.

In the south-east of Ceylon, and likewise in the Eastern Province, wherever the jungle is hot and dry, it confines itself to the forest on the banks of the rivers. In the Trincomalie district and throughout the northern forests it may be met with anywhere; but it is not so numerous as in the southern part of the island.

On the mainland the distribution of this Pigeon is for the most part easterly; it is common in the wooded districts of the south, such as Travancore, the Palanis, and the Nilghiri jungles; but it avoids the Deccan, and is not found in the north-west portions of the empire. Neither Mr. Hume nor Captain Butler notice its occurrence in the direction of Sindh. It is said to be abundant in the Dhoon up to 5500 feet, and affects jungle-clad hills in Central and Eastern India up to an elevation of 6000 feet. In his article on the avifauna of Chota Nagpur Mr. Ball says it is a bird of extreme rarity in the province; he met with it once in a forest in Gangpur, and once in the Rajmehar hills. In his subsequent article on the district extending to the Godavari he records it from Sambalpur and Orissa on the north of the Mahanadi. In Furreedpore it is rare, and likewise in North-eastern Cachar; but in Upper Pegu Mr. Oates records it as tolerably common in evergreen forests on the hills. Dr. Armstrong did not meet with it in the Irrawaddy delta; but southward in Tenasserim it is generally distributed throughout the wooded portions of the province up to 4000 feet. In the Andaman and Nicobar Islands it is likewise generally distributed, and very numerous in some localities of the former according to Mr. Davison. It extends down the Malay peninsula to Sumatra and Java, in the forests of both of which islands it is plentiful. Mr. Wallace is of opinion that it may have been introduced into India from the latter island, as communication between the two places has long existed, the Hindoo religion having been established in Java for an unknown period prior to its being subverted by Mahomedanism in the fifteenth century. The fact of the genus being entirely a Malayan one, and this species being the only member of it in India, certainly fosters the belief that it may have been so introduced; but, on the other hand, it may have made its way across to the Malay peninsula from Sumatra, and thence spread over the tracts it now inhabits on the mainland. It inhabits Borneo throughout, having been procured at Banjermassing on the south coast, at Sarawak and other places on the western side, and at Labuan on the north. Thence it extends to the Philippines, where it is not uncommon in Negros and in the most northerly of the group—Luzon.

It is likewise found in Formosa, and perhaps along the coast of South China, for it has been recorded from Hainan by Swinhoe. Blyth states that M. Mouhot obtained it in Cambodia; and this is quite probable, as it would extend thither through Siam from the Malay peninsula. Eastward of Borneo it has been obtained in Celebes, and southward in Flores and Lombok.

In Ceram, Borneo, Amboyna, and other Moluccan islands the allied species *C. moluccensis*, Gray, is found; but it is probable that the present species may also be obtained in some of these localities.

Habits.—The “Bronze-wing,” which is the handsomest of its family in Ceylon, is rarely seen away from wood; it is entirely a denizen of jungle, and is so often seen on forest-paths and roads, that it is well known to all who travel in the interior. Its swift arrow-like flight, seen to advantage as it darts over one’s shoulders on its swift course down some forest-path, its brilliant plumage and upright carriage as it quickly walks hither and thither on the pathway, letting the spectator approach it so closely that its bright red bill and soft eye may easily be seen, and its melodious though deep unpigeon-like *coo*, all combine to make it one of the most favourite of Ceylonese birds. It is, however, not always so tame; in the early morning, when first commencing to feed, it is the reverse of shy, but when I have seen small parties of three or four feeding at the edges of clearings or paddy-fields in the afternoon they were difficult to approach. It is in its element in bamboo-jungle, and wherever this abounds it is very plentiful and rarely seen out of the woods filled with this undergrowth. In the breeding-season the bamboo-cheenas clothing the hill-sides in Saffragam and the Rayigam and Hewagam Korales resound in the evening with the *coo* of this Dove. It feeds on seeds, and I have occasionally found bulbous roots in the stomachs of specimens I have shot.

Layard well describes its habits in the following paragraph:—“Being a bold, fearless bird of great power of wing, it will permit approach to within a few paces, when, with a spring into the air, it will dash onwards a few dozen yards, and again settle; a renewed approach drives it further off a second and a third time, till driven

beyond the range of its food, the lovely bird will dart back to its old feeding-ground with the rapidity of thought, often brushing the intruder's person with its wings, while following the tortuous narrow windings of the native path."

Mr. Davison writes :—" They are not in general shy, and will walk on in front of one for some considerable distance if not closely pressed. They rise with a sharp flutter of the wings, and their flight is very rapid indeed. When disturbed they generally fly some considerable distance before alighting, sometimes on the ground, more generally on a tree at no great elevation from it. Their note is a low mournful one and can be heard from a long distance. It sounds like the word 'oo' very much prolonged and slowly uttered with a booming sound." This note is more like that of an Owl than a Pigeon, and were it not heard during the daytime would unmistakably be taken for that of a night-bird.

Nidification.—In the Western Province I have shot the "Beetle-wing" in a state of breeding in June; but I have taken its eggs in the Kurunegala district in February, so that it probably breeds at no regular period and very likely has more broods than one in the year. The nest I found was near Dyatura, built at the extremity of the lateral branch of a small tree at about 6 feet from the ground. It was made of small sticks, and slightly more cup-shaped than that of a true Dove (*Turtur*). It contained two eggs, regular ovals in shape, and of a warm buff or cream-colour. They unfortunately got broken before I measured them; but Layard, who describes the eggs as yellowish-drab colour, gives their dimensions as 12 lines (1.0 inch) by $8\frac{1}{2}$ (0.71 inch). There is probably an error in the latter dimension. Mr. Hume describes the nests as more regular saucers than those of the Doves, composed of roots, grass, or twigs, but comparatively neat and devoid of lining, with a decided central depression. It breeds in India from February till July. The eggs are said by this gentleman to vary from creamy white to white, and to measure from 1.0 to 1.1 inch in length by from 0.82 to 0.86 inch in breadth.

C O L U M B Æ.

Fam. TRERONIDÆ.

Bill with the gape very wide, in most short and thick, the tip strong and much vaulted. Wings long, the primaries pointed. Tail moderately long, of 14 feathers. Tarsus short, reticulated in front, feathered below the knee. Toes short and very broad, fitted for grasping.

Of frugivorous habit; entirely arboreal.

Genus CARPOPHAGA.

Bill rather long, flattened, the gape very wide, the corneous tip short; frontal feathers advancing much on the base. Wings long and pointed, the 3rd quill the longest, and the 1st rather short, slightly exceeding the 6th. Tail tolerably long and rounded. Tarsus short, very stout, feathered for half its length, the bare portion shielded with broad scutes. Toes very stout and broad at the base, lateral toes subequal. Claws very stout and curved.

Of large size and brilliant metallic plumage on the back and wings.

CARPOPHAGA Aenea.

(THE IMPERIAL GREEN PIGEON.)

Palumbus moluccensis, Briss. Orn. i. p. 148. no. 41 (1760), "ex Moluccis insulis."

Columba aenea, Linn. Syst. Nat. i. p. 283. no. 22 (1766) (*ex* Brisson).

Columba sylvatica, Tickell, J. A. S. B. 1833, p. 581.

Carpophaga aenea, G. R. Gray, Gen. of B. p. 468 (1844); Selater, P. Z. S. 1863, p. 221; Wallace, Ibis, 1865, p. 383; Walden, Ibis, 1873, p. 314; Hume, Str. Feath. 1874, p. 260; Ball, *t. c.* p. 424; Legge, Ibis, 1874, p. 399; Salvadori, Ucc. di Born. p. 290 (1874); Walden, Trans. Zool. Soc. 1875, ix. p. 215; Hume, Nests and Eggs, iii. p. 496 (1875); id. Str. Feath. 1875, p. 163; Ball, *ibid.* 1876, p. 235; Armstrong, *t. c.* p. 337; Inglis, *ibid.* 1877, p. 39; Ball, *t. c.* p. 418; Hume & Davison, *ibid.* 1878 (B. of Tenass.) p. 417; Ball, *ibid.* vii. p. 224; Hume, List Ind. B., *ibid.* 1879, p. 109.

Carpophaga sylvatica (Tick.), Blyth, Cat. B. Mus. A. S. B. p. 231 (1849); Kelaart, Prodromus, Cat. p. 130 (1852); Jerdon, B. of Ind. iii. p. 455 (1864); Wallace, Ibis, 1865, p. 383 (in part); Blyth, Ibis, 1867, p. 148; Swinhoe, P. Z. S. 1871, p. 396; Holdsw. P. Z. S. 1872, p. 466; Legge, Ibis, 1874, p. 24.

Carpophaga pusilla, Blyth, Cat. B. Mus. A. S. B. p. 232 (1849); Layard, Ann. & Mag. Nat. Hist. 1854, xiv. p. 58; Blyth, Ibis, 1867, p. 148 (in part).

Pigeon Ramier des Moluques, Temm.; *Imperial Pigeon*, Sportsmen in India; *Large Green Pigeon*, *Wood-Pigeon*, Europeans in Ceylon. *Dunkul*, *Doomkul*, *Sona kabutra*, *Burra harrial*, Hind.; *Pogonnah*, Malyalum; *Kakarani guwa*, Telugu (Jerdon); *Berg Duyven*, Dutch in Ceylon (Layard); *Maratham prāū*, Tamils in North of Ceylon.

Maha nila goya, lit. "Large Green Pigeon," Sinhalese; also *Matabatagoya*, Sinhalese north of Kandy (Layard).

Adult male and female. Length 15.5 to 16.2 inches; wing 8.0 to 8.6, expanse 27.0; tail 5.2 to 5.7; tarsus 1.0 to 1.1; middle toe and claw 1.7 to 1.75; bill to gape 1.3 to 1.35.

Individuals of both sexes vary much in size. It is probable that some birds range beyond 8.6 inches in the wing. Lord Tweeddale gives the wing-measurement of three Ceylonese examples as 8.25. Mr. Hume states the average to be 8.0; this is, however, the minimum dimension; 8.3 is about the average.

Iris carmine-red; eyelid arterial red; bill with the basal part greyish green and the tip light bluish, sides of the lower mandible purplish; legs and feet dull lake-red, soles yellowish; claws olive.

Head, neck, throat, and under surface delicate bluish grey, purest on the chest and palest on the abdomen, and more or less suffused with vinous grey about the face and on the hind neck and breast; chin, forehead close to base of bill, and an orbital circle whitish; back, rump, upper tail-coverts, and wings metallic green, with a bright coppery lustre, and pervaded with ashen *when viewed against the light*; primaries deep plumbeous, suffused with green, the outer webs with a greyish hue; tail deep slaty green, the margins and tips of the feathers being shining green, passing into obscure or slaty green at the shafts; lateral feathers paler than the rest; under surface of tail yellowish grey and the shafts pale; under tail-coverts liver-colour or deep chestnut; thighs albescent internally, pale lilac, like the abdomen, externally; under wing-coverts slate-grey.

Young. Immature birds are said to have the under tail-coverts paler than adults. Mr. Davison remarks that they are just as brightly glossed on the back, wings, and tail, but want the vinaceous tinge below.

Obs. The Imperial Green Pigeon (*C. sylvatica*) of India was long considered distinct from the Philippine and Malayan-Archipelago species *C. aenea*. The late Marquis of Tweeddale, however, after a comparison of a large series from

the Philippines, Java, Sumatra, India, Burmah, and the Andamans, united the two races under the Linnean title. I have compared examples from Hainan, Java, Sumatra, Andamans, Lombok, Borneo, Negros, and Madras with Ceylonese skins, and am fully convinced that there is but the one species of this particular Pigeon, which varies greatly in size in different localities, the smallest race inhabiting Ceylon and South India, and the largest birds being found in Burmah, Borneo, Lombok, and the Philippines (those from the latter locality exceeding all others), and which is likewise subject to variation in the coppery hue of the back and the vinous tinting of the under surface, but unaccompanied by any corresponding alteration in the distribution of colour, and not in such a systematic way as to warrant the discrimination of any of the most aberrant specimens as distinct species.

A Madras example which I have compared with my Ceylonese skins has more white round the gape and on the chin (a variable character, however), back and wings slightly more coppery, and the under surface more suffused with vinaceous. An Andaman example (wing 8·9) and one from Sumatra (wing 9·2) are more vinaceous on the nape than my birds, but the white of the forehead, the green of the back, and the tints of the under surface are the same. The Andaman bird has a good deal of white on the chin. Mr. Hume says that, as a race, the birds from these islands are very large, and greener with deeper-coloured under tail-coverts and whiter foreheads than continental birds. He gives the wing-measurement at 8·5 to 9·5 inches. Lord Walden's measurements (Ibis, 1873) of seven specimens are 8·5 to 9·25. Two females from Sarawak measure 8·8 and 9·1 respectively in the wing, have the green of the back less coppery and the underparts more vinaceous than Ceylon skins, but are otherwise the same. The reddish tinge of the under surface is doubtless a mark of age, as we have seen from Mr. Davison's description of a young bird. A Lombok example measures 9·5 inches in the wing, and is identical with one of mine from Saffragam. Birds from the Philippine Islands have a stronger coppery lustre on the back than any I have seen; the hind neck is less vinaceous too, the abdomen and lower breast are more vinaceous than the chest, and the primaries, as in Sumatran and Bornean birds, have a very strong grey tinge on the outer webs: wing 9·7 inches. A Hainan specimen corresponds well with one from Madras; it is slightly ruddier on the head: wing 8·9. A Burmese skin is extremely red on the lower parts: wing 9·5. I observe that all these long-winged birds from various localities appear to be no larger in head and feet than smaller-winged individuals, and, further, that they have not the tail proportionately lengthened; the primaries are simply more or less attenuated, *the tips thus prolonged causing the extra length of wing*. Ceylonese and South-Indian birds have the tips of the primaries peculiarly round in comparison to the larger examples in question. Mr. Hume finds the average of Anjanga birds to be 8·25 inches in the wing, and of Calicut and Nilghiri 8·5 to 8·75. Blyth described the birds inhabiting South India as a smaller race under the title of *C. pusilla*, and placed Layard's Ceylonese specimens with it; but Jerdon did not consider it distinct from Tickell's bird from Central India, and states that Blyth's name was founded on a peculiarly small specimen.

This genus of magnificent Pigeons—the princes of their family, the Treronidæ—is a very extensive one, extending from India through the Malay archipelago, where it is chiefly developed, to Australia and New Zealand. In the archipelago there are not a few species resembling the present, some of which are characterized by a knob at the base of the bill, much developed in the male at the breeding-season: these form Bonaparte's division *Globicera*. The under tail-coverts are liver-coloured in all the allied forms.

C. paulina, Temm., a Philippine species found in Menado, has a bright reddish nape, and the face, head, and throat vinaceous. It is allied to *C. aenea*, but easily distinguished by the characters mentioned. Wing of a specimen from Menado, 8·5 inches.

C. pacifica (Gm.) is a fine species, allied to the present and seemingly very close to it; the head and hind neck are of a different grey colour; the back and wings much as in *C. aenea*. A Samoan example has the wing 9·4 inches.

C. neglecta, Schleg., a Moluccan form, is larger than *C. aenea*, the back, rump, and wings brighter green, the head, throat, and under surface grey, not tinged with vinaceous. Wing 10·0 inches, tail 6·6 (Ceram).

C. tumida, Wallace. Back and wings deep bronzed green; head, entire neck, and underparts delicate grey, tinged with vinaceous on the hind neck, breast, and belly; at the base of the upper mandible is a large knob. Wing of a Waigian example 9·5 inches. Belonging to another group are *C. insularis*, Blyth, from the Nicobars, and *C. perspicillata* from Bouru. The former is larger than *C. aenea* on the whole, and has the under tail-coverts dingy brown, which constitutes its chief difference. A new species (*C. palumboides*, Hume) from the Andamans belongs to another subgroup; it has the lower parts dusky slate-blue, the under tail-coverts *blackish*, and the head and face pale grey.

The fine Bronze-backed Imperial Pigeon, *C. cuprea*, Jerd., of Southern India, and its northern representative, *C. insignis*, Hodgs., belong to quite another group, and are inhabitants chiefly of mountainous regions. It is a matter worthy of comment that the southern bird or an insular representative of it has not been found in our mountains. *C. cuprea* is an abundant species, according to Mr. Bourdillon, in the Travancore hills.

Distribution.—This magnificent Pigeon is exceedingly abundant in all the well-wooded and forest-clad

portions of the low country. Proceeding inland from Galle it is first met with beyond Baddegama and in the forest of Kottowe, becoming more numerous towards the Oodogamma and Opaté hills, in the higher parts of which, however, it is not so common as in the valleys. Further north, some miles inland, east of Kalatura and Bentota, it becomes plentiful, and continues so all through the Pasdun and lower portions of the Kukul Korale to Saffragam, which is its great stronghold in that part of the island, and in which (above Gillymally) I have traced it to an elevation of about 1500 feet. In the south-east it avoids the scrub-country along the sea-coast, except where it is cleft by the forest-clothed banks of the rivers; but it is very abundant at the back of this region up to the base of the Uva hills. In the Friars-Hood group it is common. In the northern half of the island it is pretty evenly distributed throughout the jungle which covers the whole of that part. I have met with it in all parts which I have visited, and Mr. Parker has found it in the Madewatchiya and Anaradhapura districts. Along the rivers in the Seven Korales it is abundant.

I have never been able to obtain any information concerning this bird being found in the higher jungles; I have not myself seen it above an altitude of 1500 feet; and Mr. Bligh has not met with it in the higher regions of the Kandyan zone; numerous inquiries which I have made have all failed in disclosing any locality in the coffee-districts inhabited by it. I conclude, therefore, when Layard writes that its "great haunt is certainly the mountain-zone," he refers to the base of the Kandyan hills, and not the upper parts.

According to Jerdon it is not at all a mountain species in India; he remarks that he cannot call to mind having seen it as high as 2000 feet, and that it is more abundant at elevations from the level of the sea up to 1000 feet. This is exactly the case in Ceylon. "It is only found," he writes, "in forest countries, and is very abundant in the Malabar jungles, in Central India, Midnapore, and the wooded countries to the north-east generally." It appears to avoid the Deccan entirely, passing up to the north-east from the forests of Southern India, and inhabiting the Godaveri valley, Orissa, Jaipur, Singbhum, Maunbhum, Midnapur, and the Rajmehal hills. It does not appear to extend across to Western India at all. Mr. Blanford says that he did not meet with it in the valleys of the Nerbudda or Taptee; and Mr. Ball did not meet with it in Western Chota Nagpur even; further south, however, its range extends up the Godaveri valley to Sironcha and Chanda; but this appears to be only an isolated branch of extension, and northward of this river its visit to the west would be defined by a line drawn through the Jaipur district to Sambalpur, and thence northwards through eastern Chota Nagpur to the Rajmehal hills. How far it extends through the forests at the base of the Western Ghâts towards the north I am unable to say; but the Rev. Dr. Fairbank did not meet with it about Mahabaleshwar, which proves pretty clearly that it is confined to the south. Northward of the Rajmehal hills we find it in Nepal, and thence eastwards into Cachar, where Mr. Inglis says it is common, breeding during the rains. Southward we find it in the Arrakan hills, and eastward in Pegu. Mr. Oates records it as common both in the hills and the plains, whence it extends to the sea-coast at the mouths of the Irrawaddy, where Mr. Armstrong tells us it occurs sparingly. In Tenasserim it is generally distributed, according to Messrs. Hume and Davison, throughout the better-wooded portions of the province, but does not ascend the hills. In the Andaman group Mr. Davison found it abundant in December; but later on, in April, it had become scarcer, owing, as he suggests, to the then scarcity of wild fruits which abound in December and January. Throughout the Malay peninsula we may conclude that it occurs in suitable places, which brings us to Sumatra, of which island it is an inhabitant, although, with our scanty data concerning the avifauna of this great island, it would be impossible to speak with certainty concerning its distribution there. Both Raffles and Wallace record it, probably from the southern coast; but Mr. Buxton did not meet with it in Lampong. The latter naturalist and Horsfield notice its occurrence in Java, and in Borneo it has been found in Banjer-massing, Sarawak, and other maritime provinces. From Java eastward it probably extends through all the chain of islands towards Timor, for it has been obtained in Lombok, Sumbawa, and Flores. From Borneo towards the north it ranges into Palawan, and thence through the Philippine group. In Hainan, Swinhoe procured it in the central and western portions of the island. Data are now desirable concerning the vast stretch of country between Burmah and this latter locality, which it doubtless will be found to inhabit.

Habits.—The "*Maha nila goya*," the finest Pigeon in Ceylon, is a denizen of wild forest and jungle-elad districts, the fruit-bearing trees of which afford it such ample sustenance that in some parts of the island it abounds to an equal extent with the very numerous Maroon-backed Pigeon presently to be noticed. Though

very shy when feeding it may easily be shot when wending its way across country in flights to drink in the morning or to roost in the afternoon. At such times a regular stream of these birds will continue to cross a road in the Eastern Province for perhaps half an hour together, and they afford very good shooting. It is well styled, together with all its genus, "Imperial Pigeon." On the wing, when dashing into a forest-glade in the Pasduu Korale or Saffragam, or sweeping across an opening in the dense jungle of the Park country, it is a splendid bird, and to the hungry sportsman by no means to be despised for the table. Indeed, if kept for a couple of days in the dry hot districts of the island, it becomes very tender, and its flesh is then almost equal to that of the succulent smaller Fruit-Pigeons, the "Batta-goya" of the Singhalese.

There is something quite startling in its grand guttural note, when heard uttered from the top of a tall tree in the forest ravines of Southern Ceylon; it resembles the syllables *wuck-wōōōr*, the last having a deep sepulchral sound. Mr. Ball, who calls it a deep sonorous *coo*, which he represents by the words *wuh, wook*, says "there is something weird about it when heard resounding through the valleys." When feeding, like other Pigeons they are silent, and it is generally about 10 o'clock in the morning, when sitting motionless, a few perhaps together near the top of a tree, that they utter their *coo*. They are most difficult to see when the spectator is approaching them from behind, as their green plumage assorts so well with the surrounding verdant foliage. It is a gluttonous fruit-eater, swallowing its food whole, and is perhaps fonder of the berries of the Bo-tree (*Urostigma religiosum*) and of the "Palu" or "iron-wood" (*Mimusops indica*) than those of any other trees. In the south-east of Ceylon both these trees are to be found growing by themselves among small scrubby jungle and towering far above it; and when in fruit, Pigeons flock to them from all sides until the branches are literally laden with them. In Saffragam I found them feeding on the wild cinnamon-fruit, and also on wild nutmegs, which their enormous gape enables them to swallow with ease. The nutmeg is, of course, as in the case of the Myna, voided after the mace has been digested; and Mr. Davison remarks that, "in Southern India, this is so well known, and the good taste of the birds, who always select the ripest and the finest fruit, so thoroughly relied upon, that people are sent round to collect the nutmegs thus discarded by these Pigeons, as these are the best and can most be relied on for seed." The reason for this singular practice is, he writes, "that birds and animals only eat the perfectly ripe fruit when they have a large choice, and that the seeds of these germinate more freely than the more or less unripe ones of which the coolies are certain to gather so many."

It is remarked by Jerdon that in the hot weather they resort to the salt swamps of the Malabar coast to feed on the buds of *Aricennia*.

The stout feet possessed by these Pigeons enables them to walk freely along the branches, or hold on firmly while reaching out at their food. It is said to erect the feathers of its head and neck when wounded; and Mr. Ball says that, when doing this, it looks double its natural size, and strikes out violently with its wings. Mr. Davison, who notices, with reason, the loud "*put-put-put*" made by their powerful wings when they dash out of a tree, says they are not quarrelsome, like many Green Pigeons, but, on the contrary, are sociable and gentle together.

Nidification.—Considering that this Fruit-Pigeon is so common, it is surprising that so little has been written about its nesting. I am not aware that its nest has been taken by any naturalist in Ceylon; but I am able to state that it breeds in April and May in the south of the island, as I shot a female on the 28th of the former month at Baddegama, in the oviduct of which was an egg almost ready for expulsion. Mr. Inglis states that a nest he saw in North-eastern Cachar was built about 30 feet from the ground, and consisted of "a very few sticks and a few stiff grasses." It contained two young birds. Two eggs, sent by Captain Wimberley to Mr. Hume from the Andamans, were broad ovals, obtuse at both ends, pure white, with a slight gloss, and measured 1.6 by 1.25 inch. Jerdon speaks of a Shikaree informing him that he had found a nest with two eggs; so that there seems quite evidence enough to show that this species differs from most other members of the genus, who only deposit a single egg.

Genus CROCOPUS*.

Bill short, stout, very deep for its length, the soft base occupying about a third of the length of the culmen, which is boldly curved at the tip; gonys deep. The longer primaries very much pointed; the 3rd quill with a large sinuation†. Tail moderately long, rounded at the tip. Tarsus short, stout, feathered for a third of its length; middle toe longer than the tarsus; outer toe considerably longer than the inner; claws deep and curved.

CROCOPUS CHLORIGASTER.

(THE SOUTHERN GREEN PIGEON.)

Treron chlorigaster, Blyth, J. A. S. B. 1840, xii. p. 167; id. Cat. B. Mus. A. S. B. p. 229 (1849); Kelaart, Prodromus, Cat. p. 130 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiv. p. 57.

Treron jerdoni, Strickland, Ann. & Mag. Nat. Hist. 1844, p. 167.

Crocopus chlorigaster, Jerdon, B. of Ind. iii. p. 448 (1864); Holdsw. P. Z. S. 1872, p. 465; Adam, Str. Feath. 1873, p. 390; Ball, ibid. 1874, p. 423; Hume, Nests and Eggs, iii. p. 492 (1875); Butler & Hume, Str. Feath. 1876, p. 2; Fairbank, t. c. p. 261, et 1877, p. 408; Ball, ibid. 1878, vii. p. 224.

The Large Green Pigeon, Kelaart.

Hurrial, Hind.; *Pacha-guwa*, Telugu; *Pacha-pora*, Tamil (Jerdon); *Patchi-prāā*, Ceylonese Tamils (Layard).

Adult male (Behar). Length to forehead (from skin) 11·75 inches; wing 7·25 to 7·4; tail 5·0; tarsus 0·8; middle toe 1·05; bill to gape (straight) 0·95.

Female ("Madras"). Wing 6·7 inches; tail 4·3.

Jerdon gives the wing at "barely 7 inches; tail 4·75."

Iris carmine, with a blue inner circle; bill whitish; legs and feet chrome-yellow.

Forehead, entire top and the sides of the head, including the ear-coverts, dusky bluish grey, changing on the lores and lower cheeks into the impure green of the chin and throat; fore neck and chest olive-yellow, passing in a broad collar round the hind neck, beneath which there passes across the lower hind neck a collar of paler bluish grey than the head; back, scapulars, rump, upper tail-coverts, tertials, and wing-coverts yellowish olive-green, with a slaty tinge on the upper tail-coverts; point of the wing and adjoining portion of the lesser wing-coverts lilac; greater wing-coverts slaty green, with yellowish-white edges and tips; primaries and secondaries slaty brown, edged outwardly with yellow, except towards the tips of the longer primaries; tail slate-colour, the central feathers at the base and the remainder on the inner webs at the base tinged with green; breast yellowish green, slaty on the flanks, and changing into yellow on the abdomen; thighs yellow; under tail-coverts greyish crimson,

* The "Green Pigeons" are removed by Jerdon from the larger Pigeons (Carpophaginæ) and placed in a separate subfamily (Treroninæ). Both are, however, essentially *Fruit-Pigeons*, and have precisely the same habits. The distinctions pointed out, which consist in the thicker bill and shorter tail, are, in my opinion, only *generic*. I have, moreover, throughout my work (*which is intended solely for the benefit of students of ornithology in Ceylon*) avoided a complication of the subject by *not* taking subfamilies into consideration more than I could possibly help.

† This is only fully developed when the bird is adult. I have a young example of *Osmotreron pompadora* in which there is only an indication of it; and the same holds good with other species of this group I have examined in the British Museum. It is, however, absent in *Sphenocercus*, the Kokla Green Pigeon, a curious Himalayan form with a pointed wedge-shaped tail.

very broadly edged and tipped with dull white; under wing-coverts slaty, tinged with green; lower thigh-coverts slaty green, edged with white.

Female has the yellow of the hind neck dusky and that of the chest greener than in the male; point of the wing and the edges of the adjacent lesser coverts lilac; shorter under tail-coverts greenish slate, the longer feathers as in the male, and the whole similarly edged.

Obs. This species is very closely allied to the northern Green Pigeon, *C. phoenicopterus*, which is said by Jerdon to be larger (wing from 7.2 to 8.0 inches), and has the forehead and head strongly tinged with green, and the blue of the crown less decided, the lilac wing-spot larger, the centre of the lower breast and abdomen bright yellow, the tail greenish at the base. Two examples of this species in the British Museum, collected by Capt. Pinwell, measure 7.3 and 7.6 inches in the wing. One has a pure slate-coloured tail, with *no green at the base*.

C. viridifrons, Blyth, from Burmah, Pegu, and Tenasserim, is an exceedingly handsome species of this genus. A male (Burmah) measures—wing 7.25 inches; tail 4.5; bill to gape 1.6. The forehead and front of crown, lores, face, and throat olive-green; occiput, nape, and ear-coverts slate-blue, sharply defined against the green; yellow collar broader than in *C. chlorigaster*, and the yellow of the chest richer; more than the basal half of the tail olive-yellow, defined against the broad, dark, slate-coloured terminal band; breast and flanks delicate slate-blue, clearly defined against the yellow chest.

Distribution.—This fine Pigeon I was never fortunate enough to meet with. It appears to inhabit (or visit, according to Layard) the extreme north of the island; and there are two specimens of his collecting in the Poole Museum. He states that “it is migratory, only appearing in the fruit season, and returning again to the coast of India.” Mr. Holdsworth procured it near Aripu on the north-west coast, so that it would not appear to be entirely confined to the extreme north. I searched diligently for it in the Trincomalie and north-central districts, but never saw it. It probably inhabits the forest country stretching from the Elephant Pass south-westwards to the gulf of Manaar; but why it should restrict itself to that part of the island it is hard to say. That it migrates to the island in the fruit season is, I think, scarcely a tenable hypothesis, for all our visitors (those which come in any number) are regular migrants influenced by the ordinary instinct, and moving southwards in the cool season. The banyan-fruit is, I think, chiefly ripe in March, April, and May, which would scarcely be the time when any species would visit our shores.

Jerdon writes that this species replaces the Bengal Green Pigeon throughout the greater part of the peninsula of India; he considered it to be rare north of the Nerbudda, though occasionally killed in Lower Bengal. It is, however, found, according to Capt. Butler, throughout the plains of Northern Guzerat, “in all well-wooded districts”; and Mr. Hume adds that it occurs throughout all the surrounding region, though very rare in Sindh, in which province it has only recently been procured at Jacobabad by Mr. J. A. Murray. “It is very abundant,” says Jerdon, “in many parts of Southern India, especially along the fine avenues of trees met with in many parts of Mysore and the Carnatic.” Concerning its *locale* in the Deccan, Messrs. Davidson and Wender write that they observed it but rarely about Sholapoor. It was commonest at Lanoli and Egutpoora, and its nest was taken on the Satara hills, where it is common in March. It was also seen at Nulwar. The Rev. Dr. Fairbank found it everywhere in the Khandala district, but nowhere abundant; he likewise obtained it in avenues at the north base of the Palanis. The localities recorded by Mr. Ball for it are the Rajmehal hills, Manbhun, Lohardugga, Sirguja, Gangpur and Samuda, Sambalpur and Orissa on the north of the Mahanadi, Nowagarh and Karial, and the Godaveri valley; and elsewhere (Str. Feath. 1874, p. 423) he remarks that most of the specimens he procured in Chota Nagpur belonged to this and not the northern species. Mr. Hume records it from Etawah, Bareilly, Oudh, Futtehghurh, and Meerut, and likewise from various localities in the Central Province, in all of which he states that it breeds.

Habits.—As regards this fine Pigeon's habits in Ceylon I know nothing but that it is said by Layard to be very fond of the fruit of the banyan. Jerdon states that “it comes in large parties, generally about 9 A.M., to certain spots on river-banks to drink, and, after taking a draught of water, occasionally walks a few steps on the damp sand, appearing to pick up small pebbles, pieces of gravel or sand.” Their call, he says, “is very similar to that of the Bengal Green Pigeon;” but this he does not describe. Like all its family it is

entirely frugivorous in diet. Captain Butler states that the berries of the *Ficus indica* appear to be its favourite food.

Nidification.—This Green Pigeon breeds throughout continental India from March till June, making, according to Mr. Hume, a typical Dove's nest, and laying two white eggs. Mr. Blewitt, writing concerning nests he found near Hansie, says that they "were placed on various trees, mostly growing on the canal-bank, at heights of from 14 to 18 feet from the ground. They were composed of Shishum, *Zizyphus*, and Keeker twigs, in some cases slenderly and in others somewhat densely put together. One or two were absolutely without lining; but they were mostly very scantily lined with leaves, feathers, or fine straw." This is remarkable for a Pigeon's nest, as they usually have no lining at all, and other observers testify to there being none in the case of this species. The birds sit very close, Messrs. Hume and Marshall both stating, with regard to nests found by them at different times, that they pelted the bird without her flying away. The eggs average in size "1.25 by 0.95 inch."

Genus OSMOTRERON.

Bill more slender than in *Crocopus*. Gape wide. Wings with the quills less pointed, the situation present in the 3rd primary; the 2nd quill the longest, and the 1st exceeding the 4th. Tail as in the last genus, of 14 feathers.

Of small size.

OSMOTRERON BICINCTA.

(THE ORANGE-BREASTED GREEN PIGEON.)

Vinago bicincta, Jerdon, Cat. B. S. India, Madr. Journ. 1840, xii. p. 13. no. 289; id. Ill. Ind. Orn. pl. 21 (1847).

Treron bicincta (Jerd.), Blyth, Cat. B. Mus. A. S. B. p. 229 (1849); Kelaart, Prodromus, Cat. p. 130 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiv. p. 57.

Osmotreron bicincta, Jerdon, B. of Ind. iii. p. 449 (1864); Beavan, Ibis, 1868, p. 371; Holdsw. P. Z. S. 1872, p. 465; Ball, Str. Feath. 1874, p. 423; Legge, Ibis, 1874, p. 25, et 1875, p. 399; Hume, Nests and Eggs, iii. p. 493; Armstrong, Str. Feath. 1876, p. 337; Oates, ibid. 1877, p. 163; Hume & Davison, ibid. 1878, B. of Tenass. p. 411; Ball, ibid. vii. p. 224.

The Parrot-Pigeon, Kelaart; *Orange-breasted Pigeon*, Sportsmen in India; *Green Pigeon*, Europeans in Ceylon. *Chota hurrial*, Hind., also *Koklah*; *Chitta putsa Guwa*, Telugu; *Patcha-prāā*, lit. "Green Pigeon," Tamils in Ceylon; *Groëne Duyven*, Dutch in Ceylon, Layard.

Batta-goya, lit. "Bamboo-Pigeon," Sinhalese.

Adult male and female. Length 10·3 to 10·6 inches; wing 5·5 to 5·8; tail 3·6 to 3·8; tarsus 0·75; middle toe and claw 1·1; bill to gape 0·75 to 0·8.

Females average smaller than males.

Iris carmine outwardly and beautiful cobalt-blue inwardly, divided by a narrow dark ring; eyelid glaucous green; bill with the soft basal half glaucous green, and the terminal part pale blue; legs and feet coral-red or pink-red; claws bluish brown.

Male. Forehead, face, and throat yellowish green, becoming greener on the fore neck and crown, and passing thence into delicate grey-blue on the hind neck and upper part of the interscapular region; back, scapulars, wing-coverts, and tertials brownish green, passing into greenish brown on the upper tail-coverts; quills deep cinereous blue or ashy black, the greater coverts and lowermost tertials with very deep sharply-defined primrose-yellow margins; primaries with narrow yellowish-white margins; secondaries narrowly edged with the same; tail bluish ashy, with a median dark band, and the terminal portion lighter than the base and showing whitish beneath; a narrow lilac band across the upper part of chest, succeeded by a broader band of orange-sienna; breast yellowish green, passing into yellow on the abdomen and into bluish cinereous on the flanks; centres of tibial plumes ashy green, and the margins yellowish; under tail-coverts cinnamon-red, the basal feathers with white outer edges; under wing concolorous with the flanks.

In some examples the under tail-coverts are much edged and tipped with albescent.

Female. Has the blue of the hind neck of less extent, but darker than the male; the upper surface is more overcast with brownish; the chest wants the lilac and orange bands; under tail-coverts whitish, the *inner webs mostly cinnamon*, and the bases of the feathers dappled with ashy.

Young. Immature birds have the outer circle of the iris reddish yellow. In first plumage they are all clothed in the garb of the female; and males, I believe, assume the light tints on the chest at the first moult, but the under tail-coverts do not become so bright as in the adult.

Obs. This species belongs to a small section of this beautiful genus, the members of which have an orange band on the chest. The other Indian members of the group are *O. vernans*, Linu., *O. phayrei*, Blyth, and *O. fulvicollis*, Wagl. The Ceylonese representatives of this species seem to constitute almost a diminutive race, measuring constantly less in the wing than continental birds. They correspond, however, too well in plumage (as far as I can judge from the small series with which I have compared them) with Indian birds to warrant my specifically separating them.

Two South-Indian specimens in the national collection measure in the wing 6·2 and 6·3 inches respectively. I have not met with any Northern-Indian examples; but on the other side of the Bay I find, from published data, that still larger measurements prevail. Dr. Armstrong records his specimens from the Irrawaddy delta as having a length of 11·5 to 12·0 inches, and measuring in the wing 6·1 to 6·5; this is again exceeded in Tenasserim by Mr. Hume's measurements, which range as high as 6·75 in the wing. On the other hand, with regard to Ceylonese specimens, I must remark that I measured and preserved far too few examples of this species, inasmuch as they were often transferred to my cook instead of to my taxidermist. As to variation in plumage, the lilac band and orange chest-patch in South-Indian birds are very much the same as in ours; the tint of the latter is perhaps slightly more rufous; in one specimen from South India the throat is yellower than in any of mine. In a female from India I observe that the slaty colour of the hind neck is more extensive, and the upper surface slightly greener than in my specimens, while the lower parts are not so yellow.

O. vernans differs in having the vinous collar in the male extending round the hind neck; the head and throat are slaty and the upper tail-coverts a pronounced rusty colour; under tail-coverts deep cinnamon-red in the male, and creamy white in the female, washed with cinnamon-red as in *O. bicincta*. The female has no ash-colour on the hind neck. Dimensions:—Siam, wing 5·9; Makassar, wing 5·7; Sarawak, wing 5·3. Tenasserim, ♂, wing 5·75 to 6·05 (*Hume*).

O. phayrei I have not seen; but Mr. Hume, in his diagnostical table of these Pigeons (*Str. Feath.* 1875, p. 162), gives, as distinguishing marks, the grey forehead, crown, and occiput, and the red mantle in the male, and the clear bluish-grey head and green central tail-feathers in the female. Dimensions:—Tenasserim, wing ♂ 6·0 to 6·25, ♀ 6·0 to 6·1.

Distribution.—This handsome Fruit-Pigeon is more or less common all round the coast of Ceylon. In the northern and wilder half of the island and in the south-east, where the sea-board is clothed with jungle, it is found close to the coast and is very abundant there; but in the Western Province and south-west it is principally located in the wooded country at the back of the cocoanut cultivation, and in these parts it extends further inland than in the above-mentioned. It is common in the Rayigam and Kuruwite Korales and in parts of Saffragam; and I have likewise met with it in valleys in the neighbourhood of Morowaka, but it is not so numerous there as lower down near the sea-coast. I have procured it about Kurunegala and in the Seven Korales, but not in such abundance as the next species, which is more forest-loving. At Uswewa, in the interior of the Puttalam district, Mr. Parker says it is found, and likewise about Anaradhapura. Layard states that he did not meet with it in the extreme north, but that he killed a few specimens in the Patchellepally district.

In India the distribution of this Pigeon is somewhat peculiar. It is not found at all in the western parts of Upper India. Mr. Hume has the following outline of its habitat in 'Nests and Eggs,' vol. iii.; he says, "It is entirely unknown in Kandeish, Guzerat, Kattiawar, Sindh, the Punjab, Rajpootana, and the North-west Provinces, and is only known in the sub-Himalayan terais of Behar and Oudh, and the eastern forest-regions of the Central Provinces. It is a purely Indo-Burmese type, not to be found, I think, in India out of the 60 inches rainfall regions, and, excluding Assam, Cachar, &c., is not, I believe, to be found over more than one third of India proper."

I do not find it recorded by many observers in South India, but I have seen specimens from the Carnatic. In the hills, where it is not to be expected that it would be found, it is seemingly replaced by *O. malabarica*, which is noticed as being found in the Travancore hills, in the Palanis, and in the Khandala ranges. Mr. Ball, on the testimony of Capt. Beavan, records it from Manbhum; the latter gentleman writes, in 'The Ibis,' 1868, that he found it in some abundance in the hilly forest-covered parts of that district, especially near Ambekannuggur and among the Jubec hills, where he noticed a flock of five or six. Mr. Cripps does not record it from Furreedpore, nor does Mr. Inglis from Cachar; but in the latter district it is said by Jerdon and Mr. Hume to be found. It inhabits portions of Pegu, and in the Irrawaddy delta is said to be abundant by Dr. Armstrong, more particularly in the evergreen forests between Elephant Point and China Ba-keer. He also says that it occurs in tolerable abundance in thin tree-jungle and hedges on the borders of forest land. In Tenasserim it is common throughout the Provinces, except in the higher hills; and lower down the peninsula I suspect it is entirely replaced by *O. vernans*, which is confined to the southernmost part of Tenasserim.

Habits.—The Orange-breasted Fruit-Pigeon affects low jungle, the outskirts of forest, detached rows of trees in open country, and sundry other localities where any of its favourite fruits abound. It associates in

small parties, as a rule, but collects in large flocks on trees which are in heavy fruit. Its favourite food consists of the berries of the Bo, Banyan, Palu, and Poppalille trees; on these it feeds with such avidity that it will return to the trees very shortly after being shot at. Its flight is swift; and when returning from its feeding-grounds in a continuous stream at evening-time it affords good shooting, as it crosses the roads in the northern and eastern jungles. This and the next species are much shot by the natives who possess guns; they take up their position beneath some fruit-bearing monarch of the forest, and shoot the Pigeons as they fly in to feed in the mornings. It has a regular time, like other Fruit-Pigeons and Doves, for drinking, which is about seven in the morning and four in the afternoon. The flesh of this species is succulent and well-flavoured; but it is not so delicate as that of the next bird. Its note is a hoarse croak, repeated at intervals, but it is usually a silent bird.

In the south of Ceylon I found that they fed much on wild dates; an example I shot near Galle had its crop almost extended to bursting with this fruit. They are fond of frequenting hedges of fruit-bearing trees in open land; and I have often seen them frequenting rows of the common "Caduru"-tree, although there can be nothing, of course, in the large nauseous fruit of that tree to tempt them.

Layard, who was under the impression that it only fed on berries from the highest trees (it is frequently found feeding on quite low trees), remarks as follows concerning it:—"Vast numbers are killed in the southern and western provinces by noticing what trees are in fruit, and watching at their foot for the birds, which are continually going and coming. It, however, feeds so silently and moves so seldom, that it requires much skill to detect a single bird out of a flock of fifty or sixty; and on the least alarm, which is communicated from one to another by a plaintive whistle*, they all dart off the tree as by magic; frequently, on firing at a bird which exposed itself, I have brought down seven or eight others which I could not see."

Captain Beavan found it feeding generally in Maubhum on the pulpy orange-coloured fruit of the *Strychnos nux-vomica*, which grows abundantly there and affords sustenance to many wild Pigeons.

Nidification.—I believe this Pigeon breeds for the most part in May and June, but that it also nests as late as August. Layard writes that "it forms a nest in the month of May, of sticks, with a very slight lining of roots, &c., in the fork of a tree, and deposits two shining white eggs: axis 14 lines (1.18); diameter 10 lines (0.85)." It would appear that the nest is very difficult to find; and I never succeeded in getting much reliable information from the natives concerning it. When interrogated on the subject they generally replied that its nest was far away in the "mukalaney" (forest); and in many parts they have an idea that no one has ever seen the nest of a "Batta-goya."

In the summer of 1871 some eggs were kindly sent me by the Mudliyar Disanayake of Baddegama, which were taken in bamboo-jungle, and said to belong to this Pigeon; they must have been those of this or the next species, if the locality was rightly given me, for they were not the Ground-Dove's eggs. They were pure white and oval in shape, and slightly larger than those of the Spotted Dove. I regret to say that they got lost with a number of other eggs before I had taken any measurements. In August 1876, while forcing my way through some dense bamboo-cheena in the Pasdun Korale, I flushed a female from a clump of bamboos; she flew into an adjoining thicket and there remained, from which I infer that she was sitting; it was, however, raining so hard that I could not find the nest, and after a short search I gave up looking for it.

Few have been successful in India in finding its nest. Blyth records one which was built halfway up a small mahogany-tree in the Calcutta gardens. Hodgson states that it breeds in the Terai in April and May and in the low valleys at the base of the Nepal hills, making a loose stick nest on branches of trees at no great elevation from the ground, and laying two eggs. Mr. Irwin, as recorded by Mr. Hume, found its nest in Hill Tipperah; it was a slight structure of thin twigs, loosely put together, and laid towards the end of a branch of a small tree. It contained two eggs.

Mr. Oates, again, took the nest in a thick bush about 7 feet from the ground; it was merely a few sticks laid together like a Dove's. The eggs were "white, with a little gloss, 1.06 and 1.09 by 0.87 respectively." The eggs sent by Mr. Irwin measured 1.1 and 1.02 in length by 0.9 and 0.85 in breadth.

* This would appear to refer to the other species, *O. pompadora*.

OSMOTRERON POMPADORA*.

(THE POMPADOUR GREEN PIGEON.)

Colomba pompadora, Gm. ed. Syst. Nat. i. p. 775. no. 9, "Zeyloniæ" (1788); Walden, Trans. Zool. Soc. 1875, ix. p. 212.

Treron malabarica (Jerd.), Blyth, Cat. B. Mus. A. S. B. p. 229 (1849, in part); Kelaart, Prodromus, Cat. p. 130 (1852); Layard, Ann. & Mag. Nat. Hist. 1854, xiv. p. 58.

Treron flavogularis, Blyth, J. A. S. B. 1857, xxvi. p. 225; Wall. Ibis, 1865, p. 375 (in part).

Treron pompadora (Gmel.), Wall. t. c. p. 375 (in part); Schlegel, Mus. P.-B. 1873, p. 52.

Osmotreron flavogularis (Bl.), Jerdon, B. of Ind. iii. p. 452 (1864); Legge, Ibis, 1874, p. 25.

Osmotreron pompadora (Gmel.), Jerdon, t. c. p. 452 (in part); Holdsw. P. Z. S. 1872, p. 465; Hume, Str. Feath. 1879 (List of Ind. B.), p. 109.

Pompadour Pigeon, Brown, Illustr. pl. 19 (male), pl. 20 (female); *Green Pigeon*, Europeans; *The Maroon-backed Pigeon*. *Patcha-prāā*, also *Alam-prāā* (Trincomalie district), Ceylonese Tamils.

Batta-goya, Sinhalese.

Adult male and female. Length 10·3 to 10·6 inches; wing 5·5 to 5·7; tail 3·5 to 3·8; tarsus 0·8; middle toe and claw 1·0 to 1·1; bill to gape 0·9 to 0·95.

Iris carmine-red, with a cobalt inner circle; eyelid glaucous green; bill glaucous green, paling to bluish on the apical portion; legs and feet purple-red.

Male. Forehead, face, and loreal region greenish yellow, blending into the purer yellow of the throat and the ashy blue of the crown and nape, which latter blends into the ashy green of the hind neck and its sides; interscapular region, scapulars, and all but the two greater rows of coverts maroon; lower back, rump, and central tail-feathers dull green; remaining rectrices green at the base (except on the two outer ones), passing into black across the centre, and with deep bluish-ashy tips, showing whitish beneath; quills ashy black, the outer and greater coverts, secondaries, and tertials sharply edged with rich primrose-yellow, very broadly on the tertials and inner coverts, and decreasing towards the anterior portion of the wing; beneath yellowish green, blending into bluish ashy on the flanks and flavescent on the abdomen; tibial plumes dark greenish ashy, broadly edged with yellowish white; under tail-coverts white, with a faint rufescent yellowish tinge, and with the bases of the feathers speckled with ashy; under wing-coverts bluish ashy.

Female. Forehead and face not so yellow, but the throat the same as in the male; upper surface brownish green, without the maroon mantle; the yellow wing-edgings not so bright, and the under tail-coverts with more ash-colour at the base.

Young. Iris with the outer portion yellow, or reddish yellow, instead of carmine.

Males of the year are clothed in the dress of the female, and put on the maroon mantle by an alteration in the colour of the feather, acquiring the bluish cap or crown at the same time.

Obs. Gmelin's species, which was afterwards named *O. flavogularis* by Blyth, is noted by Mr. Hume as occurring in South India; but Lord Walden, in his list of the species of *Osmotreron*, in the 'Transactions of the Zoological Society,' 1875, enters it as found in Ceylon only. The published data as to its occurrence in South India are so scanty that I am myself unable to form an opinion as to whether it is or is not peculiar to Ceylon. Jerdon,

* I have retained the original spelling of Gmelin; the name, of course, has reference to "Pompadour;" but it seems to me very unadvisable to alter the original orthography of a *specific* name, except when an error of gender has been committed.

who states that he had noticed it as a variety of *malabarica* from South India, before it was discriminated as *O. flavogularis* by Blyth, was not aware what localities it frequented, although, many years previous to his publication of the 'Birds of India,' he mentions the shooting of a specimen which appears to have been the same. I conclude, however, that Mr. Hume has specimens from the south of the peninsula, and I will only add that Blyth discriminated his *flavogularis* from Ceylon specimens; and therefore it is plain that his species is the same as Gmelin's.

- O. pompadora* differs from *O. malabarica* chiefly in the coloration of the under tail-coverts. In the male of the latter the longer feathers are cinnamon-colour, and the shorter lateral ones whitish with slaty green bases; the forehead is ashy white, darkening gradually to slaty on the crown and nape; the mantle is maroon, as in our bird, but the rump and upper tail-coverts are yellower; the throat is likewise yellow; wing of a South-Indian specimen 5.7.
- O. griseicauda*, Wallace, from the Sula Islands and Celebes, belongs to the same section as *O. malabarica*. It has the face, forehead, and crown fine leaden grey; the mantle, scapulars, and lesser wing-coverts maroon, the colour not extending so much to the point of the wing as in *O. pompadora*: ♂, Sula Islands, wing, 5.75; Java (*O. pulverulenta*, Wall.), wing 5.6.
- O. chloroptera*, Blyth, from the Andamans, has the under tail-coverts green, with cream-coloured tips in both sexes; it is more closely allied to our bird than the Celebean species, differing chiefly in having the forehead bluish white; the crown is bluish, as in *O. pompadora*, the wing-coverts and tertials are more broadly margined with yellow; rump and upper tail-coverts greenish yellow; throat greenish.

Distribution.—This stout handsome little Pigeon is very abundant throughout all the inland forests and well-wooded districts of Ceylon. On the north-east coast, however, where the forest and wild jungle grow down to the water's edge almost, I have met with it in numbers close to the sea; but, as a rule, its place is taken on the sea-board by the last-mentioned species. In the forests of the Vanni, and, in fact, throughout the northern half of the island, in the Eastern Province, and in the jungle-country south of Haputale, it is abundant. In the latter region I did not notice it near the sea, except where the rivers were lined with forest containing fruit-bearing trees; but the Orange-breasted Pigeon was to be seen in the scrubs near the sea wherever they were interspersed with Palu-trees. In the south-west this latter species is, as I have already remarked, common in wooded country not far from the coast; but the present is met with first in noticeable numbers some distance up the rivers, and becomes numerous in the Odogamma district, inhabiting thence the Hinedun pattu up to the Singha-Rajah forest on the borders of the Kukul Korale, where I have seen it at an elevation of 2000 feet. Further north, in the low-lying wooded and semi-cultivated portion of the Kukul Korale and in the forest-country of the Pasdun Korale, it is very numerous, extending throughout Saffragam: round the base of the Peak it swarms; in fact, I do not think I found it anywhere on the western side of the island more abundant than in Mr. Chas. de Zoysa's timber-forests at Kuruwite in the month of August. Layard first procured it in the Matale district on the Balacadda Pass: thither it extends up from the low country between Nalanda and Matale, where it is very numerous. On the western base of the West Matale ranges it is equally plentiful, and in the Seven Korales and Kurunegala district is more numerous than the last species. Mr. Parker notes it from Uswewa and Anaradhapura.

Its range as a South-Indian species appears to be very limited. Jerdon, who writes of it under Blyth's subsequent title of *flavogularis*, and mentions that it was discriminated from Ceylon specimens by that naturalist, has the following statement (to which I have alluded above) concerning it:—"I had long previously noticed it from the south of India as a variety of *malabarica*, but I am not aware what particular localities it affects." Writing many years previously of *O. malabarica*, he speaks of an example which appears to me to have belonged to the present species. "One specimen," he remarks, "that I shot in Malabar differs from the others in having the face, forehead, and chin yellow, the under tail-coverts mottled with green and white, and in the bluish tips of the lateral feathers being broader" than in *malabarica*.

The Pompadour Pigeon was first made known from Ceylon, whence specimens were sent by Governor Loten to Brown.

Habits.—This Pigeon is an inhabitant of woods, forests, and openly-timbered country; it collects together in the fine Banyan-, Bo-, and Palu-trees which are scattered through the low jungles of the eastern and northern districts, and also in the magnificent outspreading Mee-trees which line the borders of the jungle tanks, and in such resorts feeds in flocks on the luscious berries which these large trees provide. Its

flesh is at all times delicious; but when killed during the fruiting-time of the banyan and iron-wood, there is nothing which surpasses this Pigeon in flavour in the island. It is a shy bird and difficult to kill, except when feeding; it may then easily be shot out of large forest trees, provided the sportsman be concealed, as it feeds so greedily that many do not take flight on the discharge of a gun. They collect in troops of a dozen or more early in the morning or after feeding, and sit motionless on the tops of trees; on being alarmed, one or two dart off, and are followed by their companions, one after another, till the whole have taken flight. They are very strong on the wing, and fly with a steady straight course. Their note is a melodious, soft, modulated whistle, which can be precisely imitated, and by doing which many are enticed, by "Enrasians" in the north of Ceylon, into uttering it, and are thus more easily descried in the green foliage and then shot. There is something peculiarly charming in their human-like notes when heard in the tops of lofty trees overshadowing the mighty bunds by which the ancient kings of Ceylon dammed up valleys and skilfully formed vast reservoirs for the support of their subjects in the wild forests of the Vanni. In the Wellaway Korale, where this Pigeon is abundant, I have seen, as in the case of the two preceding species, large flocks in scattered company returning in the evening from their feeding-grounds or from the widely-dispersed water-holes of that district; and by remaining in wait for them in the same position, I have had excellent shooting. Both this and the Orange-breasted Pigeon, however, are very strong birds, and take more hitting to bring them down, especially when perched, than almost any bird of the same size in Ceylon.

Doubt has been expressed whether Brown's figure of Governor Loten's specimen from Ceylon really represents this species or not, and it has been thought that there may be some other Pigeon on the island to which the title of *pompadora* was applied; but Brown's account of the habits of Governor Loten's Pigeon can, inasmuch as it refers to an abundant species, only relate to the Pompadour Pigeon; it is as follows:—"These birds are never seen on the ground, but always perched on high trees, generally the *Warringengrothebia*, on the berries of which they delight to feed. They are good food, and often shot by the Europeans. The natives eat them with bird-lime. In this manner, says Mr. Loten, who was Governor of Ceylon, I once found some hundreds, if not more, by break of day, sticking to the boughs of the great Warringeng tree, and sent a native servant to take them off."

In those days the natives of Ceylon must have been more expert bird-eaters than they are at the present time.

Nidification.—I was unable to obtain any information from the natives of the island as to the breeding of this species. It probably nests high up in umbrageous trees and at the extremities of boughs, easily escaping the unobservant eye of the Singhalese villager.

