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THE PASSERINE BIRDS OF CEYLON.

By W. E. ^{alter}WAIT, M.A., F.Z.S.

(With two Plates.)

THE present paper completes the rough draft for the proposed Handbook on the Birds of Ceylon, and as soon as it appears in print, I shall be able to undertake the task of revision for publication in volume form. The *Passeres* were originally to have been described by Mr. W. A. Cave. As, however, during the whole period of the war Mr. Cave was engaged on local military duties, in addition to his own professional work, and as soon after his demobilization he left the Island, he was unable to finish the task. Before his departure he handed over to me descriptions, in practically complete form, of the first sixty species. Consequently this instalment owes much to his preparation.

It is now over six years since the scheme for the Handbook was first proposed, but the unavoidable delay caused by the war has not been without advantages. Mr. E. C. Stuart Baker, the recognized authority on the ornithology of the Oriental region, is at present bringing out in the Journal of the Bombay Natural History Society a revised list of the Birds of India on a trinomial classification. It will, therefore, be possible to take advantage of the latest classification when publishing the Ceylon Handbook.

Thirty years ago, when Oates and Blanford wrote their standard work on the Birds of British India, the binomial system, founded by Linnæus in the middle of the eighteenth century, was still universally used in all branches of Natural History. That is, each species was described scientifically by its generic and specific names. For instance, the House Sparrow was known as *Passer domesticus*. Since then, however, ornithological workers, especially field workers, have

Genus CLINTERIA.

IMPERIALIS Paykull (1817), Schönh. Syn. Ins., I., 3, App., p. 58.

Colombo, Peradeniya (in rotten wood), Hantana.

CHLORONOTA Blanchard (1850), Cat. Collect. Ent. Paris, p. 38.

QUATUORDECIMMACULATA Fabricius (1792), Ent. Syst., I., 2, p. 150.

Genus MACRONOTA.

QUADRIVITTATA Schaum (1848), Trans. Ent. Soc., London, V., p. 68, pl. 2, f. 4.

Talgaswella.

Genus PROTÆTIA.

AURICHALCEA Fabricius (1775), Syst. Entom., I., p. 49.

Ambalangoda.

WHITEHOUSEI Schaum (1848), Trans. Ent. Soc., London, V., p. 72, pl. 11, f. 3.

A single specimen.

ALBOGUTTATA Vigors (1826), Zool. Journ., II., p. 238, pl. 9, f. 3.

Genus OXYCETONIA.

VERSICOLOR Fabricius (1775), Syst. Entom., I., p. 51.

Hirimbura, near Galle.

var. CRUENTA Pallas (1781), Icones Ins., p. 21, pl. B, f. A 24.

var. VARIEGALA Fabricius (1775), Syst. Entom., I., p. 51.

Puwakpitiya.

Genus ANTHRACOPHORA.

CRUCIFERA Olivier (1789), Entom., I., 6, p. 39, pl. 5, f. 29.

Genus CÆNOCHILUS.

TAPROBANICUS Westwood (1874), Thes. Ent. Oxon., p. 46, pl. XII., f. 8.

Seenigoda.

A single male was found in a subterranean nest of TERMES HORNII, Wassmann.

gradually realized that this classification was hardly sufficient in the case of many widely distributed species. It was apparent, for example, that with many birds which ranged all over the Indian Empire forms from the deserts of North-West India differed noticeably and constantly, on the one hand, from the forms met with in the Himalayas, and, on the other hand, from those found in Ceylon or Southern Burma, though each geographical race passed into the next by the most gradual transitions throughout the intervening areas. Under the old binomial system all these geographical races had either to be lumped together under one specific name, or split into a variety of species with very minor distinctions. Sometimes one course was adopted, sometimes the other. In Oates' and Blandford's "Birds of British India" the geographical races of the Madras Red-vented Bulbul, which is found practically all over India and Burma, are divided into six different species. On the other hand, the common Indian Crow Pheasant, in which there are several well-marked geographical races, is treated as one species.

To meet the situation, modern ornithologists, wherever necessary, have adopted a trinomial classification, which enables them to differentiate sub-species. For the definition of a sub-species I quote Mr. Stuart Baker: "A sub-species is a geographical race or variation differing in some respect from the form first described as the species, yet linked to it by other intermediate forms found in intervening areas. It is essential, however, that to entitle such a variation to a trinomial, it should have arrived at a point in its evolution sufficiently advanced to enable it to exist as a permanent form within some definite area. From this it will be seen that a sub-species is merely a term for a species in the making."*

The principle on which the system is worked may be explained briefly as follows: Where it is necessary to divide a species, the sub-species identical with the form from which the species was originally described is expressed by repeating the specific name; the new sub-species is given an appropriate

* "Sub-species and the field Naturalist." *Journal of the Bombay Natural History Society*. May, 1919. Vol. XXVI., part 2, p. 518.

sub-specific name. Thus, if one wishes to describe as a new sub-species the Ceylon form of the Magpie Robin—*Copsychus saularis*—it may be shown as *C. saularis ceylonensis*. The Indian form, to which the name *C. saularis* was first applied, would become *C. saularis saularis*. Where two or more forms originally ranked as separate species are to be re-grouped as sub-species, the form which has the oldest scientific name takes precedence. Thus, the Common Indian Mynah and the Ceylon Mynah, formerly ranked as separate species—*Acridotheres tristis* and *A. melanosternus*—are now considered to be merely sub-species of the same bird. *A. tristis* was named by Linnæus in 1766, *A. melanosternus* by Legge in 1879. The Indian form, therefore, becomes *A. tristis tristis*, and the Ceylon form *A. tristis melanosternus*.

At the beginning of last year Mr. Stuart Baker kindly furnished me with a manuscript list of the Ceylon *Passeres*, showing several modifications made in the family groups since the time of Oates, and also giving the trinomials of Ceylon forms as far as he had then worked them out. In order not to delay this instalment I have followed this admittedly incomplete and tentative list, but there is no doubt that Mr. Baker's catalogue, when completed and printed, will contain a good many further modifications. As I have already noted, the Ceylon Handbook in its volume form will follow Mr. Baker's classification as eventually published.

Order **PASSERES.**

Passerine Birds.

For all the wide diversities of size, colour, and outward form, the whole range of birds is wonderfully alike in general structure, and the differences between the most divergent ornithological orders are not nearly so great as those between even nearly allied orders of mammals. The structural keymarks distinguishing the *Passeres* lie in the formation of the bones of the palate and in the two tendons which run down the leg and serve the toes. These two tendons, known

as the deep plantar tendons, vary in their disposition. They are said to be Passerine when the one tendon serves the three front toes and the other the hind toe, both tendons being wholly disconnected in such a manner that the hind toe is mobile and worked independently of the other three. All the *Passeres* are also characterized by possessing an arrangement of the bones of the palate known as "ægithognathous." The combination of Passerine deep plantar tendons with the above-mentioned form of palate will always serve to distinguish the *Passeres* from any other order. I do not propose, however, to go further into these structural characters, as it is not a difficult matter to diagnose all Ceylon forms of the order by outward marks, as follows.

They are all birds of medium or small size ; with the single exception of the crow family, they never run larger in the body than a Thrush or Mynah, and are frequently smaller. The young when hatched are in a helpless and almost naked condition, being clothed at first merely with a few isolated patches of down. The bill is never furnished at the base with a cere, or membrane of soft skin. The legs are feathered down to, but no further than, the tarsal joint. Lastly, the outward structure of the feet is typically constant. The first, or hind toe, also known as the hallux, is always present, and is movable independently of the three front toes, while the front toes are separated from each other down to their bases. Compare, for instance, a crow—a Passerine bird—with an Indian Roller, often erroneously called a Blue Jay. Both birds are of the same size and build, but in the Roller the middle front toe is united to the outer toe at the extreme base, and to the inner toe for the length of the first joint. Again, in certain other orders, such as the Cuckoos, the feet are "zygodactylic," i.e., two toes only are turned to the front, while the first and fourth toes are directed backwards.

The *Passeres* are by far the largest order of birds, comprising at least half of all the living species. They are also generally acknowledged to be the most specialized and most highly organized order. In other words, at the present general stage of evolution, they are the dominant ornithological order, and, as Darwin has pointed out, dominant groups show the

greatest tendency to variation. As a consequence, though there are many exceptions, the average Passerine species are confined to smaller areas than less specialized and more widely distributed species and sub-species of other orders. This is well shown by a comparison of the list of birds found within the wide area of the Indian Empire with the list of our smaller area in Ceylon. In the Indian list the Passeres occupy a full half. In the Ceylon list, however, we find that only one-third of our birds or about 120 species are Passerine. It is not so much that Ceylon, taking into account its varieties of climate and configuration, is remarkably poor in birds of the order, but that a very large proportion of the Indian forms are confined to restricted areas, being replaced in other areas within the Empire by different, but closely allied, species and sub-species.

With such a large assemblage of forms belonging to a single order and possessing the same main structural characters, the task of classification is extraordinarily difficult, and few ornithologists agree in all particulars regarding the grouping of the various species into families, or the sequence in which the families themselves should be arranged. The order is divided primarily into two main groups, based on a difference in the structure of the syrinx, or organ of voice. In the *Acromyodi* the intrinsic muscles of the syrinx are attached to the ends of the open rings of the bronchial tubes; in the *Mesomyodi* these muscles are much simpler, and are attached to the middle of the rings. This division need not, however, greatly trouble the Ceylon student. The *Mesomyodi* are found mainly in the New World, and only one species of the group, the Indian Pitta—*Pitta brachyura*—occurs in Ceylon. It happens to possess a very distinctive plumage, and is also to be diagnosed by the formation of the wing. It has ten primary wing quills,* and the first primary is nearly as long as the second. Many Ceylon *Passeres* have ten primaries, but in every other such case the first primary is markedly small.

* The primary quills are those which spring from the pinion—i.e., the outer portion of the wing, beyond the "elbow," which is really the joint corresponding to the wrist.

As regards the *Acromyodi*, I propose to follow the classification given by Oates in volumes I. and II. on Birds in the Fauna of British India, making, however, one or two modifications communicated by E. C. Stuart Baker. According to this classification, twenty families belonging to the group are found in Ceylon. Some of these families may be marked off by clear, though minor, structural characters. For instance, the Larks have the hinder side of the tarsus scutellated; the Sun-birds and Flower-peckers have the edges of the bill serrated; the Swallows, Wagtail family, and the Sparrows have only nine primaries; while the Weaver-bird family and the Sparrows have conical bills, in which the nostrils are set very far back, and lie nearer to the ridge than to the cutting edge of the mandible. The remaining families, however, all possess ten primaries, the first being small, and no structural differences sufficient or constant enough to serve as sharply defined lines of division. Oates, therefore, fell back on a system of grouping according to the types of plumage normally found in the young of each family. He recognized five main groups. In the first the nestling resembles the adult female, but is paler; in the second it is more brilliant than the adult female, and is generally suffused with yellow; in the third it is transversely barred; in the fourth streaked; in the fifth it is mottled or scaly-patterned. In certain genera, however, the young are exceptions to the normal family rule. For instance, some nestling Flycatchers and Thrushes are plain and not mottled.

I give below a short synopsis of the Passerine families found in Ceylon. Where possible, in addition to the structural points, I have given short remarks on distinctive characters of form, colour, and size, which will render identification more easy for the beginner; but it must be remembered that in some cases these latter distinctions hold good only for the limited number of forms occurring in this Island. I hope that this synopsis, taken in conjunction with the short descriptions given in the text at the beginning of each family and sub-family group, will enable beginners to get a fair grasp of the different families belonging to this order, which are found within our limits.

Synopsis of Passerine Families found in Ceylon.

ACROMYODI.

- A.—Wing with ten primaries, the first being small ; edges of mandibles not serrated ; hinder part of tarsus smooth ; nostrils clear of line of forehead.
- (a) Plumage of nestling resembles that of adult female, but paler.
- (1) Nostrils completely hidden by bristles ; first primary over $\frac{1}{2}$ length of second ; size large, length over 16 inches. *Corvidæ* (Crow family)
 - (2) Nostrils completely hidden by bristles ; first primary not over half length of second ; size small, length $5\frac{1}{2}$ inches. *Paridæ* (Tits)
 - (3) Nostrils bare or overhung only by a few hairs or plumelets ; inner and hind toe equal ; size medium or small. *Crateropodidæ* (Babblers, Bulbuls, and their allies)
 - (4) Nostrils overhung by a few hairs ; climbing birds ; hind toe much longer than inner ; size small. *Sittidæ* (Nut-hatches)
 - (5) Tail forked and with only ten feathers ; plumage mainly black. *Dicruridæ* (Drongos)
- (b) Plumage of nestling resembles that of female, but brighter.
- (1) Size smallish, seldom reaching $7\frac{1}{2}$ inches. Plumage generally plain. *Sylviidæ* (Warblers)
- (c) Plumage of nestling cross-barred.
- (1) Size variable ; bill strong, hooked, and notched. *Laniidæ* (Shrikes)
- (d) Plumage of nestling normally streaked.
- (1) Rictal bristles present ; size medium ; plumage bright yellow and black. *Oriolidæ* (Orioles)

- (2) Rictal bristles present ; size medium ; plumage mainly glossy black. *Eulabetidæ* (Grackles)

- (3) No rictal bristles ; size medium . . *Sturnidæ* (Mynahs and Starlings)

(c) Plumage of nestling normally streaked or scaly-patterned.

- (1) Nostrils covered by horizontal hairs ; size variable ; legs and feet weak. *Muscicapidæ* (Flycatchers)

- (2) Nostrils not covered by horizontal hairs ; size medium ; legs and feet fairly stout. *Turdidæ* (Thrushes)

B.—Wing with either nine or ten primaries ; edges of mandibles not serrated ; hinder part of tarsus smooth ; bill conical, the nostrils pierced within line of forehead and closer to the ridge of the bill than to the cutting edges.

- (1) With ten primaries, the first small ; size small or very small. *Ploceidæ* (Weaver Bird family)
- (2) With nine primaries, the first and second nearly equal ; size small. *Fringillidæ* (Finches and Sparrows)

C.—Wing with nine primaries, the first and second nearly equal ; edges of mandibles not serrated ; hinder part of tarsus smooth ; bill not conical.

- (1) Wings long and pointed ; in the folded wing the longest secondaries fall far short of the tips of the primaries. *Hirundinidæ* (Swallows)

- (2) In the folded wing the longest secondaries reach almost to the tips of the primaries. *Motacillidæ* (Wagtails and Pipits)

- D.—Hinder part of tarsus scutellated ; wing in all Ceylon forms with ten primaries, the first being small. *Alaudidæ* (Larks)
- E.—A white ring of small close-set feathers round the eye ; tongue split into two, each half broken up into a bunch of brush-like fibres ; size very small. *Zosteropidæ* (White-eyes)
- F.—Bill with the terminal third of both mandibles finely serrated ; size very small.
- (1) Bill long, curved, and cylindrical. *Nectariniidæ* (Sunbirds)
- (2) Bill short and triangular . . *Dicæidæ* (Flower-peckers)

MESOMYODI.

Wing with ten primaries, the first being large . . *Pittidæ* (Pittas)

Family CORVIDÆ.

Crows, &c.

The *Corvidæ* are the first of a group of five families found in Ceylon, in which the plumage of the nestling resembles that of the adult female. Structurally they differ from the *Paridæ*—Tits—in that the first primary is considerably over half the length of the second, and, from the other three families of the group, in that the nostrils are completely hidden by feathers and bristles instead of being bare or only partially concealed. The *Corvidæ* are represented in Ceylon by three birds: the two familiar species of crow and the beautiful Ceylon Jay, or more properly Magpie, which is found only in the hills. They are our largest Passerine birds. The bill is fairly powerful ; the nostrils are clear of the line of the forehead and are protected by horizontal bristles ; the legs and feet are stout, the back of the tarsus is smooth, the front scutellated—*i.e.*, covered with shield-like plates—the hind toe is well developed,

but inferior in length to the middle toe. The sexes are alike, and there is only one moult, in the autumn. The plumage of the nestling is paler than that of the adult.

In the genus *Corvus* the plumage is mainly black ; the bill is slightly curved at the tip, but not notched ; the nostrils lie far forward, and the bristles which conceal them are long and stiff ; the wings are long and pointed ; the tail moderate and rounded. In the genus *Cissa* the plumage is brightly coloured ; the bill has a perceptible notch at the tip ; the nostrils are near the base of the bill, and the concealing bristles are rather soft and short ; the wings are short and rounded, and the tail long and graduated.

Key to Ceylon Corvidæ.

1.—Plumage mainly or wholly black, genus *Corvus*.

(a) Wholly black.

Corvus coronoides culminatus (The Black Crow).

(b) Neck dark smoky-gray.

C. splendens protegatus (The Ceylon House Crow).

2.—Plumage mainly bright blue and chestnut.

Cissa ornata (The Ceylon Magpie).

CORVUS CORONOIDES CULMINATUS.

The Black Crow.

Corvus macrorhyncus (Oates, Vol. I., p. 17) ; *Corone macrorhynca* (Legge, p. 346).

Description.—Entire plumage black ; hind-neck and sides of neck glossless ; scapulars, wing coverts, rump, and outer tail feathers glossed with purple ; throat and breast glossed with dark steel blue ; the bases of the body feathers light smoke gray in birds from the dry districts, darker and brownish in birds from the wet zone. Pied and albino specimens are met with occasionally, and one bird in the Colombo Museum is a pale smoky-brown, slightly darker on the back and abdomen.

Bill black ; iris hazel brown ; legs and feet black. Dimensions rather variable : average length about 18 ; wing 11·5 ; tail 7 ; tarsus 2·1 ; bill from gape 2·25. Males are rather larger than females.

Distribution.—Found all over the low-country, except on the strip round the coast line, where it is largely replaced by the next species. Above 2,000 feet its numbers diminish, and in most localities over about 4,000 feet it appears merely as a casual visitor, but sometimes in fair numbers. The sub-species found in Ceylon occurs over a large part of India. Allied sub-species are found in Australia, South-eastern Asia, China and Japan.

Habits.—This Crow is fairly abundant, but is not nearly so gregarious as the next species. In the villages and jungles it is seen usually in pairs, but in the inland towns it may be met with in greater numbers. It is fairly omnivorous, feeding on all sorts of garbage and carrion, and is a great egg thief. The breeding season is from June till August. The nest is a large structure of twigs placed high up in a tree, or on the crown of a coconut palm. There is a fairly substantial rough lining of coconut fibre, or of grass, fine roots, wool, &c. The eggs, three or four in number, are longish ovals, as a rule slightly pointed at one end. The ground colour is light green, at times with a blue or gray tinge, speckled with brown and more washy under-markings of brownish-gray. Average size 1·63 by 1·12.

CORVUS SPLENDENS PROTEGATUS.

The Indian House-Crow.

Corvus splendens (Oates, Vol. I., p. 20) ; *Corone splendens* (Legge, p. 349).

Description.—Forehead, crown, and lores glossy black ; chin and throat black with a slight steel-blue gloss ; back, wings, and tail black glossed with purple and greenish ; the nape, ear coverts, the sides and back of the neck dark smoky-gray ; the breast darker, almost black ; remainder of lower

parts dull black, with a slight greenish gloss ; the bases of the body feathers white. Birds from the dry districts appear to be quite as dark as those from the wet zone. Pied and albino specimens are occasionally seen. Young birds are duller and less glossy.

Bill black ; iris dark brown ; legs and feet black. Dimensions a little variable. Length about 16·5 ; wing 10·5 ; tail 6·25 ; tarsus 1·9 ; bill from gape 1·9.

Distribution.—Found all round the coast, except, perhaps, in the waste tract between Hambantota and Arugam Bay, but never far inland. Various geographical races of this Crow are found throughout India and Burma. The form occurring in Ceylon is now recognized as a distinct sub-species. Unlike its Indian relatives, the Ceylon form is never found far from the sea. In Legge's time it was rare even on the coast south of Kalutara on the west and Arugam Bay on the east ; but nowadays it is common, at any rate as far east as Hambantota. It is especially numerous in the towns and villages throughout its range, but generally avoids uninhabited stretches of coast line. Where found in any numbers, it has driven out the Black Crow. The curious distribution of the two species is well seen in the Tangalla district of the Southern Province. In the coastal bazaars, such as Tangalla and Ranna, and at Weeraketiya and other villages, about 8 miles inland, the present species occurs ; whereas in the intervening fields and chena tracts the Black Crow still holds its own.

Habits.—The House Crow is even more omnivorous and far more gregarious than the last species, while its cunning and thievish impudence are well known to all Colombo residents. The breeding season is from May to August, but mainly in May and June. The nest is similar to that of the Black Crow, but the birds generally build in scattered rookeries. The eggs, generally four in number, are oval, slightly pointed at the smaller end. The ground colour is usually brighter than in those of the last species, the markings are darker and more profuse, while the under-markings are seldom so noticeable, and are at times altogether absent. Average size 1·4 by 1·06.

CISSA ORNATA.

The Ceylonese Magpie.

Cissa ornata (Oates, Vol. I., p. 29; Legge, p. 353).

Description.—Head, neck, upper breast, and upper back rich glossy chestnut; rest of body royal blue, shading into lighter blue on the lower back, flanks, and abdomen; the wing coverts shade from the hue of the back into dull brown, faintly washed with blue, on the primary coverts; wing quills chestnut on the outer, blackish-brown on the inner webs, the inner webs of the tertiaries deep blue; thighs dusky-brown washed with royal blue; tail deep blue, the outer edge of the outside feathers and the tips of all the feathers white with a more or less irregular patch of black between the blue portion and the white tips.

In young birds the tail is much shorter and the plumage paler.

Bill, legs, and feet coral red; iris light brown; eyelids red and wattled at the edges, orbital skin rather paler.

Length about 18·25; wing 6·5; tail 10·5; tarsus 1·7; bill from gape 1·6.

Distribution.—Peculiar to Ceylon. It is confined to the hills, but in the damp south-west districts it is found as low down as 1,000 feet. It probably visits the lower ranges only in the north-east monsoon.

Habits.—A shy bird which goes about in small parties and keeps to heavy jungle. It spends most of its time in the branches of tall trees, but also frequents the undergrowth in search of lizards and beetles, which together with wild fruits form its food. The cry is said to resemble the clanking of a loose connecting rod on a locomotive. It appears to breed in the higher hill ranges during the north-east monsoon. The nest is placed in the top of a tree and much resembles that of a crow, but is not so carelessly put together. The eggs are bluish-green, thickly spotted all over with light umber-brown over larger under-markings of bluish-gray. Size about 1·3 by ·98.

Family PARIDÆ

Genus **Parus.***Tits.*

Oates in the "Fauna of British India" treats the Tits as a sub-family of the *Corvidæ*, but by most ornithologists they are raised to the rank of a family. As in the *Corvidæ*, the nestling plumage resembles that of the adult, though paler, and the nostrils are concealed by bristles. The first primary, however, does not exceed half the length of the second.

Tits are found over the greater part of the globe; but only one representative, the gray Tit, so familiar to up-country residents, is found in Ceylon. They are all small birds, and bear a great family resemblance. The bill is short and conical, and, though somewhat curved, is not hooked at the tip. The rictal bristles are short, those concealing the nostrils short and thick. The wings are weak and rounded. The legs and feet are fairly stout. In the genus *Parus* there is no crest, and the tail is slightly rounded. In their habits all Tits are more or less alike, going about in pairs or small parties, and roaming actively about the trunks and branches of trees in search of the insects and seeds on which they feed.

PARUS MAJOR MAHRATTARUM.

The Indian Gray Tit.

Parus atriceps (Oates, Vol. I., p. 46; Legge, p. 557).

Description.—Head, neck, and chest black, save for a broad white patch on the cheeks and ear coverts; a broad band of black runs down the centre of the breast and abdomen; the nape is bordered behind by a whitish patch; the rest of the back, the scapulars, rump, and the wing coverts bluish-gray, the greater wing coverts edged with gray and broadly tipped with white; wing quills blackish-brown, the longer primaries narrowly and the tertiaries more broadly edged with white; upper tail coverts deep bluish-gray; tail black, the outer feathers white with broad black inner margins and black shafts; the sides of the breast and abdomen whitish, deepening on the flanks to the hue of the back; under tail coverts black in the centre, white at the edges.

In young birds the gray of the back is tinged with yellow and the white of the under parts with buff.

Bill black; iris brown; legs and feet lead colour. Length about 5·5; wing 2·75; tail 2·4; tarsus ·7; bill from gape ·5.

Distribution.—The Indian race of the Gray Tit is found almost throughout the Indian Empire. In Ceylon it is common above about 2,000 feet. In the low-country forests it is rare, but seems to be resident here and there, and appears at certain seasons in other localities. It is occasionally seen in Colombo gardens, where in one or two instances it has been known to breed.

Habits.—This is a very familiar species in the hills, and may be seen, in almost every up-country garden, busily engaged hopping about tree trunks and branches. In the low-country it keeps mainly to the forests. In the hills the breeding season appears to extend from March to July. In the Puttalam District I have found it building its nest in April, while in Colombo a pair were observed breeding in February. The nest is rather a loose bunch of moss, feathers, hair, or coir fibre placed in a hole of a tree, wall, or bank. There are four to six eggs. They are oval in shape; the ground colour is white or pinkish-white, with red spots generally more or less confined to a ring round the larger end.

FAMILY CRATEROPODIDÆ.

Babblers, Bulbuls, &c.

The *Crateropodidæ*, as treated by Oatse, comprise a large group of ten-primaried *Passeres*, in which the plumage of the nestling resembles that of the adult female, and which bear the following characteristics: nostrils never entirely concealed by hairs or bristles; rictal bristles present; twelve tail feathers; inner and hind toe equal. This group he divided into six sub-families. *Crateropodinæ*—the larger gregarious Babblers; *Timeliinæ*—the smaller Babblers; *Brachypteryginæ*—the Whistling Thrushes and Shortwings; *Sibiinæ*—confined in Ceylon to two species of White-eye; *Liotrichinæ*—the Bush and Green Bulbuls; *Brachypodinæ*—the true Bulbuls.

Col. Harrington, in his recent monograph on the *Timeliides*,* considerably altered this classification, proposing the name of *Timeliides* for the group, which he raised to the rank of a sub-order. From this sub-order he excluded the *Brachypteryginæ* and *Brachypodinæ*, also the White-eyes and those genera of the *Liotrichinæ*, of which representatives are found in this Island.

Stuart Baker, in a still more recent classification, which I propose to follow, has not been quite so drastic in his revision. He retains the *Crateropodidæ* as a family, rejecting the *Brachypteryginæ* which he transfers bodily to the Thrushes, as far as Ceylon is concerned, with the exception of *Elaphrornis palliseri*—the Ceylon Shortwing. This last species is most probably a Warbler, but its position is still a little uncertain. The White-eyes are also raised to the rank of a family—*Zosteropidæ*, and placed next to the *Nectarinidæ*—Sunbirds.

The *Crateropodidæ* found in Ceylon, as thus reconstituted, fall into four sub-families. The characters distinguishing the whole family are those given by Oates, and narrated above with the following additions: Wing rounded, habits non-migratory. In fact, one of the main features of the family as thus defined is the absence of any migratory species. As a consequence, there is a tendency throughout the group for the forms to split up into species of restricted habitat, or into well-marked geographical races, *i.e.*, sub-species. A large proportion of the forms found in Ceylon are specifically or sub-specifically distinct from their nearest Indian allies. Further, there is no doubt that in several of our Ceylon forms, birds from the damper low-country forests tend, as a rule, to be darker than specimens from the drier forest tracts, or from the more open patana districts up-country. In several cases these paler specimens have been, by some ornithologists, sub-specifically distinguished from the darker. In each case, however, the distinction is based solely on paler tones in the plumage generally unaccompanied by any well-marked differences in size, &c. It is a well-known fact that the hue of the plumage is largely influenced by the density of the rainfall

* *Vide* Journal Bombay Nat. Hist. Soc., Vol. XXIII.

Since, however, the rainfall zones in Ceylon are rather complicated I have hesitated to accept a sub-specific division based solely on paler shades of plumage. The geographical distribution of the resultant sub-species would be about as scattered as that of the county of Cromarty, while in all probability, if large series were collected from all parts of the Island, at least six out of every ten specimens would have to be classed as "intermediate," while only one or two would be recognized as belonging definitely to the darker or lighter races. In some cases, too, the variation appears to be as much individual as local, and any attempted subdivision would offend against the rule that no two sub-species of the same species can be resident in the same locality. Far more material, than is at present available, is required before any subdivision of such forms can be indisputably accepted.

The Ceylon members of the four sub-families may be divided thus :—

(1) *Crateropodinæ*.—Larger Babblers over 8 inches in length ; sexes alike ; gregarious ; partly arboreal and partly terrestrial, and extremely noisy ; legs and feet large ; wing short and rounded ; nostrils not completely hidden by plumes and feathers. All the Ceylon forms lay unspotted white or blue eggs.

(2) *Timeliinæ*.—Smaller Babblers under 7 inches in length ; sexes alike ; solitary or found only in small troops ; not noisy, and generally skulking in bushes, or on the ground among undergrowth ; legs and feet strong ; wings short and rounded ; nostrils exposed. All Ceylon forms lay spotted eggs.

(3) *Liotrichinæ*.—Bush Bulbuls and Green Bulbuls. Sexes dissimilar ; solitary or found in small troops ; brightly coloured ; entirely arboreal. The eggs in all Ceylon species are streakily marked.

(4) *Brachypodinæ*.—True Bulbuls. Sexes alike ; solitary or found in small troops ; habits arboreal ; tarsus very short ; wings rounded, but moderately long ; nape usually furnished with some long hairs. The eggs are spotted, almost invariably, with some shade of red.

Sub-family *Crateropodinæ*.*Babblers.*

This sub-family contains the larger gregarious Babblers, which lay unspotted eggs. It is not well represented in Ceylon, though one species, the familiar "seven sisters," is one of our commonest birds. Out of ten genera and about seventy species found within Indian limits, only four species occur in this Island. Two of these are specifically, and two sub-specifically, distinct from the nearest Indian forms. All four species are of about the same size, that of an English Thrush. They pass a good deal of their time in trees, but pick up their food from the ground, hopping along in small troops, and making an incessant chatter as they turn over dead leaves, &c., in search of the insects on which they feed. Their legs are strong, their wings rounded and weak. In the genus *Crateropus*, to which two species undoubtedly belong, the bill is moderately long and only slightly curved. The position of a third species, *C. cinereifrons*, is doubtful. It differs from the other members of the genus in having a black, not a yellow, bill, while the covering membrane of the nostrils is bare instead of being half concealed with plumelets. Its eggs are not known with certainty, and may be white. Those of the other *Crateropi* are blue. In the genus *Pomatorhinus* the bill is as long as the head, slender, and with a pronounced curve. The under plumage is mainly white, and so are the eggs.

Key to Ceylon Crateropodinæ.

A.—Bill fairly stout, not greatly curved, no white in plumage. Genus *Crateropus*.

(1) Bill yellowish.

(a) Plumage ashy-brown, outer web of primaries much paler than inner.

C. striatus striatus (Southern Indian Babbler).

(b) Plumage rufous-brown, outer web of primaries not much paler than inner.

C. rufescens (Ceylonese Babbler).

(2) Bill black.

C. cinereifrons (Ashy-headed Babbler).

B.—Bill long, slender, and markedly curved, lower plumage largely white.

Pomatorhinus horsfieldi melanurus (Southern Scimitar Babbler).

CRATEROPUS STRIATUS STRIATUS.

The Southern Indian Babbler.

Crateropus striatus (Oates, Vol. I., p. 112); *Malacocercus striatus* (Legge, p. 494).

Description.—Upper plumage, head, neck, and chest pale ashy-brown, the feathers with paler gray edges, those of the back also with paler shaft stripes; wing coverts more uniform brown; wing quills dark brown, the outer webs with much paler whitish-brown margins; upper tail coverts slightly more rufous; tail smoky-brown shading into darker brown towards the tip and with numerous cross-rays of darker brown; lower breast, abdomen, and under tail coverts dingy, tawny-brown. Birds from the dry districts are slightly paler on the head, neck, and breast, the edges of the feathers having almost a pearly tinge.

Bill pale horny yellow; iris white; eyelid yellowish; legs and feet dingy yellowish-white.

Length 9·5; wing 4·1; tail 4; tarsus 1·3; bill from gape 1·0.

Distribution.—The sub-species found in Ceylon is confined to this Island. It is distinguished from the South Indian form, *C. striatus griseus*, by its smaller size and smaller bill. It is found all over the low-country, being most abundant in chena, scrub jungle, and cultivated tracts. In the hills it is abundant and more locally distributed, but appears to be increasing. It is rare, however, over 5,000 feet.

Habits.—One of our most familiar birds, generally known as the “Seven Sisters” from its custom of going about in little troops of from five to seven individuals. It is seldom met with far from cultivation. The general habits are described in my remarks on the sub-family.

The eggs may be found almost all the year round, but it breeds chiefly during the north-east monsoon. The nest is a fairly compact cup made of coarse grass and plant stalks and lined with finer grass. It is usually placed in the fork of a shrub from 4 to 6 feet from the ground, but I have found it in the branches of trees as high as 20 feet up. There are usually three, rarely four eggs. The usual shape is a dumpy oval, slightly pointed at the smaller end. The texture is smooth and glossy, the colour greenish-blue. Average size .95 by .72.

CRATEROPUS RUFESCENS.

The Ceylonese Babbler.

Crateropus rufescens (Oates, Vol. I., p. 114); *Malacocercus rufescens* (Legge, p. 497).

Description.—Upper plumage, wings, and tail rufous-brown, the head slightly grayer, the outer margins of the feathers slightly paler and tinged with olive; the tail indistinctly cross-rayed; the lower plumage ferruginous-brown, the colour deepening a little on the flanks, vent, and under tail coverts. A specimen from Pundaluoya in the hills of the Central Province is distinctly grayer on the head, and more dusky elsewhere than in those from Sabaragamuwa and the Western Province.

Bill orange yellow; iris white, at times tinged with green or yellow; eyelid and orbital skin greenish-yellow; legs and feet dull chrome yellow.

Dimensions a little variable: length about 10; wing 4.1; tail 4.5; tarsus 1.3; bill from gape 1.

Distribution.—Peculiar to Ceylon, and restricted to the interior of the Island in the districts with a heavy rainfall, *i.e.*, the west and south-west sides of the main hill ranges, and the country at the foot of these hills. Within these limits it is found at all elevations.

Habits.—Unlike the last species this is a jungle bird, found in thickets, bamboo scrub, and deep forest. It goes about in fairly large troops of about a dozen, and behaves in much the

same manner as the more familiar "Seven Sisters." The breeding season appears to last from March to May. The nest resembles that of the preceeding species. It is placed among creepers surrounding tree trunks, or in a low fork, and is very carefully concealed. According to Legge, the eggs are pointed ovals in shape, deep greenish-blue in colour, and measure about $\cdot 95$ by $\cdot 75$.

CRATEROPUS CINEREIFRONS.

The Ashy-headed Babbler.

Crateropus cinereifrons (Oates, Vol. I., p. 114); *Garrular cinereifrons* (Legge, p. 499).

Description.—Forehead, crown, and sides of head ashy-gray with a bluish tinge in some lights, shading on the nape into the deep rufous-brown of the upper plumage, wings, and tail; the outer webs of the first few primaries are slightly paler, and the tail rather deeper in colour; chin whitish, shading into the tawny rufous-brown of the rest of the lower parts; flanks and under tail coverts rather darker.

Bill black; iris white; eyelids lead colour; legs and feet plumbeous-brown.

Length 10; wing 4.5; tail 4.25; tarsus 1.5; bill from gape 1.2.

This bird is not a true *Crateropus*, and its generic status is uncertain. In general its plumage resembles that of a *Garrular*, but the feathers of the forehead are short and rounded, as in *Crateropus*. The eggs are not known with certainty, and their authentication may clear up the situation.

Distribution.—Confined to the heavy jungles in the districts west and south-west of the Adam's Peak range, which it ascends to a height of about 3,500 feet. It does not occur outside Ceylon.

Habits.—Found in small troops in the heart of the jungle. It is said to breed about April, but nothing is definitely known regarding its nidification. Legge was informed by natives that the eggs were blue, but they may possibly be white. Further information on this point is badly required.

POMATORHINUS HORSFIELDI MELANURUS.

The Ceylon Scimitar Babbler.

Pomatorhinus melanurus (Oates, Vol. I., p. 118 ; Legge, p. 501).

Description.—A band from the nostrils through the eye to the ear coverts black, bordered above by a broad white streak over the eye to the nape ; crown and nape dark olivaceous-brown ; upper plumage, the sides of the neck and body, the thighs, vent, and under tail coverts rufous-brown to olive-brown, the tint varying in individual specimens ; tail ferruginous near the base, darkening to almost black at the tip ; lower parts from chin to abdomen white. In many birds the sides of the head and chest are streaked with white ; in others the line of demarcation between the white lower plumage and the back is more abrupt.

Bill gamboge yellow, blackish adjoining the nostrils ; iris reddish-brown to dull red ; eyelid and orbital skin blue ; legs greenish lead colour, feet with a blue tinge. In young birds the bill is less curved than in adults.

Length 8·5 ; wing 3·5 ; tail 3·5 ; tarsus 1·2 ; bill from gape 1·2.

Distribution.—The Southern Scimitar Babbler is found over a large portion of Peninsular India, and is divided into four sub-species, of which the present form is found only in Ceylon. Col. Harrington is of opinion that our Ceylon form should also be divided into two races, as birds from the dry zone and the hills are, as a rule, more olivaceous than those from the low-country zone. However, as Legge points out, the variation is to a certain extent individual, and until a large series from all localities is available for examination, I hesitate to make any sub-specific distinction. This Babbler is found all over the hills and in most of the well-wooded portions of the low-country. It is rare, however, in the drier forest districts.

Habits.—A shy woodland species, which keeps close to cover, and ventures near habitations only when the thickets admit. In the hills it is especially fond of the strips of jungle bordering streams. It occurs usually in pairs, but sometimes in small troops. Its presence is most frequently made known by its deep melodious call, which Legge represents by the syllables “wok-wok-ek-ek-wok,” answered by a shorter call from the female. In the hills the breeding season appears to be from December to February. In the Puttalam District I have taken the eggs in March. The nest is rather a loose, more or less domed structure of leaves, grass, &c., placed in a bank or against the foot of a bush. Three to five white eggs are laid. The shell is thin and smooth, but not very glossy. Average size .95 by .70.

Sub-family *Timeliinæ*.

The Smaller Babblers.

The *Timeliinæ* are a large group of small Babblers, over fifty species being found within Indian limits. They are solitary or less gregarious than the larger Babblers, and are not noisy. They are skulking in their habits, frequenting bushy places, or the undergrowth in forests, keeping largely to the ground and avoiding observation. The eggs of all Ceylon species are spotted. The wings are short and rounded, the legs and feet strong. The sub-family is not well represented with us, only four species out of as many genera occurring in the Island. Of these, one is specifically and two sub-specifically distinct from any forms found in India. In the genus *Dumetia* the feathers of the forehead and crown have rigid shafts, the tail is comparatively long and graduated, and the bill fairly slender. In *Pyctorhis* the bill is deep and not notched, the nostrils are oval and exposed. In *Scotocichla* the bill is slender, the nostrils linear; the tail is graduated and almost as long as the wing; the tarsus and toes are long and stout. In *Rhopocichla* the nostrils are rounded and well exposed, the tail short, and only slightly graduated.

Key to Ceylon Timeliinæ.

A.—Forehead and crown not conspicuously darker than the rest of the upper plumage.

- (1) Length about 5·6; tail about same length as wing; bill pinkish horn colour.

Dumetia albigularis albigularis (Small White-throated Babbler).

- (2) Length about 6·5; tail longer than wing; bill black.

Pyctorhis sinensis nasalis (Ceylon Yellow-eyed Babbler).

B.—A conspicuous deep chocolate cap. Length about 6·5; lower parts rusty-brown.

Scotocichla fusicapilla (Brown-capped Babbler).

C.—Forehead and cheeks black. Length about 5·5; lower parts whitish.

Rhopocichla atriceps nigrifrons (Black-fronted Babbler).

DUMETIA ALBIGULARIS ALBIGULARIS.

The Small White-throated Babbler.

Dumetia albigularis (Oates, Vol. I., p. 134); *Dumetia albigularis* (Legge, p. 505).

Description.—Lores and feathers round the eye whitish; upper plumage, wings, and tail olive-brown; forehead and front of crown rufous with stiff shining shafts; hind-neck slightly paler than the back; tail faintly cross-rayed; the chin, throat, and centre of breast white; remainder of lower parts rust coloured, brighter in the breeding season.

Bill pinkish horn colour; iris white or greenish; legs and feet reddish flesh-coloured.

Length 5·6; wing 2·2; tail 2·25; tarsus ·75; bill from gape ·6.

Distribution.—Occurs over the greater part of the low-country and on the patanas of the hill country up to about 5,500 or 6,000 feet. The same sub-species occurs in Southern India, and another sub-species round Mt. Abu.

Habits.—Frequents bushy patanas, the long grass, and undergrowth at the edges of paddy fields, roads, and jungle paths, also waste land and low scrub. It roams about in little troops and keeps to cover as much as possible. The breeding season extends from November to June. The nest is a ball of grass with the opening at one side. It is placed within a few inches of the ground in rough grass or a low bush. The three or four eggs are dumpy ovals of china white, thickly speckled and spotted with dull red; the markings are sometimes confluent at the larger end. Average size $\cdot 71$ by $\cdot 54$.

PYCTORHIS SINENSIS NASALIS.

The Ceylon Yellow-eyed Babbler.

Pyctorhis nasalis (Oates, Vol. I., p. 138; Legge, p. 512).

Description.—Upper plumage rufescent earth-brown, slightly darker on the head; the tertiaries and the outer webs of the other wing quills slightly more rufous; tail feathers grayish-brown, with slightly paler edges; lores, eyebrows, and the whole of the lower plumage white, tinged on the flanks and from the breast downwards with buff.

Bill and nostrils black; iris golden yellow, eyelid chrome yellow; legs and feet dull yellow.

Length about $6\cdot 5$; wing $2\cdot 6$; tail $3\cdot 25$; tarsus 1; bill from gape $\cdot 65$. The dimensions are a little variable.

Distribution.—This sub-species is found only in Ceylon, but an allied form is found almost throughout the Indian Empire and extends into Siam. It is locally but fairly widely distributed up to about 6,000 feet, but its chief haunts are the south-east of the Island, from the Uva patanas to the sea.

Habits.—May be looked for in fern lands, stretches of mana grass, low jungle, lantana scrub, and thick undergrowth. It keeps to cover during the day, but in the evenings is fond of perching at the top of a bush, giving out its call, which Legge describes as a plaintive whistle of two notes varied with a peculiar mewing call. The breeding season extends from February to May. The nest is a deep cup of grass and cobwebs, lined inside with fine grass and roots, and placed in the fork of a shrub or in a tuft of mana grass. The three or four eggs are of fleshy-white, spotted, mainly at the larger end, with brownish-sienna, occasionally overlaid with brick red. Average size $\cdot 78$ by $\cdot 58$.

SCOTOCICHLA FUSCICAPILLA.

The Brown-capped Babbler.

Pellorneum fuscicapillum (Oates, Vol. I., p. 143; Legge, p. 510).

Description.—Forehead, crown, and nape deep chocolate, with brighter shafts; rest of upper parts, wings, and tail dark olive-brown, the feathers of the upper back and wing coverts with paler shafts, the edges of the primary quills lighter rufous; the lores, sides of head and neck, and all the lower parts rusty rufous, the colour being deeper on the cheeks and ear coverts and paler on the chin and abdomen; in some specimens the sides of the neck and breast are faintly streaked.

Bill, upper mandible deep brown with pale margins, lower mandible flesh-coloured; iris light to dark red; legs and feet brownish flesh colour.

Length $6\cdot 5$; wing $2\cdot 6$; tail $2\cdot 5$; tarsus $1\cdot 1$; bill from gape $\cdot 8$.

Distribution.—Peculiar to Ceylon. Fairly common in jungle undergrowth all over the wooded portions of the low-country and up to about 5,500 feet. Birds from the drier districts are paler than those from the wet zone. A pale specimen from Trincomalee has lately been distinguished as *S. f. dubaulti*, but until more material is available, I am not in favour of any sub-specific distinction.

Habits.—A shy skulking bird, keeping almost entirely to thick scrub, low jungle, or the undergrowth in forests. It is more often heard than seen. The note is a whistle, which may be described by the words “to meet you.” It may frequently be heard, in the jungle, as also may the breeding song of the cock, which reminds one of a small boy whistling up and down the scale. The birds generally go about in pairs, or small family groups, picking up beetles, &c., from the ground.

The breeding season appears to be from November to March and again about September. The description of the nest given by Legge, as a cup-shaped structure placed in a bush, is probably due to an error. Authentic nests have recently been found by myself and Mr. Tunnard of Rothschild, Pussellawa. My nest, from the North-Central Province, was domed, and very cleverly camouflaged in a litter of dry leaves on the ground in the forest. The opening was at one side, and the materials were very roughly put together. The lining consisted of a few broken up dead leaves, and the roof of a few more broad dry leaves. Mr. Tunnard’s nest was equally cleverly hidden, but more carefully lined with weed stalks and the stems of maiden-hair fern. The two or three eggs are broad ovals with rather a blunt narrow end. The ground colour is china white, thickly covered with grayish-purple and reddish-brown markings. Average size .85 by .64.

RHOPOCICHLA ATRICEPS NIGRIFRONS.

The Black-fronted Babbler.

Rhopocichla nigrifrons (Oates, Vol. I., p. 160); *Alcippe nigrifrons* (Legge, p. 507).

Description.—Forehead, round the eye, and ear coverts dull black, the forehead feathers with glistening shafts; sides of neck, upper plumage, wings, and tail rufous-brown, darkening on the crown into the black of the forehead; outer wing quills with paler edges; tail darker at the tip, and in some specimens faintly cross-rayed; throat, neck, breast, and abdomen white, the feathers, except on the chin, throat,

and lower cheeks, with black bases which give the plumage a sullied appearance; flank, vent, and under tail coverts rufous-olive.

Birds vary a good deal in the tint of the upper plumage, specimens from the low wet zone being, as a rule, decidedly more rufous, those from the hills more olive-brown, while birds from the northern forests are intermediate.

Bill dark brown on the tip, the margins of the upper mandible and the lower mandible flesh colour; iris whitish or pale yellow; legs and feet fleshy lavender.

Length 5.1; wing 2.2; tail 1.8; tarsus .85; bill from gape .7.

Distribution.—The present sub-species is confined to Ceylon, but is widely distributed over the whole Island. Allied sub-species occur on the Nilgiris and in Travancore.

Habits.—Common everywhere in thickets and forest undergrowth, especially bamboo scrub. It is an active little bird, which flits about in small parties uttering a shrill little rattling note. It appears to breed intermittently from December to June. The nest, which is frequently met with in the jungle, looks almost like a chance wisp of dry grass or bunch of dead leaves stuck in the fork of a sapling or bush about 4 to 7 feet from the ground. The inside is pocket-shaped and tilted, so that the opening lies, in some cases, almost horizontally. The two or occasionally three eggs are smooth paper-white ovals scattered over with spots of brownish-red and a few specks of bluish-gray. Average size .75 by .55.

Sub-family *Liotrichinæ*.

Bush and Green Bulbuls.

With this sub-family, which includes three species found in Ceylon, we come to a group of birds distinguished from the rest of the *Crateropodidæ* by the difference in plumage between the two sexes. Unlike the Babblers, they are strictly arboreal in their habits, frequenting leafy trees and living on fruit and insects. In all three Ceylon species the bill is slender,

slightly curved, and notched at the tip; the rectal bristles are minute, the nostrils oval, the wing rounded, the tail short and square. In the genus *Ægithina* there are two moults in the year, and the males have a distinct breeding plumage; the bill is about two-thirds the length of the head, and the plumage of the rump is very soft and fluffy. In *Chloropsis* there is no distinct breeding plumage, and only one moult a year. The bill is longer and slightly more curved, the wings are rather longer, and the tarsus very short. The eggs of all our Ceylon species are streakily marked.

Key to Ceylon Liotrichinæ.

A.—Bill about same length as tarsus; lower plumage yellow; wings mainly black and white.

Ægithina tiphia zeylonica (Common Iora).

B.—Bill considerably longer than tarsus; plumage mainly grass-green; a blue moustache stripe.

(1) Forehead orange.

Chloropsis malabarica malabarica (Malabar Chloropsis).

(2) Forehead greenish.

C. jerdoni (Jerdon's Chloropsis).

ÆGITHINA TIPHIA ZEYLANICA.

The Common Iora.

Ægithina tiphia (Oates, Vol. I., p. 230); *Iora tiphia* (Legge, p. 490).

Description.—Male in summer plumage: Forehead, crown lores, nape, and mantle satin black; the remainder of the back and the rump black, more or less mixed with dark green; a tuft of concealed downy white plumes on the scapulars; upper tail coverts and tail black; wing coverts black with a broad white patch formed by the terminal half of the median coverts, the greater coverts more or less tipped with white; wing quills black, the primaries brownish at the tip, and some of the quills with faint pale edges; face, sides of neck, and all the lower parts rich yellow, which grows paler on the vent and under tail coverts. In the off season the upper plumage

becomes largely green, the black persisting most on the head and nape; the wings and tail remain black, but the white tips on the coverts are more pronounced; the lower parts are less rich in hue.

Female: Upper plumage dull grass-green; forehead and upper tail coverts tinged with yellow; scapulars darker, and tail dusky-green; lesser wing coverts dusky-green, median coverts blackish with broad white tips faintly edged with yellow; in the greater coverts the white is confined to the outer webs and more conspicuously tinged with yellow; primaries blackish with faint white edges on the outer webs and broader white inner margins on the basal portions; inner quills with broad white margins which are tinged with yellow, especially on the outer webs; lores, sides of head, and all the lower parts yellow, shading into green on the flanks.

Bill, upper mandible black with blue margins, lower mandible blue; iris, in males gray, mottled with brown, in females olive-gray; legs and feet slate blue.

Length 5·4; wing 2·5; tail 1·9; tarsus ·75; bill from gape ·7.

Distribution.—The present sub-species occurs in Ceylon, Southern India, and the Malay Peninsula; typical *Æ. tiphia* occurs over the rest of India, except in the north-west. This Bulbul is common, and widely distributed over the whole of the low-country and up to about 2,500 feet.

Habits.—A familiar little bird which keeps to leafy trees, either in gardens and open scattered groves, or on the edge of the jungle, by roadsides, &c. It is generally seen in pairs, actively flitting about among the leaves searching for insects. The male has a clear gentle whistle of two notes "whee-too." The breeding season lasts intermittently from November to June. The nest is a beautiful little cup of fine grass and fibres, thickly coated with cobwebs and glued on to the top of a bough, or attached to a fork from 6 to 20 feet from the ground. I have never found more than two eggs. They are slightly pointed ovals of grayish-white, with rather large longitudinal streaks of bluish-gray and light brown. Average size ·70 by ·53.

CHLOROPSIS MALABARICA MALABARICA.

The Malabar Chloropsis.

Chloropsis malabarica (Oates, Vol. I., p. 235); *Phyllornis malabaricus* (Legge, p. 488).

Description.—Male : Forehead orange-yellow ; lores, cheeks, chin, and throat black ; a moustache streak of hyacinth blue ; lesser wing coverts turquoise blue ; remainder of plumage grass-green, the inner webs of the wing quills dull brown.

In the female the throat patch and cheek stripe are smaller. Young birds are green all over.

Bill blackish ; iris brown ; legs and feet slaty-blue.

Length 7·5 ; wing 3·5 ; tail 2·6 ; tarsus ·7 ; bill from gape ·95. Females are slightly smaller.

Distribution.—Not so common as Jerdon's Bulbul, but widely, though locally, distributed both in the hills and the low-country. It is indistinguishable in the open from the next species, unless one is near enough to make out the orange-yellow forehead. The present sub-species is found in India on the Malabar Coast and as far north as Khandala ; another sub-species is found in Assam, Eastern Bengal, Burma, and Cambodia.

Habits.—Much the same as those of the next species, but it is apparently not such a good mimic. Little is known of its breeding habits.

CHLOROPSIS JERDONI.

Jerdon's Chloropsis.

Chloropsis jerdoni (Oates, Vol. I., p. 238); *Phyllornis jerdoni* (Legge, p. 485).

Description.—Lores, cheeks, chin, and throat black ; a hyacinth blue moustache stripe ; forehead, above the eye, and all round the black gorget greenish-yellow ; lesser wing coverts turquoise blue ; rest of plumage grass-green, the lower parts slightly brighter.

In females the lores and gorget are bluish-green and the cheek stripe greenish-blue. The young are green all over.

Bill blackish ; iris brown ; legs and feet pale bluish.

Length 7·4; wing 3·4; tail 2·8; tarsus ·75; bill from gape ·95.

Distribution.—Found all over the low-country in well-wooded parts. It ascends the hills to 3,500 feet or occasionally higher. It occurs over the greater portion of the peninsula of India.

Habits.—A common bird, which often escapes notice as the plumage so closely resembles the green of the foliage. It frequents trees in compounds and gardens, by the roadside and river banks, or round tanks and paddy fields. It is generally found singly or in pairs, but when not breeding, the females collect in little troops. It is an active little bird, assiduously hunting among the leaves of trees or fronds of palms for the insects on which it feeds. The male has a clear pleasant whistle, and mimics the calls of other birds with astonishing accuracy.

It appears to have several broods, beginning in November or December, as soon as the rains have set in, while I have found the eggs as late as May. The nest is hard to find. It is a soft neatly woven cup, composed of fine strips of grass or tow-like fibre, suspended by the rim to the fork of a slender twig, and always well concealed by overhanging leaves. It is generally 6 to 10 feet from the ground, but occasionally much higher. The two eggs are slightly pointed, glossless cream-coloured ovals, sparingly marked with short fine streaks or spots of dark brown, at times almost black. Average size ·82 by ·59.

Sub-family *Brachypodinae*.

Bulbuls.

The Bulbuls are a familiar group of small birds, with fairly well-defined characteristics. They are mainly arboreal in their habits. The sexes are alike, the young closely resemble the adults, and all species lay eggs, which are marked with various shades of red and purple. The most characteristic feature of this sub-family is the extreme shortness of the tarsus, but they are further distinguished by the presence of hairs among the feathers of the nape.

In most of our Ceylon species, however, these hairs are short and sometimes difficult to detect. The rictal bristles are fairly well developed; the nostrils lie in a groove at the base of the bill; the wings are rounded and moderate in length; the tail is also moderate and generally rounded. The Bulbuls are found mainly in Africa and Southern Asia. Six species belonging to five genera occur in Ceylon. One genus, *Kelaartia*, is peculiar to the Island, as is also one species of another genus. The main generic characters are given in the following key:—

Key to Ceylon Brachypodinae.

I.—A distinct bushy, black crest.

A.—Length about 9·75; wing rather pointed; outer tail feathers curved outwards; bill coral red.

Hypsipetes psaroides ganesa (Southern Indian Black Bulbul).

B.—Length about 7·75; wing blunt; bill black; under tail coverts crimson.

Molpastes hæmorrhous hæmorrhous (Madras Red-vented Bulbul).

II.—No distinct crest.

A.—Bill about three-quarter length of head; upper mandible sharply keeled. Genus *Iole*.

(1) Crown and upper plumage yellowish-green.
Iole icterica (Yellow-browed Bulbul).

B.—Bill about half length of head; upper mandible not so sharply ridged. Genus *Pycnonotus*.

(1) Crown and nape black; upper plumage olive-green.

P. melanicterus (Black-capped Bulbul).

(2) Crown and upper plumage ashy-brown.

P. luteolus (White-browed Bulbul).

III.—Crown feathers large and rounded; a bright yellow streak of longish pointed feathers over ear coverts.

Kelaartia pencillata (Yellow-eared Bulbul).

HYPSSIPETES PSAROIDES GANEESA.

Southern Indian Black Bulbul.

Hypsipetes ganeesa (Oates, Vol. I., p. 262 ; Legge, p. 469).

Description.—Lores, forehead, crown, and nape glossy-black, with a greenish lustre in freshly moulted specimens, the feathers longish ; hind-neck, back, rump, and upper tail coverts dull bluish-gray with darker shaft streaks ; wings and tail dull brown, the wing coverts and inner wing quills edged with the blue-gray of the back ; cheeks, throat, chest, and under parts slaty-gray, paler on the abdomen, and darker on the cheeks and chin, which are tinged with ashy-brown.

Bill coral red ; iris orange or reddish ; legs and feet yellowish-red.

Length 9.75 ; wing 4.7 ; tail 4.7 ; tarsus .8 ; bill from gape 1.2.

Distribution.—Common in the well-wooded parts of the low-country damp zone and on the hills, but rarely met with in the drier forest tracts. It appears to visit the highest elevations in the dry weather.

The sub-species found in Ceylon is also met with on the Malabar hills. Allied sub-species occur on the Himalayas, in Assam, and parts of Burma.

Habits.—Out of the breeding season this Bulbul is generally found in noisy flocks, feeding on fruits and berries at the top of tall trees in forest and jungle. Its most frequent calls are described by Legge as resembling the sounds “ tehee ” and “ zu, kink up.”

The breeding season is from January to about April. The nest is a rather untidy cup of dead leaves, roots, and moss placed in a fork of a branch generally at some height from the ground. There are usually only two eggs of a whitish ground colour thickly speckled with red and purplish-gray. Average size 1.03 by .72.

MOLPASTES HÆMORRHOUS HÆMORRHOUS.

The Madras Red-vented Bulbul.

Molpastes hæmorrhous (Oates, Vol. I., p. 268); *Pycnonotus hæmorrhous* (Legge, p. 482).

Description.—Head, chin, and throat deep black, inclining to brown on the ear coverts; there are generally one or two longish hairs on the nape; feathers of neck, back, wing coverts, scapulars, and breast brown with pale edges; rump plain brown; upper tail coverts white; wing quills brown with narrow paler edges; tail brown at the base, deepening to black at the end and tipped with white; flanks light brown; abdomen whitish; under tail coverts crimson. In some specimens the tail coverts and tip of the tail are pale cinnamon. Birds from the hills are paler than low-country specimens.

Bill black; iris deep brown; legs and feet dark brown.

Length 7·8; wing 3·75; tail 3·2; tarsus ·85; bill from gape ·8.

Distribution.—Extremely common over the whole of the low-country and at medium elevations. It is only occasionally met with in the higher hills. This species is found in one form or another over most of India and Burma and extends to China.

Habits.—Familiar in gardens and near civilization over the whole of its usual range. It frequents bushes, low trees, hedges, &c. It is not nearly so common far from cultivation. The cry is a cheerful little chirruping warble. It breeds fairly steadily from November till May, or even later if the weather be favourable, rearing several broods. The nest is a small, rather coarsely woven cup of grass, lined almost invariably with fine red root fibres. On occasions the nest is made of fine small-leaved tender shoots. It is generally placed in a bush or hedge, but the birds occasionally build in verandahs, &c. There are usually three eggs; they are in most cases rather dumpy and slightly pointed at the small end. The ground colour varies from china-white to pinkish, thickly spread with blotchy specks of reddish-brown and purplish-gray. Average size ·85 by ·63.

IOLE ICTERICA.

The Yellow-browed Bulbul.

Iole icterica (Oates, Vol. I., p. 283); *Criniger ictericus* (Legge, p. 472).

Description.—Upper surface yellowish-green; inner webs of wing quills brown, the basal portions edged with yellow; tail feathers brighter towards the outer edges, the inner edges of all but the central feathers and the under surface of the shafts yellow; lores, base of nostrils, a narrow eyebrow, face, entire under surface, and wing lining bright yellow.

Bill black; iris red or light red; legs and feet bluish-lead or dusky-slate colour.

Length about 8; wing 3·5; tail 3·2; tarsus ·72; bill from gape ·82. Females are slightly smaller.

Distribution.—Restricted to forest and high jungle throughout the low-country and up to about 4,000 feet or even higher. In India it is found on the west coast as far north as Mahableshwar.

Habits.—Essentially a jungle bird. In the low-country it keeps to the large forests; at medium elevations it occurs in nearly every patch of jungle. It generally wanders about in little parties, which hunt actively among the boughs and in the top of the undergrowth for the insects on which they chiefly feed. The call is a soft mellow whistle. The breeding season is probably during the first half of the year, but eggs may be found as late as August. The nest is generally suspended by the rim to a fork in the top of a thin sapling. It is composed of small twigs and grass and is lined with fine grass. The two eggs are longish ovals; the ground colour is dull white or pinkish, thickly speckled with pale brownish-red or pink markings. Average size (of Indian eggs) ·96 by ·67.

PYCNONOTUS MELANICTERUS.

The Black-capped Bulbul.

Pycnonotus melanicterus. (Oates, Vol. I., 288); *Rubigula melanictora* (Legge, p. 477).

Description.—Forehead, crown, nape, and sides of head black; upper plumage and wing coverts olive-green; wing quills brown, the outer webs olive-green; tail feathers dark

brown, the basal portions washed with the hue of the back ; there is a broad white patch on the tips of the outer feathers ; this patch decreases on the inner feathers, the central pair being unmarked ; lower plumage bright yellow, the sides of the breast and body washed with olive ; wing lining and edge of wing yellow.

Bill black ; iris dull red in males, dark brown in females ; legs and feet blackish in males, blackish-blue or deep lead colour in females.

Length 6·5 ; wing 2·8 ; tail 2·6 ; tarsus ·6 ; bill from gape ·78. Females are slightly smaller.

Distribution.—Peculiar to Ceylon. It occurs throughout the whole of the low-country, except in the most arid parts, and on the hills up to about 5,000 feet.

Habits.—Fairly common in forest, low jungle, clumps of thicket, shady ravines, &c. It may be met with either in pairs or small troops, and often consorts with the forest Bulbul or White-browed Bulbul. The note is a little “ whee whee, whee, whee.” The breeding season is probably from March to July, occasionally later. The nest, of the usual Bulbul type, is placed in the fork of a low tree or bush, or even on a dead stump. Two or three eggs are laid. The ground colour is reddish-white, thickly marked with reddish-brown and a little bluish-gray. Average size ·79 by ·58.

PYCNONOTUS LUTEOLUS.

The White-browed Bulbul.

Pycnonotus luteolus (Oates, Vol. I., p. 290 ; Legge, p. 475).

Description.—Upper plumage ashy-brown, the edges of the feathers, except on the crown, washed faintly with green ; rump and upper tail coverts slightly paler ; wings and tail brown, washed with greenish on the outer webs ; a broad streak from the nostril over the eye and an indistinct ring round the eye whitish ; lores streaky white and black ; ear coverts brownish ; the point of the chin and a stripe along the lower jaw yellowish ; under parts dingy-white, washed with

brown on the chest and flecked with pale dingy-yellow ; vent and under tail coverts, wing-lining, and edge of wing pale yellow.

Bill black ; iris rusty-red to blood-red ; legs and feet dusky lead-colour.

Length 7.4 ; wing 3.2 ; tail 3.1 ; tarsus .87 ; bill from gape .85.

Distribution.—Very common all over the low-country and in the hills to 3,000 feet or even higher. In India it is found over a great part of the peninsula proper.

Habits.—Very much the same as those of the Madras Bulbul but it is not nearly so partial to cultivation, being especially common in bushy scrub, lantana, chenas, low jungle, and the undergrowth in dry forests.

It feeds partly on insects, but is very fond of small berries, such as those of the lantana. It is rather a shy bird, evading observation as much as possible.

It breeds freely from February to June. The nest is scarcely distinguishable from that of the Madras Bulbul, and like it, is generally placed in a low bush. There are, however, seldom more than two eggs. Typically they are longer and narrower than those of the Madras Bulbul, but light specimens are often very hard to distinguish. In more heavily marked eggs the markings are less claret-coloured and more of a light reddish-brown, while the tint of the ground colour, though pale, differs correspondingly. Average size .91 by .62.

KELAARTIA PENCILATA.

The Yellow-eared Bulbul.

Kelaertia pencillata (Oates, Vol. I., p. 297 ; Legge, p. 480).

Description.—A narrow white line from the nostril to the upper part of the eye ; forehead and crown dull black, the feathers broad and loose, giving a scaly effect ; a broad yellow streak from the top of the eye to the nape ; a spot on the upper eyelid and the chin white ; lores and cheeks black ; ear coverts black with a yellow spot, behind which the colour changes into a gray patch ; upper plumage olive-green ; wings and tail dark brown washed with olive-green on the

outer webs; lower plumage from throat to tail coverts yellow, washed with olive on the breast and flanks; wing-lining and edge of wing yellow.

Bill black; iris red mingled with brown or deepening to brown next the pupil; legs and feet dark lead-blue.

Length 7·75; wing 3·25; tail 3·2; tarsus ·78; bill from gape ·85. Females are rather smaller.

Distribution.—Confined to Ceylon and restricted to the hills, being seldom found much below 3,500 feet.

Habits.—Abundant in the higher ranges where it frequents forests, patana, woods, and the outskirts of cultivation. It keeps generally to the lower trees and undergrowth, and appears to live mainly on fruit. The call is a small plaintive whistle “whee, whee, whee,” quickly repeated. The breeding season appears to be about April. The nest is a fairly neat cup of moss, grass, and fine roots and leaves. There appear to be only two eggs of a pale pinkish ground colour, with rather blurred blotches and streaks of pinkish-brown. I have no measurements, but probably the eggs are of the same size as that of the forest Bulbul.

Family SITTIDÆ.

Genus **Sitta**.

Nuthatches.

The Nuthatches are a family of small climbing birds found in temperate and warm climates all over the world, with the exception of South America and Africa, south of the Sahara. The foot is adapted for climbing, the hind toe and claw being greatly developed and the inner front toe shortened. The hind surface of the tarsus is smooth. The bill is about as long as the head, straight, and wide at the base. The nostrils are clear of the line of the forehead, and are overhung by hairs. The rictal bristles are well developed. The wing, which has ten primaries, is rather pointed; the first primary is less than half the length of the second. The tail of twelve feathers is short and practically square.

The plumage of the two sexes is generally different, and there is only one moult a year.

Nuthatches are of non-migratory habits. They feed both on nuts and insects, and nest in holes of trees or of rocks. Only one species is found in Ceylon.

SITTA FRONTALIS FRONTALIS.

The Velvet-fronted Blue Nuthatch.

Sitta frontalis (Oates, Vol. I., p. 307); *Dendrophila frontalis* (Legge, p. 560).

Description.—Male: Lores, a broad band across the forehead and a long streak over the eye to the nape deep velvet black; upper plumage and wing coverts deep lavender-blue; wing quills dull black, the first two primaries unmarked, the outer webs of the remaining primaries edged with light blue, the secondaries edged with the blue of the back, the tertiaries almost entirely blue; the middle feathers of the tail blue, the remainder dull black, edged and tipped with blue; ear coverts lilac; chin and throat whitish; the rest of the lower parts brownish-lilac.

Females have no black eyebrow streak, and the lores are generally washed with blue.

Bill coral red, the tip of the upper mandible blackish; iris yellow; eyelids lead colour; legs and feet brownish.

Length 5; wing 3; tail 1·8; tarsus ·7; bill from gape ·7.

Distribution.—Found throughout the hills and in the tall forests of the low-country. It occurs in one form or another throughout the greater part of India, and extends through Burma to Java.

Habits.—A dainty little bird, which attracts notice by its velvety blue plumage and vivid red bill. It is generally found in small troops, actively running up and down or round and round tree trunks and large boughs. It never remains long on one tree, and when descending it always proceeds head first. The cry is a sharp little “chick, chick, chick.” The breeding season appears to be from February to May. The nest is a small pad of feathers, moss, and hair in a tiny hole in a tree. The four eggs are white spotted with red, and measure about ·7 by ·56. The birds when approaching the nest hole generally alight above it and run down into it.

Family DICRURIDÆ.

Drongos.

The Drongos, or King Crows, with their black plumage and forked tails, form one of the best defined families of the order. The nostrils are clear of the line of the forehead. The beak is stout and covered at the base by thick-set hairs, or plumelets, which partially conceal the nostrils; the upper mandible is keeled, the tip is more or less hooked and provided with a single notch. The rictal bristles are well developed. There are ten primary quills. The tail of ten feathers is deeply forked. Members of the family are found in Africa and South-eastern Asia. Of the six species which occur in Ceylon, four are referable to the genus *Dicrurus*, which has no crest and a normally forked tail. Two larger crested species are placed each in a separate genus. In *Dissemurulus* the tail feathers are proportionately longer than in *Dicrurus*, but the inner webs, though curling upwards at the end, are normally webbed. In *Dissemurus* the outermost tail feathers, in adults, are greatly elongated and racket-shaped, the central portion of the shaft being practically webless. In some localities our local species appear to undergo a certain amount of seasonal movement.

Key to Ceylon Dicruridæ.

I.—Length under 12 inches; no distinct crest. Genus *Dicrurus*.

(a) Lower tail coverts not white throughout.

(1) Lower plumage black.

Dicrurus ater minor (Black Drongo).

(2) Lower plumage dark gray.

D. leucophæus longicaudatus (Indian Ashy Drongo).

(b) Lower tail coverts unmixed white.

(1) Throat and breast gray.

D. caerulescens (White-bellied Drongo).

(2) Throat and breast dark brown.

D. leucopygialis (White-vented Drongo).

II.—Length over 12 inches ; forehead tufted.

- (a) Hind feathers of the tuft erect ; inner web of outermost tail feathers normal.

Dissemurulus lophorhinus (Ceylon Black Drongo).

- (b) Hind feathers of tuft curving backwards ; terminal portion of outer tail feathers with a distinct racket in adults ; with an indentation on inner webs in young birds.

Dissemurus paradiseus ceylonensis (Larger Racket-tailed Drongo).

DICRURUS ATER MINOR.

The Black Drongo.

Dicrurus ater (Oates, Vol. I., p. 312) ; *Buchanga atra* (Legge p. 386).

Description.—Plumage black glossed with steel blue ; in fresh specimens the gloss on the tail is slightly greenish ; primary quills rather rusty black. There is a small white spot at the lower corner of the gape, not always easily perceptible.

In young birds the wing quills and lower plumage are brownish ; the feathers of the abdomen are fringed, and the lower tail coverts barred with white, which gradually disappears as the birds grow older.

Bill, legs, and feet black ; iris brownish-red or red.

Distribution.—The Black Drongo is found all over India, and extends into China, Siam, and Java. The Ceylon race is a distinct sub-species, which may also possibly occur in the extreme south of India. It differs from other Indian forms by its smaller size and comparatively smaller tail. In Ceylon it is confined to the Jaffna peninsula and the coastal region of the Mannar District.

Habits.—Not uncommon in the localities in which it occurs. It frequents open and cultivated lands and scattered thorny jungle, perching on posts and exposed branches and swooping out on passing insects, then returning to its post of vantage. It often also perches on the backs of cattle. The note is a

rather melodious metallic whistle. The breeding season is probably mainly in April and May. The nest is a very shallow cup placed in the fork of a leafy branch. The outside is fairly thickly bound with cobwebs, the interior lined with fine grass. Three appears to be the normal number of eggs in Ceylon. They are of two types: one pure white, the other pale salmon colour with rather bold reddish-brown blotches. Average size about 1.00 by .75.

DICRURUS LEUCOPHÆUS LONGICAUDATUS.

The Indian Ashy Drongo.

Dicrurus longicaudatus (Oates, Vol. I., p. 314); *Buchanga longicaudata* (Legge, p. 390).

Description.—Upper plumage metallic bluish-black with a gray tinge, which increases on the tail coverts; wing quills and tail lustred with greenish on the outer webs; lower parts dull grayish-black.

In young birds the plumage is dark brown; the lower parts are grayer than in adults, and the under tail coverts are tipped with white, which gradually disappears.

Bill, legs, and feet black; iris red.

Length 10.5; wing 5.2; tail 5.9; tarsus .7; bill from gape 1.1.

Distribution.—Like the Black Drongo this species has a wide range over practically the whole of the Indian Empire, the Malay Peninsula, and Java, and is split up into geographical races. The small sub-species found in Ceylon appears to be a migrant, probably from Southern India. It occurs during the north-east monsoon on the east side of the Island. One or two specimens have been shot near Colombo in October, probably while on passage.

Habits.—Generally found on the edge of open spaces in heavy jungle and forest. It perches on some point of vantage high up in a tree, swooping out on insects and returning to its perch. Its calls are rather shrill and varied. It is not likely to be found breeding in the Island. The nest is of the usual Drongo type, and the eggs resemble the spotted eggs of *D. ater minor*, but are slightly smaller.

DICRURUS CÆRULESCENS.

The White-bellied Drongo.

Dicrurus cærulescens (Oates, Vol. I., p. 316; *vide* Legge, p. 394).

Description.—Upper surface black, strongly glossed with blue; throat and breast gray; abdomen, flanks, vent, and under tail coverts white.

Bill, legs, and feet black; iris red.

Length about 9·5; wing 4·75; tail about 4·5; tarsus ·75; bill from gape 1·05.

Distribution.—Found over practically the whole of India proper. Birds from South India appear to be darker and smaller than those from the North.

Birds from the extreme north of Ceylon, perhaps migrants from South India, are apparently nearer to typical *D. cærulescens* than to *D. leucopygialis*, which is the form usually met with in Ceylon.

Habits.—Those of the next species. The nest and eggs, too, would be almost indistinguishable.

DICRURUS LEUCOPYGIALIS.

The White-vented Drongo.

Dicrurus leucopygialis (Oates, Vol. I., p. 316); *Buchanga leucopygialis* (Legge, p. 392).

Description.—Specimens vary considerably. In true *D. leucopygialis* from the south of the Island the upper plumage is black, glossed with steel blue; wings and tail brownish with a greenish-blue gloss; chin, fore-neck, and breast rusty-black; the lower abdomen often mixed with white; vent and under tail coverts white. Birds from up-country and the northern forest tract are paler; the throat and breast are a more grayish-brown, and the white of the vent extends further up the abdomen.

Bill, legs, and feet black; iris red.

Length about 9·5; wing 4·75; tail variable, about 4·50; tarsus ·75; bill from gape 1·05.

Distribution.—I am of opinion that this form is merely a sub-species of *D. cœrulescens*. It is peculiar to Ceylon, and is common all over the Island up to about 4,500 feet, except in heavy forest or in the Jaffna peninsula and that part of the Mannar District where the Black Drongo occurs.

Habits.—A familiar bird in the cultivated parts of the country; it may even be seen in Colombo gardens. It occurs also in open woods, the outskirts of chenas in the jungle, round tanks, &c. It is entirely insectivorous, and, like other Drongos, is fond of taking up a particular perch, from which it makes sallies. The ordinary note is a whistling cry. It is very pugnacious, and bullies birds far larger than itself if they come near. The breeding season is from March to May. The nest is a shallow cup, tightly wedged into the fork of a slender branch. It is lined with fine grass, and thickly coated outside with cobwebs. Three or sometimes only two eggs are laid. In general they are rather stumpy ovals slightly pointed at one end; some are more elongated. The colour is either pure white with bold brick-red markings, or pale salmon-pink more or less boldly blotched, chiefly at the large end, with red, and with a few fainter underlying marks of grayish-purple. Average size $\cdot 92$ by $\cdot 69$.

DISSEMURULUS LOPHORHINUS.

The Ceylon Black Drongo.

Dissemurulus lophorhinus (Oates, Vol. I., p. 322); *Dissemurus lophorhinus* (Legge, p. 396).

Description.—Plumage black, highly glossed with blue on the head, hind-neck, throat, and chest; on the back, wing coverts, and tail the gloss is greener; flanks and abdomen rusty-black without any gloss. In immature birds the lower tail coverts and wing-lining are tipped with white.

Bill, legs, and feet black; iris dull brownish or dark yellowish-red.

Length, variable, up to about 14; wing $5\cdot 8$; tail, in adults, up to 8; tarsus $1\cdot 05$; bill $1\cdot 4$.

The crest on the forehead is about $\frac{1}{2}$ inch long, the foremost feathers are directed forwards, the hinder feathers erect, but not curved backwards.

Distribution.—Until lately this species was supposed to be peculiar to Ceylon, but recently it has been discovered in South Travancore, where it is not uncommon. In Ceylon it is restricted to the forests of the wet zone, from the Deduru-oya on the north to the Walawe river in the south-west. It is rarely found east of the Peak range, which it ascends to a height of about 4,500 feet.

Habits.—A forest bird, which is generally met with in pairs among the top branches of tall trees in the heart of the jungle. It is very noisy and has considerable vocal powers, being able to mimic the calls of many species of birds. I have also heard it imitate a cat in the most realistic manner. Like the other Drongos, it is entirely insectivorous, and takes its prey on the wing with a short swoop from a fixed perch to which it returns. The breeding season is about April. Little is known of its nidification, however.

DISSEMURUS PARADISEUS CEYLONENSIS.

The Larger Racket-tailed Drongo.

Dissemurus paradiseus (Oates, Vol. I., p. 325 ; Legge, p. 399).

Description.—Plumage black with a strong metallic gloss of steel blue, except on the chin, lower abdomen, vent, and the greater part of the wing quills, which are dull black. In immature birds the wing-lining and under tail coverts are tipped with white, and the racket feathers are not fully developed ; but there is always, except in very young specimens, an indentation in the inner web of the long outermost feathers.

Bill, legs, and feet black ; iris brownish-red to deep red.

Length : Males 17 to 19 inches according to length of tail ; wing 6 ; tail 11 to 13 ; tarsus .95 ; bill from gape 1.25. Females are rather smaller : wing 5.8 ; tail 10 to 11.

The crest on the forehead is up to 1 inch in length ; the foremost feathers are almost erect ; the hind feathers curve backwards.

Distribution.—This Drongo is widely distributed over the greater part of India. It ranges eastwards into Hainan, and south-east through the Malay Peninsula to Java and Borneo. It is divided into a number of sub-species, the Ceylon form being distinguished by its small size, its comparatively short crest and shorter tail. It replaces the Ceylon Black Drongo in the drier forest tracts, especially in the north and east of the Island, but it is nowhere very abundant. It does not appear to ascend the hills above about 2,000 feet.

Habits.—Like the preceding species, this is a forest bird, and has much the same habits. Its notes are varied, and it is an expert imitator of many other birds. In addition, it has a beautiful clear tinkling call, which is generally heard in the early morning. Like most Drongos, it appears to have an inveterate hatred of Owls and Woodpeckers. It is generally met with in pairs or in small parties of four or five. The breeding season is from March to May. Three nests, of which I have data, were all found in roadside trees, where the road passed through heavy jungle. They were placed in slender forks at a considerable height from the ground, and resembled larger editions of the nest of *D. leucopygialis*, but were more loosely woven and not so tightly jammed into the fork. There are usually three eggs. They are broad ovals slightly pointed at one end. The ground colour is pinkish-white with a moderate amount of reddish-pink markings overlying more cloudy marks of grayish-purple. All the markings are inclined to be streaky, and are most numerous round the cap. Average size 1.06 by .81.

Family SYLVIIDÆ.

Warblers.

The Warbler family contains a very large number of species, found chiefly in the temperate and warm regions of the Old World. They are all of small size, and nearly all of plain appearance. The plumage of the nestling resembles that of the adult female, but is brighter. The nostrils are clear of the line of the forehead, the edges of both mandibles are smooth, or at times the upper mandible has a simple notch. The

tarsus is generally slim and fairly long, its hinder aspect is smooth. The toes also are slim and longish and well adapted for clinging round grass stems or thin sprays of foliage. The wing has ten primaries, the tail may have either ten or twelve feathers. The sexes are generally alike, and when any difference does occur, it is small.

All species have a complete autumn moult, in addition to a partial or complete spring moult. The spring moult is often accompanied by a distinct change in the shape and length of the tail. Several of our resident forms belong to species which undergo such a change. In this Island, however, such forms have a breeding season, which extends intermittently for over half the year, and it is interesting to note that in Ceylon birds the difference between the breeding and winter plumage is far less marked than in specimens from further north, where the breeding season is shorter and more defined.

The majority of the species are migratory, breeding in temperate regions and wintering further south. Not many of the migrant species, however, penetrate as far south as Ceylon, with the result that half the forms found with us are resident.

The Warblers have received their family name from their pleasing song, but as their vocal powers are generally exercised only in the breeding season, and as these powers are sadly lacking in our resident species, the name is rather misleading as far as Ceylon is concerned.

More than 100 species belonging to over 30 genera are found within Indian limits. Seventeen different species or subspecies have been recorded from Ceylon.

As the plumage generally is plain, and as the generic and specific distinctions are based on rather minute differences, the group presents certain difficulties, unless carefully studied. I have, however, endeavoured to make the key as simple and easy as possible. The forms found in Ceylon may be divided into three main groups :—

I.—Reed, Grass, and Bush Warblers with 12 tail feathers, short rounded feathers on the forehead, and without any bristles beyond the usual rictal bristles. Of these, we have eight species, nearly all of which are resident. They are

divided among seven genera. They are all restless little birds, which generally keep to reeds, long grass, or bushes, seldom taking long flights in the open. They spend most of their time actively threading their way among the grass-growth or foliage, to the upright stems of which their slim toes enable them to cling in the most characteristic attitudes.

II.—Tree Warblers, which have 12 tail feathers, and in which the feathers of the forehead are soft, disintegrated, and with somewhat produced shafts. In addition to the rictal bristles, there are some supplementary hairs in front of them. In *Hypolais* and *Sylvia*, however, these bristles are small, and are clearly visible only under a lens, in *Acanthopneuste* they are more strongly developed. Six species belonging to the above-mentioned three genera have been recorded from Ceylon. They are all migrants, and only two are regular visitors. They are generally found in trees, and not in bushes or long grass.

III.—Three resident and common species of Wren Warbler belonging to the genus *Prinia*, which has only 10 tail feathers. The feathers of the forehead are smooth, and there are no supplementary bristles. In their habits they much resemble the Grass and Bush Warblers with 12 tail feathers, and have the same attitudes when perching.

Key to Ceylon Sylviidæ.

I.—Reed, Grass, and Bush Warblers ; mainly resident. Tail of 12 feathers ; feathers of the forehead short and rounded ; no bristles on the margin of the forehead, except the ordinary rictal bristles near the gape.

A.—Under tail coverts extremely long ; tail only normally broad.

(a) Outer tail feathers less than three-quarter length of tail.

(1) Upper plumage streaky ; length under 5·5.
Locustella certhiola (Pallas' Grasshopper Warbler).

- (b) Outer tail feathers more than three-quarter length of tail ; plumage dingy and not streaky.

(1) Length 7·5 or over.

Acrocephalus stentoreus brunnescens (Indian Great Reed Warbler).

(2) Length about 5·5.

A. dumetorum (Blyths' Reed Warbler).

- B.—Under tail coverts more normal ; plumage extremely dark and soft ; tarsus long and stout ; length about 6·5.

Elaphrornis palliseri (Palliser's Warbler).

- C.—Small forms ; length under 5.

(1) Crown rufous ; back yellowish-green.

Orthotomus sutorius sutorius (Indian Tailor Bird).

(2) Upper plumage streaky.

Cisticola cursitans cursitans (Rufous Fan-tailed Warbler).

(3) Upper plumage ashy-brown.

Franklinia gracilis (Franklin's Wren Warbler).

- D.—Under tail coverts extremely long ; tail abnormally broad ; length about 6.

Schœnicola platyura (Broad-tailed Grass Warbler).

- II.—Migrant Tree Warblers. Tail of 12 feathers ; feathers of forehead disintegrated and with lengthened shafts. Some supplementary bristles in front of the rictal bristles.

- A.—No green in plumage, which is very plain.

(a) Length about 5. Forehead, crown, and upper plumage sandy-brown.

Hypolais caligata (Booted Tree Warbler).

(b) Length about 6. Forehead and crown gray or brownish-gray. Genus *Sylvia*.

(1) Crown dusky-gray ; upper plumage grayish-brown.

S. althæa (Hume's Lesser White-throated Warbler).

(2) Crown brownish-gray ; upper plumage earth-brown.

S. curruca affinis (Indian Lesser White-throated Warbler).

B.—Upper plumage some shade of green. Genus *Acanthopneuste*.

(1) Upper plumage bright green ; length about 5.

A. nitidus nitidus (Green Willow Warbler).

(2) Upper plumage dull green ; length about 4·2.

A. nitidus viridanus (Greenish Willow Warbler).

(3) Upper plumage very dark green ; length about 5·4.

A. magnirostris (Large-billed Willow Warbler).

III.—Resident Wren Warblers ; tail of 10 feathers ; plumage not streaked ; under tailcoverts normal. Genus *Prinia*.

A.—Upper plumage deep bluish ash-colour ; length about 4·75.

Prinia socialis socialis (Ashy Wren-Warbler).

B.—Upper plumage dusky-brown.

(1) Length 6 or over.

P. sylvatica robusta (Jungle Wren Warbler).

(2) Length about 5·25.

P. inornata jerdoni (Southern Wren Warbler).

LOCUSTELLA CERTHIOLA.

Pallas' Grasshopper Warbler.

Locustella certhiola (Oates, Vol. I., p. 352 ; Legge, p. 548).

Description.—Feathers of the head blackish-brown with olive-brown edges ; those of the back, scapulars, and wing coverts brownish-black with broad reddish-brown margins ; wing quills brown with pale rufous-brown margins ; rump reddish-brown ; upper tail coverts reddish-brown with a large black drop on each feather ; tail olive-brown with similar, but more irregular, black drops and rufous margins, the tips of all but the two central feathers whitish. A streak above the eye yellowish-white ; lores and a patch behind the eye brown ; chin, throat, and middle of abdomen whitish ; rest of lower plumage buff, darkening on the flanks and lower tail coverts to chestnut-brown.

In young birds the under parts are tinged with yellow, and many of the throat feathers have dark centres.

Bill, upper mandible dark brown, lower pale horn colour ; iris reddish-brown ; legs fleshy-brown.

Length about 5·3 ; wing 2·35 ; tail 2·3 ; tarsus ·85 ; bill from gape ·7.

Distribution.—Legge obtained two specimens in the Mutturajawela swamp, north of Colombo, in February, 1877. This is the only Ceylon record. This species breeds in Northern Asia, and winters chiefly in China and the Malay Archipelago, but is not uncommon in the north-east monsoon in portions of Burma and India.

Habits.—A skulking little bird, which may on occasions visit us unnoticed. It should be looked for in grassy swamps and paddy fields. It lurks in the thick grass, and does not rise until almost trodden on, when it darts out to take cover again almost immediately.

ACROCEPHALUS STENTOREUS BRUNNESCENS.

The Indian Great Reed Warbler.

Acrocephalus stentoreus (Oates, Vol. I., p. 356 ; Legge, p. 541).

Description.—Upper plumage olive-brown with a tinge of fulvous, more pronounced in some specimens, on the back and rump ; wings and tail brown, the outer webs edged with the hue of the back ; an indistinct pale eyebrow ; lores dark brown ; chin and throat grayish-white ; lower cheeks and sides of neck generally streaky brown and white ; lower parts from fore-neck pale fulvous, the flanks and the sides of the breast almost the hue of the back. In the breeding season the under parts are paler, and the feathers are much worn.

Bill, upper mandible dark brown, lower horny-pink ; iris yellowish-brown ; legs and feet plumbeous-black.

Length about 7·7 ; wing 3·2 ; tail 2·75 ; tarsus 1·05 ; bill from gape 1·02.

Distribution.—A resident among bulrush beds in swamps and tanks here and there in the dry zone of the low-country. Allied sub-species are migrant over a great part of India, breeding in Kashmir and other parts of the Himalayas or in Central Asia, and wintering in the plains.

Habits.—In Ceylon this Warbler appears to confine itself to bulrush beds. Its presence is generally detected by its harsh grating note, which is of great volume for the size of the bird. It is said to have a pleasing song in the breeding season. It is of very skulking habits, keeping mainly among the lower stems of the rushes and seldom showing itself. The food consists of flies and small insects. The breeding season is from June to August, and possibly also about March. The nest is a fairly deep cup of grass and strips of rush blades, lined with finer materials and wedged in among bulrush stems, to which the outer wall of the nest is attached. The two or three eggs are of pale greenish-gray, rather thickly, but irregularly, marked with blotches and spots of black, yellowish-brown, and grayish-purple. Average size of eight Ceylon eggs $\cdot 81$ by $\cdot 60$.

ACROCEPHALUS DUMETORUM.

Blyth's Reed Warbler.

Acrocephalus dumetorum (Oates, Vol. I., p. 359; Legge, p. 545).

Description.—Ear coverts, sides of neck, and all the upper plumage olive-brown, paling slightly towards the tail coverts; the colour varies a little with different specimens; wings and tail deeper brown, edged on the outer webs with the hue of the back; an indistinct pale streak over the lores to the eye; lores dusky-brown; lower plumage pale buff, almost white on the chin, throat, and abdomen.

Bill dark brown, lower mandible horny-pink; iris olive-brown; legs, pale horn colour.

Length $5\cdot 5$; wing $2\cdot 4$; tail $2\cdot 1$; tarsus $\cdot 85$; bill from gape $\cdot 7$.

Distribution.—A familiar migrant found during the north-east monsoon over the whole of the low-country and in the hills up to about 4,500 feet. It breeds on the Himalayas and in Northern Asia, and occurs in winter over all India and most of Burma.

Habits.—Unlike the other members of the genus this species avoids reeds, and is generally found skulking in thick bushes or low bushy trees, hunting for the small insects on which it feeds. On arrival in the Island it appears to remain with great regularity in the quarters which it has taken up for the season. It seldom appears in the open, but makes its presence known by its note, a sudden "chik." Towards the end of its stay it occasionally essays a slight warble, but its full song is developed only in the breeding season and so is not heard in Ceylon.

ELAPHRORNIS PALLISERI.

Palliser's Warbler.

Elaphrornis palliseri (Oates, Vol. I., p. 191; Legge, p. 514).

Description.—Upper plumage olive-brown with a rusty tinge on the rump, upper tail coverts, and tail; wings dark brown, edged on the outer webs of the feathers with the hue of the back; the centre of the tail feathers rather darker than the margins; a faint whitish streak over the eye; ear coverts dusky-brown; lores adjoining the gape whitish; underneath the eye dusky-brown; chin whitish, deepening into rusty buff on the throat and gorget; centre of abdomen yellowish; rest of lower parts slaty-olive, tinged with rufous on the flanks, thighs, and under tail coverts.

In young birds the chin is dusky-gray; there is a slight tinge of buff across the centre of the throat, while the breast and lower parts are more greenish than in adults.

Bill, black above, slate coloured beneath; iris clear red in males, buff in females; legs and feet deep brown or purple-brown.

Length 6·5; wing 2·4; tail 2·6; tarsus 1; bill from gape ·8.

The position of this species is not yet exactly determined. It shows in its plumage and structure affinities with both the *Timeliinæ* and the Warblers. The nest and eggs rather resemble those of a North Indian genus—*Tribura*—of Warblers, and it is now supposed to be an aberrant species of Warbler.

Distribution.—Peculiar to Ceylon, and confined to the main hill ranges over about 5,000 feet.

Habits, &c.—Fairly common in the dense undergrowth of the forests on the higher hill ranges. It seldom appears in the open, but threads its way under cover with great activity in search of insects and small seeds.

I once, however, watched a bird come out of the jungle and flit about the bushes in the garden of the Forest bungalow at Pattipola. It was intensely restless, never staying long in one position. Several of its attitudes were those of a Warbler, especially when it perched on a downward-hanging spray with its feet wide apart, the lower leg stretched out, and the upper bent almost double. The call is likened by Legge to the sound “quitze,” and is a sharp insect-like note. It also has a rapid little warble.

The nest has been found by Captain Aldworth and by myself on the edge of the jungles round the Horton Plains in April. My nest was about 3 feet from the ground in a wild box bush, which stood by the side of a path where it ran through a little grassy space in the jungle. It was a fairly massive deep cup of moss, lined inside with carefully woven blades of soft dry grass. It contained two rather incubated eggs. They were oval, and only slightly pointed at the small end. The colour was whitish-pink, thickly powdered all over with rather deeper purplish markings and with one or two long hair-lines of deep brown at the larger end. Size .90 by .67.

ORTHOTOMUS SUTORIUS SUTORIUS.

The Indian Tailor Bird.

Orthotomus sutorius (Oates, Vol. I., p. 366 ; Legge, p. 517).

Description.—Forehead and crown rufous, shading into ashy on the nape ; back, scapulars, rump, and upper tail coverts yellowish-green ; wing quills and tail feathers lightish

brown, the latter with pale tips, a sub-terminal bar of darker brown, and bases of the same colour as the back ; wing coverts and innermost wing quills edged with the hue of the back, the primaries with narrow pale edges ; lores, cheeks, throat, and lower parts whitish, tinged with yellow ; the flanks and sides of the chest ashy-gray ; thighs rufous ; a concealed black patch on either side of the throat.

In the breeding season the male acquires an elongated tail, the central pair of feathers being about 2·5, while the next pair are also longer than in the off season.

Bill, flesh coloured, darker on the ridge ; iris reddish-yellow ; eyelid rufescent yellow ; legs reddish flesh colour.

Length : Males out of breeding season about 4·3 ; wing 1·85 ; tail 2 ; tarsus ·75 ; bill from gape ·65.

Females are slightly smaller and with shorter tails ; wing 1·7 ; tail 1·25.

Distribution.—Found all over the Island from sea-level to the summits of the hill ranges. Various sub-species occur over the whole Indian Empire and extend into Siam and China.

Habits.—Equally common in town gardens, open country, or thick jungle. It is generally seen in pairs flitting about in bushes or garden foliage. The birds make their presence known at all times of the day by their little grating “tewick, tewick” but they are wonderfully unobtrusive, and will often build, and bring up their young just outside one’s verandah without attracting any notice. They are particularly restless when breeding. Their food is comprised mainly of small insects. They may be found breeding almost throughout the year, except during long periods of dry weather. The nest is a beautiful little structure of vegetable cotton, fine grass, or other soft materials lodged in a pocket made by sewing together the edges of one or two broad leaves. In Ceylon there are usually only three, very occasionally four, eggs. The ground colour is generally pale bluish-green, at times almost white or even pinkish, with fairly bold splashes of pale brownish-red, chiefly at the larger end. Average size ·63 by ·45.

CISTICOLA CURSITANS CURSITANS.

The Rufous Fantail Warbler.

Cisticola cursitans (Oates, Vol. I., p. 374; Legge, p. 531).

Description.—Males in breeding season: Forehead and sides of crown uniform sepia brown, the feathers on the centre of the crown and the nape more or less indistinctly edged with rufous-gray; the rest of the upper plumage deep brown with broad tawny margins to all the feathers; rump uniform rufous-tawny; wings and wing coverts dark brown with fulvous margins; tail deep brown with lighter edges, the feathers with broad whitish tips and blackish sub-terminal bands, which are seen most clearly on the under side; above the black bar is a rufous patch, which is mainly confined to the inner web. Lores and eyebrow whitish; face and ear coverts rufescent, the latter with pale shafts; throat and lower parts white, deepening on the flanks, under tail coverts, and thighs into pale rust colour.

In the off season the head is more streaked, and the rufous patches on the tail disappear.

Females at all seasons have streaky heads.

Birds from the hills are darker and more plainly streaked than those from the low-country.

Bill flesh colour, the ridge and tip darker; iris grayish-yellow, or pale olive; legs pinkish.

Length about 4·3; wing 2·1; tail 1·3; in the off season about 1·5; tarsus ·75; bill from gape ·6.

Distribution.—Found in paddy fields, swamps, and grassy country all over the Island from sea level to the Horton Plains. Various races occur throughout India and over a great part of the Old World.

Habits.—This tiny little Warbler may be met with in any stretch of paddy field, grassy flat, or patana. It may be recognized by its curious spasmodic flight and the sharp little “chick, chick” which it utters while on the wing. On alighting it threads its way very quickly through the grass and is soon lost to sight. It appears to breed intermittently from November until June or even later, and probably rears several broods during the year. The nest is a deep tubular

little structure placed generally in the middle of a tussock of grass ; the outer wall is laced on to the surrounding grass blades, the interior is lined with vegetable down felted with cobwebs or saliva.

The three or four eggs are white, thickly spotted, generally in a zone round the larger end, with brownish-red and purple. Average size $\cdot 61$ by $\cdot 46$.

FRANKLINIA GRACILIS.

Franklin's Wren Warbler.

Franklinia gracilis (Oates, Vol. I., p. 376); *Prinia hodysoni* (Legge, p. 523).

Description.—Male in breeding season: Upper plumage dusky ash-gray, the rump slightly paler, the wing quills dusky-brown with paler rufous edgings; the tail feathers with a whitish tip and a sub-terminal dusky patch seen most clearly on the under side; cheeks and lower parts white; the breast ash colour.

In the off season the upper plumage and tail are rufous-brown; the wings brown with broader rufous edges; the white of the lower parts is tinged with fulvous.

In females the pectoral band is lighter than in males, and not quite complete in the centre. They are slightly smaller than males.

Bill blackish; iris reddish; legs fleshy-yellow.

Length about $4\cdot 5$; wing $1\cdot 75$; tail $1\cdot 9$ (in the off season up to about $2\cdot 25$); tarsus $\cdot 7$; bill from gape $\cdot 55$.

Distribution.—This species appears to be confined to the south-east of the Island, its habitat being roughly bounded by a line drawn from Batticaloa through Madulsima and the southern slopes of the Uva range to the south coast, a few miles east of Tangalla. It occurs over the greater part of the Indian Empire.

Habits.—Decidedly a Bush and not a Grass Warbler. It frequents the edges of low jungle, underwood by the sides of paths, and deserted chenas in which the growth is springing up. It frequently goes about in little family troops. The flight is weak, and the usual note a feeble little twitter. The breeding season appears to be about June. The nest is rather

like that of a Tailor Bird, and is composed of fine grass stitched with cobwebs, silk, or wool, into the cavity of a leaf which is drawn round it. There seem to be three eggs; the ground colour is pale blue, in one type unspotted, in another finely speckled with brownish or purplish-red, often in a zone round the larger end. Average size $\cdot 59$ by $\cdot 42$.

SCHÆNICOLA PLATYURA.

The Broad-tailed Grass Warbler.

Schœnicola platyura (Oates, Vol. I., p. 384; Legge, p. 532).

Description.—In the breeding season the upper plumage including the sides of the head and neck, is ruddy-brown; wing quills darker brown with brighter margins; tail brown with distinct dark cross-rays, the tips of the feathers paler; lores and an indistinct streak above the eye whitish; chin, throat, and centre of abdomen pure white; rest of lower plumage tawny-brown.

In the off season the upper plumage is duller, the whole lower plumage is whitish fulvous, the colour being most pronounced on the breast and flanks; the under tail coverts are darker and tipped with dull white.

Bill black above, pale horny below; iris olive-brown; legs and feet pale brownish.

Length 6; wing $2\cdot6$; tail $2\cdot7$; tarsus $\cdot9$; bill from gape $\cdot65$.

Distribution.—A single specimen from Ceylon is in the British Museum. The exact locality is not known.

It is found on the west coast of India, from Belgaum to Travancore, and appears to be resident throughout its range.

Habits.—Possibly a rare resident species, which should be looked for skulking in the long grass at the edge of paddy fields and on the outskirts of the jungle. Messrs. Cave and Symons believe they once saw two specimens in lantana scrub near the Government bungalows in Colombo. In South India it breeds about September. The nest is a ball of grass, with the entrance at one side, and is placed in a tussock of grass close to the ground. The four eggs are white spotted with brownish-red, and measure about $\cdot 73$ by $\cdot 6$.

HYPOLAIS CALIGATA.

The Booted Tree Warbler.

Hypolais caligata (Oates, Vol. I., p. 393 ; not in Legge).

Description.—Upper plumage sandy-brown ; rump rather lighter ; wings and tail dusky-brown with paler margins, the outer tail feathers lighter and with broader, almost pearl white margins ; lores brownish ; a pale buff streak from the nostrils over the eye ; whole under plumage pale buff, the throat and centre of abdomen nearly white.

Bill brown above, fleshy below ; iris dark brown ; legs and feet pale brown.

Length 5 ; wing 2·35 ; tail 1·95 ; tarsus ·75 ; bill from gape ·55.

Distribution.—A recent addition to our list ; two specimens which have been kindly identified for me by Mr. Stuart Baker were procured by the Museum Collector on February 15, 1905, one at Mannar and one at Giant's Tank, 14 miles away. The distance apart of these two localities would appear to indicate an incursion of this species that year. Another specimen was procured in the Mannar District in February, 1921. This Warbler summers in Turkestan and Southern Siberia, and winters generally in Northern and Central India.

Habits.—A slender little bird, which is of the same genus as the English Icterine Warbler. It flits about the lower branches of trees and among bushes in search of insects. A good lookout should be kept in the north-west of the Island from November to February for this and other rare migrant Warblers. It is quite possible that specimens visit us from time to time unnoticed.

SYLVIA ALTHÆA.

Hume's Lesser White-throated Warbler.

Sylvia althæa (Oates, Vol. I., p. 397 ; not in Legge).

Description.—Upper plumage mainly grayish-brown ; the crown rather dusky-gray, the back more tinged with brown ; wings dark brown with paler edges, the innermost quills almost the same hue as the back ; central tail feathers dusky-brown with pale margins, the outermost pair almost wholly

white, only the base of the inner web and the shaft being brown, the remaining feathers have white tips, which are often abraded; the lores, round the eye, and the ear coverts dark brown; lower plumage, including the edge of the wing and the wing-lining, ashy-white.

Bill brownish-black, slaty-blue at the base of the lower mandible; iris brown; legs and feet plumbeous black.

Length 6; wing 2·7; tail 2·5; tarsus ·85; bill from gape ·6.

Distribution.—Breeds in Kashmir and winters on the plains of India. There are several specimens in the Colombo Museum obtained at Mannar in February.

Habits.—A rare migrant, which should be looked for from November to February, especially in the north-west of the Island. It appears to keep chiefly to trees, but also frequents bushes, hedgerows, &c.

SYLVIA CURRUCA AFFINIS.

The Indian Lesser White-throated Warbler.

Sylvia affinis (Oates, Vol. I., p. 397; Legge, p. 538).

Description.—This form differs from *S. althæa* in being slightly smaller and having the plumage earth-brown with a grayish tinge; the forehead, crown, and nape are brownish-gray.

Bill dusky, slaty horn colour at the base of the lower mandible; iris yellowish-brown; legs and feet plumbeous.

Length about 6; wing about 2·55; tail 2·2; tarsus ·75; bill from gape ·55.

Distribution. The present sub-species is merely the eastern form of the Lesser White Throat, which is found over a great part of Europe. The eastern race breeds partly in Kashmir, but mainly, apparently, in Siberia, wintering in the plains of India. There is a specimen in the Colombo Museum from the Eastern Province.

Habits.—Like the last species, this is apparently one of the migrants which on rare occasions penetrate as far south as Ceylon in the winter. It may be looked for from November to February. The habits are much the same as those of the last species.

ACANTHOPNEUSTE NITIDUS NITIDUS.

The Green Willow Warbler.

Acanthopneuste nitidus (Oates, Vol. I., p. 413); *Phylloscopus nitidus* (Legge, p. 551).

Description.—Upper plumage and sides of neck fairly bright yellowish-green; wing coverts, wings, and tail brown, edged with the hue of the back, the greater coverts with pale yellow tips, forming a slight wing bar; lores and behind the eye olive; a distinct yellow streak from the nostrils over the eye to the nape; under parts almost primrose yellow; the wing-lining brighter yellow.

Bill brown above, paler beneath; iris dark brown; legs and feet olive-gray.

Length about 5; wing 2·4; tail 2; tarsus ·8; bill from gape ·6.

Distribution.—A fairly common visitor during the north-east monsoon over the whole Island. It is found in winter throughout practically the whole of India westwards of Calcutta. Its summer quarters are probably in Kashmir and on the Himalayas.

Habits.—Generally seen in the upper branches of leafy trees, being especially fond of jak trees. It keeps up a perpetual little chirrup, and like the Flycatchers, darts out from its perch to capture passing insects.

ACANTHOPNEUSTE NITIDUS VIRIDANUS.

The Greenish Willow Warbler.

Acanthopneuste viridanus (Oates, Vol. I., p. 414); *Phylloscopus viridanus* (Legge, p. 555).

Description.—Upper plumage dull olive-green, lighter on the rump; wing and tail quills brown, edged with olive-green; the wing coverts with broader olive edges, and the greater coverts with tips of the same colour, forming a wing bar; a yellowish stripe over the eye; lores and behind the eye brown; ear coverts greenish-yellow; lower plumage pale grayish-yellow; wing-lining pale yellow. In summer the plumage is paler, and just before the moult the wing bar often disappears owing to the abrasion of the tips of the coverts.

Bill dusky-brown above, paler below ; iris dark brown ; legs and feet brownish-gray.

Length 4·2 ; wing 2·2 ; tail 1·7 ; tarsus ·7 ; bill from gape ·6.

Distribution.—This sub-species breeds in some part of the Himalayas and winters over a great part of India. Stray specimens probably visit Ceylon on occasions.

There is a single specimen in the Colombo Museum obtained at Ratnapura in March, 1909.

Habits.—Much the same as those of the preceding sub-species. Specimens may be looked for during the north-east monsoon.

ACANTHOPNEUSTE MAGNIROSTRIS.

The Large-billed Willow Warbler.

Acanthopneuste magnirostris (Oates, Vol. I., p. 415) ; *Phylloscopus magnirostris* (Legge, p. 553).

Description.—Upper plumage very dark olive-green, darkest on the head ; wing coverts and wing brown, edged with rather brighter olive-green, the median coverts have small and the greater coverts broader yellowish-white tips, forming two wing bars ; these bars tend to disappear towards the moulting season owing to abrasion ; tail feathers brown, with olive-green edges on the outer webs and pale tips on the lower surface. A yellowish-white streak over the eye ; lores and behind the eye brown ; lower plumage pale grayish-yellow ; wing-lining pale yellow.

Bill dusky-brown above, paler beneath ; iris earth-brown ; legs and feet bluish-gray.

Length 5·4 ; wing 2·7 ; tail 2·2 ; tarsus ·75 ; bill from gape ·65.

Distribution.—Like other Willow Warblers, this species breeds on the slopes of the Himalayas, and visits a great portion of India in winter. During the north-east monsoon it is common in many parts of the Island, especially in the drier forest tracts. It also occurs on the hills.

Habits.—Unlike the Green Willow Warbler, this species is not found near civilization, but prefers the jungle, where it

keeps to the upper branches of trees. In its ways it resembles the Flycatchers, and its call is a whistle of three notes, which also rather resembles that of Tickell's Flycatcher.

PRINIA SOCIALIS SOCIALIS.

The Ashy Wren Warbler.

Prinia socialis (Oates, Vol. I., p. 450 ; Legge, p. 520) ; *Prinia brevicauda* (Legge, p. 1216).

Description.—Upper plumage, including the head to just below the eyes dark bluish ash colour ; wings and tail umber-brown, the tail feathers are slightly cross-rayed and have whitish tips and sub-terminal black patches seen most plainly on the under side ; wing coverts umber-brown, more or less washed with the hue of the back ; lower parts and edge of the wing rusty-buff, the centre of the breast and throat almost white, the thighs and flanks darker.

In the off season there is no great difference. The hue of the back is a little more brown, the wing coverts less tinged with ashy, and the tail about $\cdot 3$ inch longer. According to Legge, females have a more or less distinct streak of buff just above the lores and are paler underneath.

Bill black ; iris pale red or brownish-yellow ; legs and feet fleshy-red.

Dimensions a little variable. Length in breeding season about 4.75 ; wing 1.85 ; tail 1.8 ; tarsus .75 ; bill from gape .6 ; in winter the tail measures up to 2.1.

Distribution.—Fairly widely distributed over the Island, but nowhere very numerous. The species divided into various geographical races is found almost throughout India proper.

Habits.—This Wren Warbler is a permanent resident in the long *mana* grass of the patanas in Uva and elsewhere. In the low-country it wanders about a good deal, visiting fields of guinea grass when they are in growth and disappearing when they are cut. It is more permanent in the long grass round tanks and paddy fields and on the edges of jungle. The flight is feeble, but the birds are very active in threading their way through long grass stalks. The note is a feeble little warble. I have found the eggs in Uva in June and in the Puttalam

District from December to March. The nest is said occasionally to resemble that of the Tailor Bird, but is generally a neat little doomed structure of grass with the opening at one side. It is placed not far from the ground among tall grass stems, to which the outer wall is laced. The three eggs are of a glossy mahogany-red, the colour being deeper at the large end. Average size $\cdot 63$ by $\cdot 47$.

PRINIA SYLVATICA ROBUSTA.

The Jungle Wren Warbler.

Prinia sylvatica (Oates, Vol. I., p. 451); *Drymæca valida* (Legge, p. 525); *Drymæca jerdoni* (Legge, p. 527).

Description.—Upper plumage dusky-brown with an ashy tinge on the sides of the neck; the margins of the wing and tail feathers a little brighter; the tail feathers have a whitish tip and a sub-terminal black spot, these marks show more plainly on the under surface, and are almost absent in the central pair; the whole tail is faintly cross-rayed; a whitish streak on the lores; cheeks brownish, blending into the pale buff of the chin and throat; the buff tinge is a little deeper on the chest and flanks; abdomen whitish; thighs and lower tail coverts pale fulvous brownish.

In Ceylon the seasonal change appears to be much less marked than in the North Indian races, in which the bill becomes paler, the plumage brighter, and the tail distinctly longer than in summer. Mr. Stuart Baker suggests that the smaller seasonal change may be due to the extended breeding season in Ceylon; our birds moulting at different times, whenever they happen to have finished breeding. The only difference I can find is that some specimens have paler bills than others. These are Legge's *Drymæca jerdoni*, and are probably either young birds or specimens in the off season.

Bill black, at times brownish, with a paler lower mandible; iris hazel; legs and feet fleshy.

Dimensions a little variable: length 6 to 6.4; wing 2.2 to 2.5; tail 2.4-2.8; tarsus .8; bill from gape .73.

Distribution.—The Jungle Wren Warbler is found almost throughout India proper west of Calcutta. It is divided into several sub-species, the Ceylon form being distinguished by

its much darker colour and smaller seasonal change. It is found over most of the low-country and up to about 3,000 feet, but on the Uva patanas it ascends to considerably higher elevations.

Habits.—A common species in low grassy jungles, in scrub by the sides of roads and paddy fields or in young chena growth, patanas, fern lands, &c. The note is a fairly loud chirp. The diet is insectivorous. The breeding season lasts from October to June. The nest is a woven ball of grass, with the opening at one side, and is placed low down in coarse grass or a thorny bush. Three or occasionally four eggs are laid. The ground colour is of fairly glossy pinkish-white, finely freckled all over with pale red. These markings often concentrate into a more pronounced zone or cap at the large end. I have seen two abnormal clutches and one egg of a normal clutch, in which the ground colour was clear white and the red freckles very faint and few. Average size $\cdot 71$ by $\cdot 51$.

PRINIA INORNATA JERDONI.

The Southern Wren Warbler.

Prinia jerdoni (Oates, Vol. I., p. 453); *Drymoca insularis* (Legge, p. 529).

Description.—Upper plumage dull earthy-brown, the centre of the feathers slightly darker; forehead and forepart of crown tinged with rufous; rump much paler; wing and tail feathers brown with pale fulvous edges; the central tail feathers cross-rayed faintly; tips of tail feathers white with a sub-terminal black spot, which shows most plainly on the under side; a pale streak from the nostrils over the eye and a narrow white ring round the eye; lores at the corner of the eye brownish; lower plumage pale buff; the sides of the chest and belly more strongly coloured; flanks with a dusky tinge; thighs rusty-brown.

There is very little difference either in the plumage or in the length of the tail in the off season, though, on the whole, the plumage is slightly darker then. The seasonal change is far more marked in North Indian forms.

Bill black, the basal half of the lower mandible pale horny; iris pale reddish or reddish-yellow; legs and feet fleshy-pink.

Length about 5·25 ; wing 1·9 ; tail 2 to 2·3 ; tarsus ·8 ; bill from gape ·65.

Distribution.—This species has a wide range over India and Burma, and is divided into several sub-species. The Ceylon form occurs also in South Travancore. With us it is common round tanks and in paddy fields and grass lands in the low-country ; on the hill patanas it occurs as high as 5,000 feet.

Habits.—The flight is weak and jerky, and the call a little “ kink, kink, kink.” The birds feed mainly on small insects and larvæ. The breeding season starts with the earliest rains in October or November, and lasts intermittently till June or even later. The nest is a neat little purse-shaped structure woven of thin strips of grass or reeds, the outer wall being laced round the long stems of grass in which it is placed. The opening is at one side. In the low-country the site generally chosen is a clump of reeds or long grass growing in or near water. Three or four eggs are laid ; the ground colour is a beautiful clear blue with bold blotches in various shades of chocolate-brown and generally some interlacing lines of the same shade at the larger end. Average size ·60 by ·45. It is interesting to note that the ground colour of the eggs in the different sub-species varies considerably. Those from Ceylon are the deepest blue, further north the colour is not so rich ; in Oudh it is white, and in Burma pink.

Family LANIIDÆ.

Shrikes.

The *Laniidæ* form a family group in which the plumage of the young is cross-barred, generally both above and below. All the members are insectivorous, and some of the larger true Shrikes tackle small birds, mice, frogs, &c. The bill is strong and generally both hooked and notched. Rictal bristles are present. The nostrils are clear of the line of the forehead, and are more or less overhung by bristles and hairs. There are ten primary quills and twelve tail feathers. There is only one moult a year in autumn.

Shrikes are found all over the world, except in South America, but are most numerous in Africa.

The family is divided into two sub-families :—

(1) *Laniinæ*, which comprises our true Shrikes, Pied Shrike, Wood Shrike, Minivets, and Cuckoo Shrikes.

In all these forms the first primary is not excessively small, and the folded wings do not reach beyond the middle of the tail.

(2) *Artaminæ*.—Swallow Shrikes—in which the forked wings reach to the tip of the tail; the first primary is very minute, and the second primary the longest in the wing.

Sub-family *Laniinæ*.

True Shrikes, &c.

This sub-family contains rather a varied series of forms, most of which are wholly arboreal. The head is large for the size of the bird, and the crown is broad and flat. They may be divided into two groups. First, the true Shrikes, Pied Shrike, and Wood Shrike, in which the sexes are alike, or do not differ greatly, and the shafts of the rump feathers are soft. This group includes five species found in Ceylon: Three true Shrikes with predaceous bills and a distinctive mask-like, dark band across the face from the nostrils to the ear coverts; the tiny Black and White Pied Shrike with a broad flat bill and the habits of a Flycatcher; and the Wood Shrike an inconspicuously coloured little bird, with a strong bill well hooked and notched. The second group, in which the sexes, as a rule, are markedly different, and the shafts of the rump feathers are stiffened, contains four Ceylon species, the two gaily coloured little Minivets and two Cuckoo Shrikes. The latter are not so gaudily coloured and include one species, of the genus *Graucalus*, which is our largest Shrike. The sexes in this species do not differ greatly.

Key to Ceylon Laniinæ.

I.—Shaft of rump feathers soft; sexes similar or almost so.

A.—Outer tail feathers much shorter than inner; wing pointed.

(a) Bill deep and narrow, the tip well hooked and notched; a conspicuous dark band from the nostrils through the eye to the ear coverts.

Genus *Lanius*.

- (1) Length about 9 ; forehead black ; crown and back pale gray.

L. schach erythronotus (Rufous-backed Shrike).

- (2) Length about 7·5 ; forehead white ; crown rufous, and darker than the back.

L. cristatus (Brown Shrike).

- (3) Length 8 ; forehead and front of crown grayish-white ; back of crown grayish-brown, like the back.

L. lucionensis (Philippine Shrike).

- (b) Bill broad and flat, not greatly hooked ; size small ; length not quite 5·5.

- (1) Cap of head and back glossy black.

Hemipus picatus picatus (Black-backed Pied Shrike).

B.—Tail square ; wing blunt ; bill strong, the tip well hooked and notched.

- (1) Length about 6·25 ; upper plumage almost uniform ashy-gray.

Tephrodornis pondicerianus (Common Wood Shrike).

II.—Shaft of rump feathers spiny ; sexes generally markedly dissimilar ; wing pointed.

A.—Outer tail feathers less than half length of tail ; upper tail coverts fiery red, or bright yellow ; bill strong, legs weak. Genus *Pericrocotus*.

- (1) Length 7·75 ; upper tail coverts red in males, yellow in females.

P. flammeus (Orange Minivet).

- (2) Length just under 6 ; upper tail coverts red in both sexes.

P. peregrinus malabaricus (Small Minivet).

B.—Outer tail feathers more than three-quarters length of tail ; upper tail coverts some shade of gray.

- (1) Length 7·75 ; bill comparatively weak ; males : head black, back slate gray ; females : upper plumage uniform brownish-gray.

Campophaga sykesi (Black-headed Cuckoo Shrike).

- (2) Length 10·25 ; bill massive ; sexes almost similar ; upper plumage almost uniform slate gray.

Graucalus macii (Large Cuckoo Shrike).

LANIUS SCHACH ERYTHRONOTUS.

The Rufous-backed Shrike.

Lanius erythronotus (Oates, Vol. I., p. 464) ; *Lanius caniceps* (Legge, p. 383).

Description.—Forehead and a broad band through the eye to the ear coverts black ; crown, nape, hindneck, sides of neck, back, and scapulars pale gray, with a white edging, more pronounced in some birds than in others, adjoining the frontal band ; the ends of the scapulars more or less tinged with pale rufous ; rump, upper tail coverts, and flanks rust colour ; wing coverts and wing quills black, more or less edged with white or pale rufous, this is most noticeable on the inner quills ; the edge of the wing and a band at the base of the inner primaries white ; the three central pairs of tail feathers black, the rest brown with paler edges ; chin, throat, and upper breast white ; abdomen and lower tail coverts tinged with rust colour.

In young birds the upper plumage is pale sandy, darkening into rufous on the rump, and with wavy bars of brown ; the central tail feathers are brown, tipped with rufous, and the band through the eye is blackish-brown.

Bill black ; iris hazel ; legs and feet blackish-brown.

Length 9 ; wing 3·6 ; tail 4·5 ; tarsus 1·05 ; bill from gape ·9.

Distribution.—Restricted to the Jaffna peninsula and the north-west of the Island. The species ranges over the whole of the Indian Empire to China and the Malay Archipelago, and is divided into various geographical races.

Habits.—Fairly common in scrub jungle near the sea throughout its range. It is rarely found far inland. It perches on the tops of trees and bushes, darting down to the ground on its prey, which consists chiefly of grasshoppers, and returning to its perch. It also feeds on frogs, which it impales on thorns in the regular Butcher Bird fashion. It is noisy and restless in the mornings and evenings, uttering its harsh cry and flying from bush to bush. The birds breed from February till about May, building a cup-shaped nest of rough grass, stalks, and slender twigs, lined with rootlets or other soft material, and placed in a thorn bush. The eggs appear to be four in number. The ground colour is pale greenish or creamy-white, with blackish-brown spots, which frequently form a zone at the larger end. Average size $\cdot 91$ by $\cdot 70$.

LANIUS CRISTATUS.

The Brown Shrike.

Lanius cristatus (Oates, Vol. I., p. 468 ; Legge, p. 377).

Description.—Adult male : Forehead and a streak over the eye white ; a broad black band from the nostrils through the eye to the ear coverts ; the rest of the upper plumage and the lesser wing coverts reddish-brown, the colour being brightest on the crown, nape, and sides of the neck ; the larger wing coverts and the wing quills dark brown with rufous edges, which are broadest on the secondaries ; tail feathers reddish-brown with paler tips ; cheeks, chin, and throat white ; rest of lower plumage fulvous.

In females the black streak through the eye is smaller and brownish.

In young birds on their first migration the crown and back are of the same rufous brown hue ; the lower surface is largely marked with wavy, narrow bars, especially on the breast and flanks ; these bars disappear very gradually, most birds retaining slight traces of barring on the flanks.

The tip of the bill and the greater part of the upper mandible blackish, the remainder pale bluish ; iris dark brown ; legs and feet bluish-gray to blackish slate-colour.

Length $7\cdot 5$; wing $3\cdot 45$; tail $3\cdot 4$; tarsus 1 ; bill from gape $\cdot 85$.

Distribution.—A common migrant during the north-east monsoon. It spreads over nearly all parts of the Island, but is most numerous near the sea, especially in the dry zone. The species has a wide range, breeding in Tibet, Mongolia, and Siberia, and wintering in Southern Asia, from Southern China to India.

Habits.—Found in scrub land, hedgerows, the borders of jungle, &c. A restless bird, perching on the tops of bushes and uttering a harsh ill-tempered cry. It feeds chiefly on insects, especially grasshoppers, but occasionally takes small birds.

LANIUS LUCIONENSIS.

The Philippine Shrike.

Lanius lucionensis (Oates, Vol. I., p. 469; Legge, p. 378).

Description.—Adult male: The forehead, the front of the crown, and a streak over the eye grayish-white; a broad black band from the nostrils through the eye to the ear coverts; hinder part of crown, back, scapulars, and sides of neck grayish-brown; rump and upper tail coverts more rufous; wing coverts and quills blackish-brown with pale rufous edgings, broadest on the innermost quills; tail feathers rufous-brown, with paler margins; chin, throat, and sides of neck white; rest of lower parts pale buff.

In females the black streak through the eye is smaller and the under parts paler.

In young birds the upper parts are brownish-rufous with faint dark bars on the plumage; the lower parts are wavily barred with brown.

The tip of the bill and most of the upper mandible dark brown, remainder paler; iris brown; legs and feet dull lead blue.

Length 8; wing 3·5; tail 3·5; tarsus ·9; bill from gape ·87.

Distribution.—A very rare north-east monsoon migrant; it appears to have been seen in Nuwara Eliya and one or two other localities, and there is a fine specimen in the Colombo Museum taken at Haldummulla in February, 1906. This Shrike breeds in Northern China and winters chiefly in the

Philippines and Malay Peninsula. It occurs in the extreme South of Burma and in the Andamans, where it appears to be an occasional resident.

Habits.—Very much the same as those of the last species.

HEMIPUS PICATUS PICATUS.

The Black-backed Pied Shrike.

Hemipus picatus (Oates, Vol. I., p. 471; Legge, p. 375).

Description.—Crown, sides of head to a line a little below the eye, and most of upper plumage deep black, slightly glossed with green; a more or less incomplete white collar across the back of the neck; the feathers of the lower back and rump long and fluffy, the former mixed with and the latter broadly tipped with white; wing coverts black with a white bar across the median coverts and the inner greater coverts; wing quills black with white edges on some of the secondaries; tail black, all save the middle feathers tipped with white, on the outer feathers the white extends to a large portion of the outer webs; chin, cheeks, sides of neck, vent, and under tail coverts white; rest of lower parts pinkish-ash colour.

In Ceylon specimens the females appear similar to the males.

Bill black; iris reddish-brown; legs and feet blackish.

Length 5·3; wing 2·3; tail 2·25; tarsus ·45; bill from gape ·7.

Distribution.—This small Shrike ranges over a large part of India and Burma, and extends east and south-east to Siam and Cochin-China. The sub-species found in Ceylon also occurs in the Indian Peninsula. It is widely distributed over most of the Island wherever there is forest or heavy jungle, but is commonest in the hills.

Habits.—Generally found in pairs in tall trees near the edge of forest or high jungle. It is plentiful about many up-country estates, where it is commonly misnamed the Black and White Flycatcher owing to its habit of darting out from its perch and catching its food, which consists entirely of insects, on the wing, much in the manner of the true Flycatchers. It is really far from shy, but owing to its fondness for the top branches of tall trees it frequently escapes notice. The constantly uttered little call is likened by Legge to the syllables

“tcheetiti, tcheetiti, tcheetiti—chee.” The breeding season probably extends from about February to May. The nest, which is hard to find, is a neatly made shallow little cup of grass and fine roots, covered outside with cobweb and flakes of lichen, and lined inside with soft fibres. It is placed in a fork or on top of a branch at some height from the ground. There are generally three eggs. They are elongated ovals in shape. The ground colour is greenish-white mottled with darker green and brown. Average size (of South Indian eggs) $\cdot 69$ by $\cdot 49$.

TEPHRODORNIS PONDICERIANUS.

The Common Wood Shrike.

Tephrodornis pondicerianus (Oates, Vol. I., p. 475); *Tephrodornis pondiceriana* (Legge, p. 372).

Description.—Upper plumage from forehead to tail coverts dark slaty-gray to ashy-brown, the tint varying with individuals; rump feathers tipped with white, upper tail coverts very dark brown; great wing coverts and wing quills rather more brown than the back, the inner quills with pale edges; tail feathers dark brown, the two outer pairs white, except at the base and tip; a more or less distinct whitish streak above the eye and a band of dark brown from the nostril through the eye to the ear coverts; this is bordered below by another whitish streak, which includes the chin and centre of the throat; rest of lower parts ash colour, which gradually merges on the abdomen into the white of the lower tail coverts.

According to Legge the browner specimens come from the north, but in the Colombo Museum there is a gray bird from the Northern Province, and both gray and brown birds from the Central and Southern Provinces; the difference appears to be largely individual.

Nestling birds are paler, are conspicuously spotted with white on the head, and have wavy markings on the wings; these markings gradually disappear.

Bill dark horn colour, lighter beneath; iris yellowish-brown; legs and feet dusky-slate colour.

Length $6\cdot 2$; wing $3\cdot 3$; tail $2\cdot 5$; tarsus $\cdot 7$; bill from gape $\cdot 9$.

Distribution.—Rather locally distributed, but occurs over the low-country and up to about 5,000 feet in the hills. It ranges over practically the whole of the Indian Empire.

Habits.—Generally found in low spreading trees, such as *kaju* or *suriya*, round village compounds, by the roadside, on the edge of the jungle, &c. It is, for instance, fairly abundant in the avenues of *suriya* trees along the roads round Puttalam. It keeps very much to the shelter of the trees, hopping about among the leafy branches in search of insects. The cry is rather a plaintive little "weet, weet, weet."

The breeding season is from February to June. The nest is a very shallow cup, carefully felted into a fork, or on to the top of a bough, and so covered externally with lichen and cobwebs as to seem a mere natural excrescence of the bark. The lining is composed of soft fibres. The eggs, three in number, are dumpy ovals of pale grayish or greenish-white, rather thickly blotched with grayish-purple and brown. Average size $\cdot 77$ by $\cdot 60$.

PERICROCOTUS FLAMMEUS.

The Orange Minivet.

Pericrocotus flammeus (Oates, Vol. I., p. 482 ; Legge, p. 363).

Description.—Adult male : The whole head, throat, back, and scapulars glossy black ; lower parts from breast downwards, rump, and upper tail coverts brilliant orange-red ; wing coverts and quills black with a broad band of the same colour as the rump running across the quills from the outer web of the fifth primary ; a spot of the same fiery hue on the ends of the inner secondaries and of the greater coverts ; central tail feathers and the bases of the others black, remainder of tail fiery orange-red ; thighs dusky-black.

Females : On the wings and tail the orange-red markings of the male are replaced by bright yellow ; forehead and entire under plumage also bright yellow ; rump and upper tail coverts greenish-yellow ; top of head, hind-neck, back, scapulars, and lesser wing coverts dark bluish-gray ; lores almost black.

Immature males resemble females ; as they grow older they gradually assume adult plumage, birds in the transition state having a very patchy appearance.

Bill, legs, and feet black; iris reddish-brown in males, brown in females.

Length about 7.75; wing 3.55; tail 3.55; tarsus .6; bill from gape .8.

Distribution.—Found both in the hills, where it is fairly common, and in the low-country, where it is local. Both this and the next species appear to wander about a good deal, and some birds may be migrants from India, where this species appears to be confined to the Western Ghauts.

Habits.—May be met with in the tops of trees in hill forests and patana woods. In the low-country it usually keeps to the big trees along river banks and round tanks. Out of the breeding season it usually occurs in little troops of one cock and several hens. The nest has been found in Uva in December, but the breeding season probably continues throughout the north-east monsoon. The nest is rather a thick-walled little cup composed of the finest twigs and coated externally with cobwebs and lichen. It is generally placed high up in a tree and is glued into a small fork, or on to the top of a slender bough. The eggs, apparently two in number, are of pale sea green, marked with pale yellowish-brown and grayish-purple. Average size (of Indian eggs) .90 by .67.

PERICROCOTUS PEREGRINUS MALABARICUS.

The Small Minivet.

Pericrocotus peregrinus (Oates, Vol. I., p. 487; Legge, p. 366).

Description.—Male: Forehead, top of head, hind-neck, back, and lesser wing coverts dark ashy-gray; lores, cheeks, ear coverts, chin, and throat black; rump and upper tail coverts scarlet, with generally a whitish band at the junction with the gray of the back; the greater wing coverts and wing quills black, with a band of orange red across the inner primaries and the secondaries; the three central pairs of tail feathers black, the next pair with a broad orange red tip, the outer feathers orange red, except at the base; breast and flanks scarlet, the hue paling across the abdomen to orange-yellow on the vent and lower tail coverts.

Female : The gray parts of the upper plumage are more ashy ; wings and tail brownish, with much paler markings than in the male ; lower parts whitish-gray on the throat and breast, gradually changing into faint orange-yellow on the abdomen and lower tail coverts.

Bill black ; iris brown ; legs and feet black in males, brownish-black in females.

Length 5·9 ; wing 2·65 ; tail 2·65 ; tarsus ·6 ; bill from gape ·6.

Distribution.—This Minivet, divided into several geographical races, ranges over practically the whole Indian Empire and eastwards into Siam and Cochin-China. The present subspecies occurs in Ceylon and Malabar. It is found in suitable localities over most of the Island, but is more abundant in the north than in the damper south-west. It is fairly well distributed in the hills.

Habits.—Goes about in small troops, and has much the same habits as the preceding species, but is generally met with close to civilization, and not in the interior of forests. It is occasionally seen in Colombo. It feeds chiefly on larvæ and small insects. It appears to breed in April and May. The nest is a tiny edition of that of the Orange Minivet, and is placed in the same situations. The eggs are greenish-white, marked with brown and purple, and measure about ·7 by ·52.

CAMPOPHAGA SYKESI.

The Black-headed Cuckoo Shrike.

Campophaga sykesi (Oates, Vol. I., p. 493) ; *Lalage sykesii* (Legge, p. 369).

Description.—Male : Head, chin, throat, neck all round, and upper breast black ; back, scapulars, lesser wing coverts, and upper tail coverts slate gray, the tail coverts with paler margins ; median and greater wing coverts black with gray at the tips and on the outer webs ; primary coverts black with a narrow white edge on the outer webs ; primary quills black with narrow white edges to the outer and a large white patch on the inner webs ; secondaries with broader white borders and with a certain amount of gray on the outer webs of the

innermost quills ; the central pair of tail feathers gray, the rest black, tipped with white ; chest and flanks pale gray ; abdomen, vent, and lower tail coverts white.

Female : The upper plumage, including the lesser wing coverts, brownish-gray ; the rump and upper tail coverts rather lighter and with narrow dusky bars ; the rest of the wing coverts and wing quills dusky-brown with fulvous white edges, the primaries with a large basal patch of the same colour on the inner webs ; central tail feathers brownish-gray, darkening to brown at the tips, and with faint pale margins, the remainder blackish-brown with white tips ; ear coverts streaked with white ; cheeks, sides of neck, and lower plumage fulvous white, with numerous narrow dusky-brown bars, which disappear on the abdomen ; vent and under tail coverts white.

In nestlings the lower surface is more closely barred than in the female ; the upper plumage is slaty-brown, each feather with a white tip and a dusky sub-terminal bar.

Bill black ; iris brownish-red in males, brown in females ; legs and feet black in males, brownish-slate in females.

Length 7·5 ; wing 3·9 ; tail 3 ; tarsus ·8 ; bill from gape ·85.

Distribution.—Found over the greater part of the low-country, but most common in the maritime districts of the south-east and north. It ascends the hills to about 4,000 feet, and occasionally wanders to higher elevations. It occurs over the greater part of India proper.

Habits.—May be met with in a variety of situations, either in forest, low scrub jungle, hedgerows, or compounds. It is occasionally seen in Colombo. Out of the breeding season the males are solitary, the females and young associate in small troops. The birds hunt diligently among the foliage for larvæ and soft insects. Males have a clear whistle, females a chirping note. The breeding season appears to be about April. The nest is a small shallow cup made of fine twigs bound together with cobwebs and placed in the fork of a tree, often at the end of a horizontal branch. The two eggs are greenish-white, rather streakily marked with pale brown, and measure about ·86 by ·62.

GRAUCALUS MACII.

The Large Cuckoo Shrike.

Graucalus macii (Oates, Vol. I., p 496); *Graucalus macii* (Legge, p. 360).

Description.—Male : nostrils, lores, the feathers round the gape, and under the eye black ; ear coverts blackish ; upper plumage, face, and sides of neck slate-gray, sometimes with a bluish tinge ; rump and upper tail coverts paler and with whitish tips ; chin, throat, breast, and upper abdomen rather lighter gray, paling into white on the lower abdomen and vent ; wing-lining and under tail coverts white ; wing coverts blackish-gray with black shafts ; wings black, the quills edged with white, and the outer webs of the inner feathers largely gray ; central tail feathers ashy-gray, darker at the end and with pale tips, remainder black with grayish-white tips, the feathers towards the centre with gray bases. Most birds retain traces of darker cross-bars on the under surface.

In females the nostrils, lores, and ear coverts are brownish and the general tone of the plumage lighter.

In immature birds the lower parts are more or less heavily barred ; in very young birds the upper plumage is tipped and margined with pale fulvous, and the lower parts are nearly pure white.

Bill, legs, and feet black ; iris reddish-brown.

Length about 10·25 ; wing 5·9 ; tail 4·4 ; tarsus 1·05 ; bill from gape 1·35.

Distribution.—Not very abundant, but fairly widely distributed in the drier forest tracts of the low-country. It also occurs in Uva and at other medium elevations, where the rainfall is not too heavy. It ranges over practically the whole of the Indian Empire.

Habits.—Rather a shy forest bird, generally found in tall trees, especially in the neighbourhood of rivers and tanks. Single specimens are to be met with, but immature birds generally associate in small troops. The cry is a harsh “kur-eech.” The food consists of caterpillars, beetles, &c. It breeds apparently in July and August, chiefly in palu trees. The nest, which is small for the size of the bird, is a shallow cup of small twigs, lined inside with grass and leaves, and

felted with cobwebs to the top of a branch, or in a fork high up in the tree. The three eggs are pale green, marked with brown and purple, and measure about 1·22 by ·9.

Sub-family *Artaminæ*.

Genus **Artamus**.

Swallow Shrikes.

These are birds of rather swallow-like form with long wings, which enable them to spend much of their time in the air. They feed on insects, which they capture invariably on the wing. They are easily recognized by the strong conical pale blue bill, which is slightly curved and pointed, but neither hooked nor notched. The nostril is nearly circular and almost entirely exposed. The first primary is very minute, but the second reaches to the tip of the wing. The tail is short and square; the legs and feet weak. The plumage is plain, and there is no difference between the sexes. Swallow Shrikes are found from India to Australia. Only one species occurs in Ceylon.

ARTAMUS FUSCUS.

The Ashy Swallow Shrike.

Artamus fuscus (Oates, Vol. I., p. 498; Legge, p. 666).

Description.—Lores black; head and hind-neck slate gray; back, scapulars, and rump smoky-brown, with a slight reddish tinge in fresh specimens; upper tail coverts whitish; wings and wing coverts dark slate gray, the larger primaries almost dull brown on the exposed portions, all the quills with a very narrow whitish margin on the tips and inner webs; tail dark gray, almost brown, with a whitish tip; chin, cheeks, and fore-neck slate gray, the chin and cheeks tinged with black; lower parts from the chest downwards dove gray with a vinaceous tinge, paling to white on the inner tail coverts, which are crossed with narrow, wavy, gray bars.

In young birds the upper plumage is duller, and the feathers have faint paler margins; the secondaries and inner primaries have broad white tips.

Bill milky-blue, blackish at the tip; iris dark brown; legs and feet slate colour.

Length 7·3; wing 5·2; tail 2·25; tarsus ·65; bill from gape ·95.

Distribution.—Widely distributed over the low-country. It is fairly common in Uva, but rarer in the Central ranges. In some districts it appears to be a partial migrant. It occurs throughout the greater part of the Indian Empire, and extends into Siam and China.

Habits.—May be found in small flocks round paddy fields, on open hillsides, tree-studded patanas, or clearings in the jungle. The birds perch in rows on tall branches, sallying out in twos or threes after insects, which are captured on the wing, or soaring for some time in the air and then returning to their perch. The breeding season is from February till about April. The nest is a shallow saucer of grass and roots loosely put together and placed generally at the junction of a palm frond with the stem, but at times in hollow trees, or on the surface of a large horizontal branch. There are usually three eggs, rather narrow ovals, slightly pointed at one end. The ground colour is creamy-white, marked with rusty-brown. Average size ·94 by ·68.

FAMILY ORIOLIDÆ.

Genus **Oriolus**.

Orioles.

With the Orioles we come to a group of families in which the young are streaked. Only one genus is found in India, and only one species is at all common in Ceylon, a second having occurred only as a rare straggler. In our Ceylon forms the adults are easily recognized by their rich yellow and black plumage. The young pass through several stages from the nestling phase, in which the upper feathers are greenish, tipped with yellow, and the lower parts white, streaked with brown, to the full adult dress.

The bill is about the same length as the head, the upper mandible is slightly curved, with the tip notched and hooked, the nostrils are horizontal slits, which stand clear of the feathers at the base of the bill, the rictal bristles are well pronounced. The wings are rather long and pointed, the first

primary is more than half the length of the second. The tail is of medium length and slightly rounded, the tarsus is short, but fairly stout, and is covered in front by transverse scales. Orioles are arboreal in their habits, and feed on fruits and berries. Their notes are rich and flute-like.

Key to Ceylon Oriolidæ.

A.—Crown of head rich yellow.

Oriolus indicus indicus (Black-naped Oriole).

B.—Entire head, throat, and upper breast black.

Oriolus luteolus luteolus (Indian Black-headed Oriole).

ORIOULUS INDICUS INDICUS.

The Black-naped Oriole.

Oriolus indicus (Oates, Vol. I., p. 502); *Oriolus diffusus* (Legge, p. 355).

Description.—Male : Lores, a band through the eye and the nape black ; remainder of body plumage bright yellow ; wing coverts bright yellow, the inner webs of the greater coverts and the whole of the primary coverts, except the tips, black ; primaries black with yellowish-white tips and margins, the secondaries with wider margins, and the innermost quills almost wholly yellow ; tail feathers black with yellow tips, which increase in width on the outer feathers.

In females the yellow of the back is tinged with green.

Bill pinky red ; iris rich blood red ; legs and feet lead colour.

Length 9·75 ; wing 6 ; tail 4 ; tarsus 1 ; bill from gape 1·4.

Distribution.—Layard notes two specimens shot in Colombo, the only Ceylon record. The species appears to be a migrant found in winter over a considerable part of the Indian Peninsula but nowhere common.

In Burma it is fairly abundant in Southern Pegu. The summer quarters are in China and Mongolia.

Habits.—Not much is on record concerning these, but it appears to be a forest bird, and less partial to cultivated districts than the next species.

ORIOLOUS LUTEOLUS LUTEOLUS.

The Indian Black-headed Oriole.

Oriolus melanocephalus (Oates, p. 506 ; Legge, p. 357).

Description.—Male : Head, chin, throat, and fore-neck jet black ; remainder of body plumage rich yellow ; winglet black ; primary coverts black with yellow tips ; wing quills black, the primaries with narrow yellowish tips and margins, which are almost invisible on the first few quills ; secondaries with broad diagonal tips of brighter yellow, which increase on the innermost quills ; tail yellow, with a broad patch of black on the four central feathers and a smaller black area on the third pair.

In females the yellow of the back and breast is less bright and generally tinged with green.

In nestlings the feathers of the upper plumage are greenish with yellow tips, the lower plumage is white streaked with brown. As soon as the young are fully fledged, the yellow tips on the upper plumage disappear, the streaks on the lower plumage turn black, and the whole plumage becomes more yellow. The adult dress is assumed gradually from this stage.

Bill black in quite young birds, gradually changing to pink in the adult ; iris brown in the young, crimson in adults ; legs and feet dusky-bluish.

Length 9·5 ; wing 5 ; tail 3·2 ; tarsus 1 ; bill from gape 1·25.

Distribution.—This Oriole is found over the whole of India, except the north-west ; also in Burma, Ceylon, and the Andamans. The present sub-species, from South India and Ceylon, is distinguished by its smaller size, and the less amount of yellow on the wing. It is found all over the Island, wherever there are trees, either in gardens or forest, up to about 6,000 feet and occasionally higher.

Habits.—It is by no means shy, and may be seen close to human habitations. The breeding season extends throughout the north-east monsoon, from October to May. The nest is a deepish cup of grass and strips of bark, suspended by the rim from a horizontal fork at the extremity of a leafy branch. The eggs are two in number, very rarely three. They are

pointed ovals of a pinkish-white or pale cream colour, and sparingly marked with spots of dark reddish-brown, occasionally almost black. Average size 1·10 by ·79.

Family EULABETIDÆ.

Genus **Eulabes.**

Grackles.

The Grackles, or Hill Mynahs, comprise two Ceylon species, which in many respects resemble large Mynahs. They differ, however, sufficiently to justify their separation into another family, the chief outwardly distinctive feature being the fleshy yellow wattles on the nape. Both Ceylon species have a brilliantly glossy black plumage with a patch of white on the wing. The bill is stout and somewhat curved, the oval nostrils are rather sunken and lie just clear of the feathers at the base of the bill. Rictal bristles are present, but are not very pronounced. The first primary is minute and the wings are long, but rather blunt; the tail is short and nearly square, the tarsi are stout and the feet strong. The call is a melodious whistle, and the birds can be taught to speak or to whistle a few bars of a tune. They are strictly arboreal and feed on fruit.

Key to Ceylon Eulabetidæ.

A.—A patch of bare skin under the eye; base of lappets prolonged forward into a V-shaped ridge.

Eulabes religiosa religiosa (Southern Grackle).

B.—No bare skin under the eye; base of lappets not prolonged forward.

Eulabes ptilogenys (Ceylon Grackle).

EULABES RELIGIOSA RELIGIOSA.

The Southern Grackle.

Eulabes religiosa (Oates, Vol. I., p. 510; Legge, p. 682).

Description.—Whole plumage rich black, glossed with purple on the head, cheeks, and hind-neck, and with greenish on the rest of upper parts and throat; the feathers of the

wing coverts and lower parts are glossed on the margins with green, and those of the side of the breast with bronze and purple ; a patch of white on the first eight primary quills.

The wattling consists of a stripe of bare yellow skin running backwards from the eye to the side of the nape, where it coalesces with a similar stripe from the side of the crown to form a broad lappet ; there is also a square, naked patch just under the eye.

In young birds the lappets are only slightly developed and the plumage is more or less devoid of gloss.

Bill orange-yellow ; iris brown, the outer edge white with darker mottlings ; legs and feet lemon-yellow.

Length about 9·75 ; wing 5·7 ; tail 2·8 ; tarsus 1·2 ; bill from gape 1·4.

Distribution.—Found rather locally through the wet and medium zones up to about 1,500 feet. It occurs in the hilly and well-wooded portions of South India.

Habits.—This species is found in well-wooded country, on the borders of open spaces, round tanks, by river banks, &c., but is absent from the heart of heavy forest. It is rather capricious in its distribution, and seldom wanders from its usual haunts. The cry is a shrill whistle, higher and more metallic than that of the next species. It is generally seen in pairs or small parties in the tops of tall trees, where it feeds on fruit and berries. The breeding season appears to be from June till about August. The nest is placed in a natural cavity in a tree, or in the old nest hole of a Barbet or Woodpecker. The bottom is scantily lined with a few dead leaves, &c. The two eggs are of light greenish-blue blotched with purple and chocolate brown. Average size (of South Indian eggs) 1·3 by ·88.

EULABES PTILOGENYS.

The Ceylon Grackle.

Eulabes ptilogenys (Oates, Vol. I., p. 513 ; Legge, p. 685).

Description.—Whole plumage black, glossed mainly with purple ; a patch of white at the base of the first six or seven

primaries. The wattling is confined to two lappets of rich yellow skin, which spring from the sides of the nape. In old birds these lappets meet at the base.

Bill orange-red, the lower mandible for half its length and the upper mandible from the gape to the nostrils black; iris in males grayish-white mottled with brown, in females white or yellowish-white; legs and feet gamboge yellow.

Length 10·75; wing 6; tail 2·75; tarsus 1·35; bill from gape 1·4.

Distribution.—Peculiar to Ceylon. It occurs in the well-wooded parts of the main hill ranges from about 6,500 feet to 1,500 feet. In the forests westward of the Adam's Peak range it appears to descend almost to sea level.

Habits.—Much the same as those of the last species. The call is rather less shrill. The nest and eggs also closely resemble those of the Southern Grackle, and measure about 1·30 by ·98.

Family STURNIDÆ.

Starlings and Mynahs.

The Starlings and Mynahs form a large group, with a marked family resemblance, found over a great portion of the Old World. Some species are migratory, others resident, but nearly all are gregarious. They are not nearly so arboreal as the Grackles, the greater portion of their food being obtained on the ground. The bill is generally moderately stout, only gently curved, or almost straight; but there is a distinct downward bend of the mouth near the gape.

There are no rictal bristles; the nostrils are rather narrow and almost horizontal; they stand clear of the line of the forehead, but the base of the bill is feathered down to their margins. The feathers of the crown and nape are elongated and in some species form a distinct crest. The first primary is minute. The tarsus is stout, and the feet large. Four genera, each represented by a single species, are found in Ceylon, and one genus, *Sturnornis*, is peculiar to the Island. In the migrant genus *Pastor* the wing is long and pointed, the tail short and square; in the other three resident forms the wing is blunt and the tail more rounded.

Key to Ceylon Sturnidæ.

A.—A noticeable long crest in adults ; no nude skin on side of head.

(1) Wings pointed ; throat and breast in adults black.

Pastor roseus (Rose-coloured Starling).

(2) Wings blunt ; lower parts reddish buff.

Temenuchus pagodarum (Brahminy Mynah).

B.—Feathers of crown and nape only moderately elongated ; a patch of bare skin on side of head.

(1) Throat and fore-neck gray with white shaft-streaks ; bare skin confined to a triangle behind the eye.

Sturnornis senex (White-headed Mynah).

(2) Throat and fore-neck black ; a large naked patch behind and beneath the eye.

Acridotheres tristis melanosternus (Common Ceylon Mynah).

PASTOR ROSEUS.

The Rose-coloured Starling.

Pastor roseus (Oates, Vol. I., p. 518 ; Legge, p. 673).

Description.—Summer : Head, neck, throat, upper breast, wings, and tail glossy black ; feathers of the wing-lining black, edged with white ; thighs, a patch on each flank, and the under-tail coverts black, tipped with white ; rest of plumage clear rose colour.

In winter the black feathers of the head, crest, neck, and throat are tipped with buff ; the feathers of the back and breast are rosy at the base and brown at the ends ; while the crest is not nearly so well developed ; at the end of winter the dull margins of the feathers wear off.

Females appear to be slightly paler, as a rule, and with a shorter crest.

In nestling birds the whole plumage is sandy-brown, the feathers of the crown have darker centres, and there is no crest ; the lower plumage is paler ; the foreneck is streaked with brown ; the wing and tail quills are dark brown, edged

with pale buff; after the first autumn moult the wings and tail become black, a patch of black appears on the upper breast, and the rosy tinge begins to appear on the back, breast, and abdomen; the full adult plumage does not appear to be assumed until the end of the second autumn.

Bill pinkish flesh-colour, the ridge brown; iris brown; legs and feet yellowish-brown.

Dimensions rather variable: length about 9; wing 5.2; tail 3; tarsus 1.25; bill from gape 1.15.

Distribution.—A rather uncertain migrant. It appears to breed in the Balkan Peninsula, in Western Asia from Turkestan to Asia Minor, migrating rather irregularly over a great part of Europe and Asia as far east and south as India and Ceylon.

Habits.—Occasionally a large flock visits the west and north of the Island; one such flock came to Puttalam for some weeks at the end of 1917. During their stay they frequent open grassy spaces and fields, feeding on grass seeds, grain, and insects. The whole flock roosts together in trees. The birds are generally extremely wary and difficult to approach.

TEMENUCHUS PAGODARUM.

The Brahminy Mynah.

Temenuchus pagodarum (Oates, Vol. I., p. 533); *Sturnia pagodarum* (Legge, p. 677).

Description.—Forehead, crown, and the long crest on the nape glossy black; face, neck all round, and lower parts down to the abdomen reddish-buff, the feathers of the neck, throat, and breast elongated and with paler centres; upper plumage from the neck, wing coverts, and inner wing quills brownish-gray; primary quills rusty-black; tail brown with broad white tips, except the middle pair of feathers, which are dove gray shaded with brown; vent, thighs, and under tail coverts pearly-white.

Young birds have no crest, the cap of the head is dark brown, upper plumage ashy-brown, lower parts pale buff with a grayish tinge. The adult plumage is gradually assumed.

Bill bluish at the base, remainder yellow ; iris pale topaz yellow ; legs and feet pale yellow.

Length 8·25 ; wing 4·15 ; tail 2·75 ; tarsus 1·15 ; bill from gape 1·05.

Distribution.—Found only in the dry parts of the Island near the coast. It occurs in suitable districts over the whole of India proper.

Habits.—Although in India this species occurs far inland, with us it is never seen far from the sea. It is rather local, though plentiful where it occurs, as it associates in fairly large flocks, which from time to time shift their quarters to a distance of some miles. It is generally met with in scrubby country, or in grassy spaces dotted with bushes. The birds are wary and hard to approach. They feed chiefly on insects, small beetles, &c., but also on seeds and buds. They are said to breed in the north of the Island in July and August. The nest is a flimsy affair of grass and feathers placed in the hole of a tree. The eggs, three to five in number, are pale whitish-blue, and measure about ·97 by ·75.

STURNORNIS SENEX.

The White-headed Mynah.

Sturnornis senex (Oates, Vol. I., p. 534 ; Legge, p. 680).

Description.—Adult : Forehead, front of face, chin, throat, and ear coverts buffy-white ; remainder of upper plumage, including the wings and tail black with a greenish lustre ; the feathers of the nape and neck with white shafts and those of the back faintly tinged with gray ; the white of the upper throat passes into the lavender gray of the remainder of the lower parts, the fore-neck having conspicuous, narrow, white shaft streaks, which are less noticeable on the breast, flank, and abdomen ; vent and lower tail coverts unstreaked, and almost the same shade as the throat.

In young birds the upper plumage has a brownish tinge, the white on the top of the head is confined to the forehead and eyebrow, the lower parts are darker, while the shaft streaks on the breast and abdomen are broader and less streaky.

Bill pale bluish-brown, leaden blue at the base ; iris dull whitish with a narrow brown inner circle ; eye-lid and skin round the eye dull bluish ; legs and feet leaden blue.

Length 8·4 ; wing 4·3 ; tail 3 ; tarsus 1 ; bill from gape 1·1.

Distribution.—Peculiar to Ceylon, and confined almost entirely to the slopes of the Peak range and the Kukul korale in the Ratnapura District.

Habits.—A rare bird. It appears to be entirely arboreal in its habits, and goes about in small flocks feeding on fruits and berries in the tops of trees. It may be looked for in open spaces dotted over with solitary trees and clumps of jungle, or on the edges of forest and by the side of jungle paths. The nest has been found by Mr. F. Lewis in April. The nest hole was in a tree stem, and much resembled that of the Ceylon Grackle—*Eulubes ptilogenys*. It contained two pale blue eggs laid on the bare wood. They are rather pointed at the narrow end, and measure 1·01 by ·79.

ACRIDOTHERES TRISTIS MELANOSTERNUS.

The Common Ceylon Mynah.

Acridotheres melanosternus (Oates, Vol. I., p. 538 ; Legge p. 670).

Description.—Forehead, crown, and elongated feathers of the nape, with the feathered portion of the cheeks and ear coverts, glossy black ; chin, throat, upper hind-neck, and fore-neck less glossy black ; remainder of upper plumage, with wing coverts and secondaries dark vinous brown ; primaries and tail almost black, the tail feathers with white tips which are sometimes abraded, the primaries with white bases ; primary coverts, edge of wing, and wing-lining white, the outer webs of the outermost primary coverts black ; sides of breast and flanks vinous brown ; centre of breast, top of abdomen, and the thighs dull black : rest of abdomen, vent, and lower tail coverts white.

In young birds the brown of the plumage has a more rufous tinge, there is no crest on the nape, and the abdomen is tinged with rufous.

Bill yellow, the lower mandible blackish at the base ; iris brownish-pink, pinkish-gray, or at times whitish mottled with brown ; naked skin round eye yellow ; legs and feet light yellow.

Dimensions variable : length about 10 ; wing 5·6 ; tail 3·3 ; tarsus 1·6 ; bill from gape 1·35.

Distribution.—The Ceylon form of this bird is now recognized as merely a sub-species of *A. tristis*, which occurs over practically the whole of the Indian Empire. This Mynah is one of the most familiar birds all over the cultivated portions of the Island, and ascends to a considerable elevation in the hills.

Habits.—A gregarious species, going about during the day in small troops, which may be seen in gardens, coconut estates, grassy lands, &c., or perhaps most frequently in attendance on groups of grazing cattle, not only securing the insects stirred up in the grass by the animals as they move along, but also perching on the beast's backs to feed on parasites. At night they roost in colonies. The favourite roosting site is often a clump of reeds or low bushes in a marsh or large tank. In such a spot the birds often congregate at night in hundreds. As Mynahs are easily tamed and can be taught to speak and whistle, they are familiar pets. The breeding season extends from about March to August. The bird generally chooses for its nest an old Woodpecker's hole in the stem of a coconut palm, placing a pad of grass, roots, and fibres at the bottom of the cavity. The eggs usually number three, occasionally four, or even five. They are broad ovals of uniform pale bluish-green, slightly pointed at the smaller end, and measure about 1·16 by ·84.

Family MUSCICAPIDÆ.

Flycatchers.

The Flycatchers are an extensive group of birds, in which, as in the case of the next family, the Thrushes, the plumage of the nestling is normally mottled. They have, however, well-marked family characteristics. The bill is flat and pointed, in most species viewed from above it has the outline of an almost equilateral triangle, the upper mandible is simply

notched, and has a perceptible little hook at the extreme point. The nostrils stand clear of the line of the forehead and are covered by numerous hairs, which spring from the forehead and lie over them horizontally. These hairs are a most characteristic mark of the family, and are distinct from the rictal bristles. The rictal bristles themselves are generally strong and numerous. There are ten primaries and twelve tail feathers. The wing is generally moderate in length and pointed. All species have feebly developed legs and feet, they are incapable of walking, and few of them ever descend to the ground. They are all insectivorous, and catch their food by darting out in short flights from a perch, to which they return. Many of them are migratory. There is one moult a year, in the autumn, and in most species the young change into the adult plumage at the end of the first autumn. There is one notable exception among our Ceylon species, the fully mature plumage of the male, *Terpsiphone paradisi*, being acquired only in the fourth year.

Ten species, belonging to eight genera, occur in Ceylon. They fall into two groups. First we have seven species, including four migrants, in which the tail falls short of the wing in measurement. In all these seven species the bill is not long, and is almost equilaterally triangular in outline; the rictal bristles are, save in *Culicicapa*, only moderately developed; the wing is pointed and the tail square. The differences between the genera are largely based on the type of colouration, and are shown in the key which follows. In the resident forms of the above group the nest is either placed in a hole or ledge, or attached to the side of a rock or tree trunk. We next come to three forms which are resident, or, at all events, mainly so. These are distinguished by their longer tails, which are never square. The bill, though pointed and triangular, is generally longer than in the preceding group; the rictal bristles are long and numerous. In *Terpsiphone* the bill is large and swollen, and the rictal bristles are coarse. All three species build the most beautiful little cup-shaped nests, which are placed either in a slender fork, or glued on to the top of a thin branch. The young of the three species are not noticeably mottled.

Key to Ceylon Muscicapidæ.

I.—Tail shorter than wing.

A.—Fore-neck and breast, either rich chestnut, or ferruginous in adults.

(a) Upper plumage brown; upper tail coverts black; some white on tail.

Siphia hyperythra (Indian Red-breasted Flycatcher)

(b) Upper plumage generally blue; no black on tail coverts or white on tail. Genus *Cyornis*.

(1) Males blue above; chin and throat dusky-blue; females brown above; chin and throat dull rufous, like the breast.

C. rubeculoides rubeculoides (Blue-throated Flycatcher).

(2) Both males and females blue above: in males the chin feathers adjoining the bill black, remainder of chin and throat same colour as fore-neck; in females the dark chin-stripe is lacking.

C. rubeculoides tickelli (Tickell's Blue Flycatcher).

B.—Sexes alike; greater part of both upper and lower plumage ashy-gray tinged with blue.

Stoparola melanops sordida (Dusky-blue Flycatcher).

C.—Sexes alike; upper plumage plain brown, or rufous; lower parts white or inconspicuously coloured. Genus *Alseonax*.

(1) Upper plumage and tail ashy-brown.

A. latirostris (Brown Flycatcher).

(2) Upper plumage more ruddy brown; rump and upper tail coverts bright rufous brown.

A. muttui (Layard's Flycatcher).

D.—Plumage gray in front, yellow behind.

Culicicapa ceylonensis (Gray-headed Flycatcher).

II.—Tail as long as or longer than wing.

- (a) Tail in males very elongated ; a marked crest ; head glossy black, rest of upper plumage chestnut, except in old males, when it is mainly white.

Tersiphone paradisi paradisi (Indian Paradise Flycatcher).

- (b) No crest.

- (1) Tail same length as wing ; plumage mainly azure blue.

Hypothymis azurea ceylonensis (Indian Black-naped Flycatcher).

- (2) Tail longer than wing and fan-shaped ; upper plumage mainly brown ; a broad band above the eye and most of lower parts white.

Rhipidura albifrontata. (White-browed Fantailed Flycatcher).

SIPHIA HYPERYTHRA.

The Indian Red-breasted Flycatcher.

Siphia hyperythra (Oates, Vol. II., p. 10) ; *Muscicapa hyperythra* (Legge, p. 428).

Description.—Male : Whole upper plumage to the rump dark ashy-brown ; wing coverts and quills dark brown edged with the hue of the back ; upper tail coverts and four central tail feathers wholly black, remaining tail feathers white for two-thirds of their length, on the outermost feather the outer web is black for over half its length ; lores, cheeks, and sides of neck ashen ; chin, throat, breast, and sides of abdomen rich chestnut bordered by a bold black stripe from the gape down to the sides of the breast ; rest of lower surface white, tinged with rufous on the flanks and under tail coverts.

Female : Upper surface with a more earthy tint ; the black of the tail less pronounced ; lores and round the eye grayish ; the chin, throat, and breast are duller, and lack the dividing black border.

Young birds are brownish, streaked and mottled with fulvous ; the lower parts are grayish in front, whitish behind, the chestnut tint appears in dull mottled patches which spread and brighten, at the same time in males the black border begins to appear.

Bill brown above, paler near the forehead, the lower mandible and gape fleshy-yellow, the tip dusky ; iris hazel brown ; legs and feet deep brown.

Length about 4·8 ; wing 2·75 ; tail 2 ; tarsus ·75 ; bill from gape ·6.

Distribution.—A north-east monsoon migrant, found in the central Hill ranges over about 2,500 feet. The species breeds in Kashmir, and winters apparently only in Ceylon. It has been observed on migration in October in the Deccan, so would seem to migrate down the centre of the Indian Peninsula.

Habits.—Generally frequents the edges of forest, trees by the side of jungle paths, the strips of wood which line the streams in patana country, &c. It is irregular in its visits, being plentiful in certain localities one year and absent the next. The note according to Legge is a monosyllabic whistle, followed by a sharpe little trill, recalling somewhat the note of the Wheatear. It is restless and active in its movements, and is generally found solitary.

CYORNIS RUBECULOIDES RUBECULOIDES.

The Blue-throated Flycatcher.

Cyornis rubeculoides (Oates, Vol. II., p. 23) ; *Siphia rubeculoides* (Legge, p. 424).

Description.—Male : Closely resembles that of the next sub-species, but is a little smaller and brighter. The distinguishing features are the throat and chin, which are dusky-blue.

Female : Upper plumage brownish-olive with a rusty tinge on the forehead, round the eye, and on the tail-coverts ; wings and tail brown with paler margins to the quills ; chin, throat, and chest dull rufous ; flanks paler ; abdomen and lower tail coverts white.

Young birds are brown streaked with fulvous, and with broad fulvous tips on the wing coverts; throat and breast bright fulvous mottled with brown; abdomen white.

Bill black, the gape flesh-coloured; iris brown; legs and feet grayish-blue.

Length 5·7; wing 2·7; tail 2·2; tarsus ·7; bill from gape ·7.

Distribution.—This bird is now considered to be a migrant form sub-specifically allied to *Cyornis rubeculoides tickelli*, which is a resident race. It breeds in the Himalayas, and winters over a considerable portion of the plains of India and Burma. In Ceylon it has been obtained by Legge and Layard during the north-east monsoon, but only in the Jaffna peninsula and the northern forest tract.

Habits.—A restless little bird which keeps to the undergrowth and lower branches in high jungle. The call is more varied and longer sustained than that of the following sub-species.

CYORNIS RUBECULOIDES TICKELLI.

Tickell's Blue Flycatcher.

Cyornis tickelli (Oates, Vol. II., p. 25); *Siphia tickelliæ* (Legge, p. 421).

Description.—Male: Forehead and a streak over the eye shining blue; upper plumage dull blue; wings dull brown, the outer webs of most quills washed with blue; tail feathers blue, the shafts and the greater part of the webs brown; lores, face, and chin feathers adjoining the bill almost black; remainder of chin, throat, and neck bright ferruginous; breast and flanks paler; abdomen and under tail coverts white.

Female: Resembles the male, but the upper plumage is lighter and has a faded appearance; lores whitish; cheeks bluish; no dark chin stripe; chin, throat, and breast paler ferruginous than in the male.

Young birds are streaked with fulvous, and resemble the young of the last sub-species.

Bill blackish ; iris brown ; legs and feet bluish-brown or bluish-gray.

Length 5·8 ; wing 2·8 ; tail 2·45 ; tarsus ·7 ; bill from gape ·75.

Distribution.—A resident form found over the greater part of the peninsula of India and portions of Burma. It is widely distributed over the whole of the Island up to about 4,000 feet wherever there is forest.

Habits.—Keeps to the undergrowth and lower branches in tall forest, and may occasionally be seen in untidy village gardens where there are jak trees. It is very active towards dusk. The call is a little whistling chirrup. I have taken eggs as early as February and as late as June. The nest is rather a deep little cup of dead leaves, moss and grass, lined with finer materials, and placed in holes in banks or trees. Three is the usual number of eggs. They are so thickly speckled as to seem almost uniform olive-brown, the colouring being often deeper at the larger end, owing to the greater density there of the markings. Average size ·77 by ·57.

STOPAROLA MELANOPS SORDIDA.

The Dusky-blue Flycatcher.

Stoparola sordida (Oates, Vol. II., p. 29 ; Legge, p. 419).

Description.—Head and body plumage in general dull ashy-gray tinged with blue, which is brightest on the crown ; forehead, an indefinite streak over the eye, and the chin washed with bright cobalt blue ; lores and the point of the chin black ; abdomen, vent, and under tail coverts whitish ; wing and tail quills dark brown edged with the hue of the back.

Young birds are dark brown above, each feather with a tawny centre and a blackish border ; feathers of lower plumage grayish with dark borders. The change into adult plumage is gradual.

Bill black ; iris red brown or brown ; legs and feet dark lead colour.

Length about 6 ; wing 3 ; tail 2·4 ; tarsus ·75 ; bill from gape ·7.

Distribution.—The form found in Ceylon was for long supposed to be confined to this Island, but recently it has been discovered as not uncommon in the Travancore hills. It is a sub-species of *S. melanops*, which occurs over the greater part of the Indian Empire. Our bird is fairly abundant up-country at elevations over 2,000 feet, but chiefly in the higher hills.

Habits.—Rather a quiet shy bird, seen chiefly on the borders of hill streams in the jungle, by woodland paths, or on the outskirts of forest. It has a low clear song. It generally perches on logs, rocks, or on branches fairly close to the ground. The breeding season is from March to May. The nest is placed in the crevices of trees or on ledges in the banks of streams or of path cuttings. It is a deepish cup of moss, the outside wall being built up from the ledge on which it rests, and is lined with a few fine vegetable fibres. Two or occasionally three eggs are laid. The ground colour is dull white with minute red spots, which generally form a cloudy zone or cap at the larger end, leaving the rest of the egg scantily marked. Average size of a small series $\cdot 87$ by $\cdot 58$.

ALSEONAX LATIROSTRIS.

The Brown Flycatcher.

Alseonax latirostris (Oates, Vol. II., p. 35; Legge, p. 415).

Description.—Upper plumage ashy-brown, the feathers of the crown with slightly darker centres; a faint tinge of gray towards the rump; lores and a thin ring round the eye whitish; wing coverts and quills dark brown with ashy-white margins to the coverts and inner quills; tail dark brown, the outer feathers with narrow whitish edges; under parts white, the flanks, breast, and fore-neck tinged with ashy-gray.

In young birds the crown is blackish with fulvous streaks; the upper plumage and wing feathers have large fulvous spots; the lower plumage is mottled with brown. After their first moult young birds are more rufous than adults.

Bill black above, the lower mandible yellow with a darker tip; iris brown; legs and feet black.

Length $5\cdot 2$; wing $2\cdot 8$; tail $2\cdot 1$; tarsus $\cdot 5$; bill from gape $\cdot 65$.

Distribution.—A migrant to Ceylon, found during the north-east monsoon over the low-country, but nowhere abundant. It does not appear to ascend the hills to a height of over 3,500 feet. The species ranges from Japan and Siberia in the north to India, Java, and the Philippines. It breeds mainly in the north of its range and on the Himalayas, but some birds appear to be resident in other parts of India, and a few loiter in Ceylon, as it has been obtained in the Island in June.

Habits.—A solitary, quiet, but tame bird, which frequently escapes notice. It generally keeps to the boughs of shady trees either in the forest or even in gardens in the middle of habitations and close to frequented paths. It sits motionless for long periods, darting out at times from its perch to catch insects.

ALSEONAX MUTTUI.

Layard's Flycatcher.

Alseonax muttui (Oates, Vol. II., p. 36 ; Legge, p. 417).

Description.—Head and nape olive-brown, shading through the rufous-brown of the back into bright rufous-brown on the rump and upper tail coverts ; wing coverts and quills brown, edged with the hue of the rump ; tail brown, the outer webs washed with rufous ; lores and a conspicuous ring round the eye white ; ear coverts olive-brown ; chin and throat white ; cheeks, sides of neck, breast, and flanks yellowish-brown ; abdomen and under tail coverts white.

Bill dark brown above, pale horny yellow beneath ; iris hazel brown ; legs and feet pale yellow.

Length 5·4 ; wing 2·8 ; tail 2·1 ; tarsus ·55 ; bill from gape ·7.

Distribution.—This species apparently breeds in Sikkim and other parts of the Himalayas. It winters in Travancore and Ceylon, and seems to migrate down the centre of the peninsula, as it has been obtained in October in the Deccan, while on passage. As with the last species, some birds appear to loiter, for the first specimen recorded was obtained by

Layard at Point Pedro in June. It is an extremely rare bird, as yet noted only from the Jaffna peninsula, Trincomalee, and the Western Province.

Habits.—Not much is known about these, but they are probably much the same as those of the last species. It appears, however, to keep to the lower branches of trees by the sides of paths and small glades in the forest.

Note.—*Ochromela nigrorufa*—The Black-and-Orange Flycatcher—is said to have occurred in Ceylon, but the evidence is doubtful. Layard identified a drawing of a bird obtained in June at Ratnapura by Mr. Mitford as being this species, which occurs on the hill ranges of South India in dense woods. The plumage is striking and unusual. In males the forehead, crown, nape, hind-neck, sides of head, and wings are black; the rest is rich orange, slightly paler on the abdomen; some of the wing coverts and inner quills have narrow orange tips. In females the black of the head is replaced by greenish-brown; the wings are dark brown and the orange parts are paler.

Length about 5; wing 2; tail 2·5; tarsus ·8; bill from gape ·6.

CULICICAPA CEYLONENSIS.

The Gray-headed Flycatcher.

Culicicapa ceylonensis (Oates, Vol. II., p. 38; Legge, p. 410).

Description.—Head, cheeks, and hind-neck dark ashy-gray, the feathers of the crown with darker brown centres; back greenish-yellow, the colour brightening on the rump and upper tail coverts; wing coverts and quills dark brown edged on the outer webs with the hue of the rump; tail dark brown, the outer webs of all but the two central feathers edged with the hue of the rump; throat, neck, and sides of breast pale ashy-gray; rest of lower parts bright yellow; wing-lining pale yellow.

Bill brown above, pale horny-yellow beneath; iris brown; legs and feet yellowish-brown.

Length about 5; wing 2·5; tail 2·1; tarsus ·55; bill from gape ·55.

Distribution.—In Ceylon a hill species which rarely descends below 1,000 feet. Above this elevation it is resident and in many localities common. It occurs over practically the whole of the Indian Empire, except in the north-west, being a permanent resident in the hills and a winter visitor to the plains. The range extends to Java and Borneo.

Habits.—A familiar species in most of the up-country forests and jungles. It frequents the lower branches of trees, especially by roadsides, streams, the edges of clearings, &c. It is generally found in pairs and flits about actively, hawking for insects. The whistle is compared by Legge to the syllables "tit-titu-wheree." The breeding season is probably about April and May. The nest is a little pocket of moss fixed to the trunk of a tree or against a rock; at times there is a lining of fine stalks or fibres, but frequently it is unlined. In India there are four eggs, but probably only three in Ceylon. They are dingy yellowish-white, finely speckled with brown and gray, chiefly in a zone towards the larger end. Average size .61 by .48.

TERPSIPHONE PARADISI PARADISI.

The Indian Paradise Flycatcher.

Terpsiphone paradisi (Oates, Vol. II., p. 45; Legge, p. 404).

Description.—Females and young males: Forehead, crown, crest, and nape glossy blue-black; cheeks, chin, throat, and all round the neck ashy-brown; on the fore-neck this colour gradually changes through the pale ash colour of the breast into white on the abdomen, vent, and lower tail coverts; upper plumage from the neck downwards, including wings and tail, chestnut; the inner webs of the wing quills duller brown; the tail is about 4.5 inches long.

The female continues in this plumage all her life, and the male until the second summer. He then gradually becomes blacker on the chin, throat, and hind-neck. After the second annual moult, the head and neck are hooded in glossy blue-black, which contrasts sharply with the ashy-gray of the fore-neck; the inner webs of the wing-quills are almost

entirely chestnut ; at the same time the two central tail feathers grow to a length of 12 inches or more. After the third moult the breast grows lighter, and the bird gradually changes into the white plumage, the change being not complete until after the fourth moult, when the whole head, neck, and crest are glossy blue-black with a metallic sheen, and the rest of the body plumage white ; the feathers of the back and rump have black shafts ; the wing quills are black with white margins, which increase in width on the inner quills ; the tail is white, with conspicuous black shafts and black borders on the outer webs of all but the central feathers.

Bill and eyelids cobalt blue ; iris dark brown ; legs and feet a rather paler blue than the bill.

Adult males : length 16·5 to 19·5 ; wing 3·75 ; tail 12 to about 15 ; tarsus ·7 ; bill from gape 1·05. Females : length about 9 ; wing 3·55 ; tail 4·5.

Distribution.—This Flycatcher is found over the greater part of India proper, and ranges west and north into Afghanistan and Turkestan. A closely allied form occurs in the East Himalayas and Burma. In Ceylon this species is subject to a good deal of seasonal movement, concerning which we have much to learn. In the north-east monsoon both young and old birds are found all over the low-country, but more abundantly in the drier forest tracts. It is not very common above 2,000 feet, but is occasionally seen at quite high elevations, and such visits are apparently increasing. About March the birds appear to migrate north and east to the drier forest tracts. Here the younger birds pair and breed freely from April to June or even later. Long-tailed red birds are not often observed during the south-west monsoon, and I have only once at this season seen a male in the full black and white plumage. They are either soon killed off, or else migrate to India.

Habits.—A fairly familiar bird, which is generally found in forest, or in shady spots not very far from water. It is by no means averse to the neighbourhood of man, and may often be seen in village gardens. It takes more extended flights after insects than many Flycatchers, and is less fond

of returning time and again to the same perch. The cry is rather a grating little single note. The breeding season is chiefly in April and May, but may occasionally extend as late as August. The nest is a beautifully built little shallow cup of fine grass, fibres, &c., bound together with cobwebs and lined with similar finer materials. I have generally found it placed about 6 feet from the ground in the fork of a downward slanting, thin, bare branch fairly close to the stem of the tree. With us there are generally three, often only two, eggs. The ground colour is pinkish-white, rather sparingly spotted, often in a zone, with brownish-red. Average size $\cdot 79$ by $\cdot 60$.

HYPOTHYMIS AZUREA CEYLONENSIS.

The Indian Black-naped Flycatcher.

Hypothymis azurea (Oates, Vol. II., p. 49); *Hypothymis ceylonensis* (Legge, p. 408).

Description.—Male: Head, neck, back, rump, and upper tail coverts, throat, and chest azure blue, brightest on the head and throat; there is a distinct dividing line across the fore-neck between the two shades; the extreme point of the chin, the feathers adjoining the nostrils, and, in fully adult birds, a patch on the nape black; wing coverts and quills dusky-brown, the coverts washed, and the quills edged with the hue of the back; tail dusky-brown, the central feathers and the outer webs of the others washed with azure blue; abdomen, vent, and lower tail coverts white tinged at times with faint blue.

Females lack the black nape patch; the blue of the plumage is slightly duller and the brown lighter; the breast is ashy-blue, and the abdomen, flanks, and lower tail coverts tinged with gray.

Bill dark blue; iris dark brown; legs and feet bluish lead-colour.

Length $6\cdot 1$; wing $2\cdot 7$; tail $2\cdot 75$; tarsus $\cdot 6$; bill from gape $\cdot 65$.

Distribution.—The form found in Ceylon is a good sub-species, in which the black nape patch is small, and the black bar across the throat wanting. It is fairly abundant in forest and high jungle throughout the low-country and in the lower hills. Allied geographical races are found almost throughout the Indian Empire.

Habits.—A forest species, generally found singly or in pairs in secluded spots, often near water. It keeps largely to the undergrowth or lower branches, and, like the last species, has a harsh little cheep. The nest is a dainty little cup of fine grass, coated with cobwebs, and placed in the fork of a young sapling among the forest undergrowth at no great height from the ground. The outside of the nest is generally an inverted cone in shape. There are two or three eggs, which are miniatures of those of the last species. Average size $\cdot 70$ by $\cdot 52$.

RHIPIDURA ALBIFRONTATA.

The White-browed Fantail Flycatcher.

Rhipidura albifrontata (Oates, Vol. II., p. 52 ; Legge, p. 412).

Description.—Crown, lores, ear coverts, and the feathers round the eye rusty-black ; the forehead and a broad band over the eye to the nape white ; upper plumage and wings ashy-brown ; the wing coverts with white spots on the tips ; tail darker brown, the central feathers unmarked, the next pair with white tips, which increase in length on the outer feathers, the outside pair being almost entirely white ; lower cheeks, chin, and throat rusty-black, each feather edged with white ; lower throat and sides of breast unmarked rusty-black ; rest of lower parts white.

Females are slightly lighter brown ; in young birds the feathers of the back and wing coverts have rufous margins.

Bill, legs, and feet black ; iris brown.

Length 7 ; wing $3\cdot 15$; tail $3\cdot 6$; tarsus $\cdot 75$; bill from gape $\cdot 68$.

Distribution.—This species, divided into several geographical races, is found over the greater part of India, except on the west and north-west. The Ceylon form is probably a good sub-species, and has a peculiar distribution confined to the east and south-east of the Island. The western limit

of its main haunts runs from Tangalla to Haputale, then across the Uva hills to the park country on the east of the central range as far north as the glades round Polonnaruwa. It is found all over the Hambantota District, but does not appear to occur near the sea in the Eastern Province. Scattered colonies exist outside these limits in a few localities in the Galle and Matara Districts, also in Pussellawa and other places on the eastern portion of the central ranges. It is strange that a bird which is equally at home on the Uva hills and in the dry hot chenās east of Tangalla has not spread all over the drier districts of the Island.

Habits.—A familiar little bird round Bandarawela, &c., where it is known as the “drunken piper” from its human little whistle, which resembles an attempt at the first line of a tune. It has also a grating little call note, not unlike the “scrit” of the Paradise Flycatcher. It is extremely restless, constantly flitting from perch to perch and flirting its fan-shaped tail. It descends to the ground more frequently than most Flycatchers. The breeding season is from April to June. The nest is an exquisite little cup of fine grass coated with cobwebs and placed on the top of a bough or in a small fork. The two or three eggs are creamy-white, speckled generally in a fairly thick zone round the broad part of the egg, with grayish-brown. Average size .67 by .51.

TURDIDÆ.

The Thrush Family.

The *Turdidæ* as defined by Oates are a large Passerine group, in which the young are normally either mottled, or marked with a scaly pattern. Herein they agree with the Flycatchers; they differ, however, in having longer and more serviceable tarsi, and in lacking the horizontal hairs, which in the Flycatchers spring from the forehead and overlie the nostrils. I have followed E. C. Stuart Baker's classification by including in the family the *Brachypteryginæ*—A sub-family transferred from the place given them by Oates in the *Crateropodidæ*—and also by including the genera *Arrenga* and *Irena* in the sub-family *Turdinæ*, or true Thrushes.

The family includes four sub-families represented in Ceylon : the Chats—*Saxicolinæ*; the Redstarts and Robins—*Ruticillinæ*; the Shortwings and Blue Chats—*Brachypteryginæ*; and the Thrushes—*Turdinæ*. The above sub-families comprise a variety of forms, but the following points are held in common, besides those mentioned above; the edges of both mandibles are smooth, or the upper mandible is simply notched; the wing has ten primaries; the nostrils are clear of the line of the forehead; there is an autumn moult, frequently supplemented by a partial change in spring, caused by the shedding of the margins of the feathers; there are usually twelve, very seldom fourteen, tail feathers. Many of the species are migratory.

The four sub-families may be divided thus :—

Saxicolinæ.—Habits like those of the Flycatchers, but more terrestrial. The insect food is captured by short sallies from a perch.

Ruticillinæ.—Insectivorous; largely terrestrial.

Brachypteryginæ.—Insectivorous; habits terrestrial and skulking.

Turdinæ.—Both terrestrial and arboreal; larger in size than the other sub-families and more gregarious; food partly of insects, partly of berries, &c.

Sub-family *Saxicolinæ*.

Genus **Pratincola**.

Chats.

The Chats are nearly related to the Flycatchers, and have the same habit of making short sallies, in search of insects, from a fixed perch, to which they return. Their prey, however, is generally captured on the ground and not on the wing. They have also a very characteristic manner of raising and depressing their tails and darting out their wings when on their perch. They are most strongly represented in Africa, but are also widely distributed in Europe, Central Asia, and India.

In the genus *Pratincola* the bill is fairly wide at the base and moderately curved ; the rictal bristles are well developed ; the wing is moderate in length and somewhat rounded ; the tail is slightly rounded and shorter than the wing ; the tarsus is smooth and moderate in length. The sexes are dissimilar. Only one species is found in Ceylon. The male is black and white, and may be distinguished from the little Black Robin by its white tail coverts.

PRATINCOLA CAPRATA ATRATA.

The Southern Pied Bush Chat.

Pratincola atrata (Oates, Vol. II., p. 60) ; *Pratincola bicolor* (Legge, p. 430).

Description.—Male : In the breeding season the whole plumage black, except for the tips of the rump feathers, the tail coverts both upper and lower, and a broad band on the wing-coverts, all of which are clear white ; as the season wears on the black feathers become more or less fringed with rufous-brown.

Female : The feathers of the upper plumage, including the wings, dusky-brown with lighter edges, the wing coverts with broader light margins ; rump and upper tail coverts pale rufous ; tail almost black ; chin and throat slightly streaky grayish-brown ; breast, sides, and upper abdomen dull pale brown with dark streaks ; lower abdomen unstreaked ; under tail coverts pale rufous.

Young birds are fulvous brown mottled all over with dusky-brown ; lower breast and abdomen pale fulvous ; in males the white wing patch is assumed at a very early stage.

Bill, legs, and feet black ; iris brown.

Length about 6 ; wing 3 ; tail 2·3 ; tarsus ·9 ; bill from gape ·75.

Distribution.—The Pied Bush Chat is found almost throughout the Indian Empire, and ranges from Persia to Java and the Philippines. The present sub-species occurs in South India and Ceylon, and unlike most southern forms, is distinguished by its larger size and more massive bill. In Ceylon

it is confined to elevations of over about 3,500 feet, and is almost entirely restricted to the Horton Plains, the Nuwara Eliya plateau, Uda Pussellawa, and the Uva hill basin.

Habits.—Fairly common in and round Nuwara Eliya and on the patanas and bare or rocky hillsides within its range. It usually occurs in pairs, and is not at all shy. The main habits are described in my remarks on the sub-family. The male has quite a pretty little warble. The breeding season is from April to June. The nest is a saucer-shaped pad of grass, roots, and fibres placed in a grassy ledge or a hole in a bank. There are probably three to four eggs of bluish-green with brownish-red markings. Average size (of South Indian eggs) $\cdot 77$ by $\cdot 6$.

Sub-family *Ruticillinæ*.

Bluethroats and Robins.

The *Ruticillinæ* connect the Chats with the true Thrushes. They are found mainly in Europe and Asia. Many of them are migratory, but only one migrant species penetrates as far south as Ceylon, and that merely as a rare straggler. Our three resident forms, however, are familiar birds. The members of this sub-family are mainly terrestrial; the tarsi are long; the feet are well adapted for running, and the insects on which they feed are picked up from the ground. Like the Chats, they have the habit of frequently cocking the tail and drooping the wings. In one genus—*Thamnobia*—the tarsus is scutellated in front; in the rest it is smooth. In all Ceylon species the rictal bristles are weak and the bill fairly slender; the wing is moderate in length and rounded, being somewhat sharper in *Cyanecula* than in the other genera; the tail varies greatly in length and shape. The sexes are dissimilar.

Key to Ceylon Ruticillinæ.

I.—No white on the tail, which is shorter than the wing.

- (1) Length about 6; upper plumage mainly brown; tail brown and chestnut.

Cyanecula suecica suecica (Indian Bluethroat).

- (2) Length about 6·3 ; upper plumage black in males, dusky-brown in females ; tail black, lower tail coverts chestnut.

Thamnobia fulicata (Black Robin).

II.—Tail black and white.

- (1) Length about 8 ; tail about 3·5 ; upper tail coverts black.

Copsychus saularis ceylonensis (Magpie Robin).

- (2) Length about 11 ; tail about 6 ; rump and upper tail coverts white.

Cittocinclla macrura macrura (Shama Robin).

CYANECULA SUECICA SUECICA.

The Indian Bluethroat.

Cyanecula suecica (Oates, Vol. II., p. 99 ; Legge, p. 443).

Description.—Male : Upper plumage, including wings, brown, the feathers of the head and neck with darker centres ; chin and throat bright blue with a rufous patch in the centre of the throat, the blue area is bordered below by a band of black, and this band by another broader rufous band ; lores black ; a buff stripe from the nostrils over the eye to the ear coverts ; cheeks and ear coverts buff mixed with black ; remainder of lower parts dull white ; central tail feathers brown, the others with the basal half chestnut and the end half blackish-brown.

Females : Whole of lower parts buffish white ; a broad blackish gorget with brown spots across the breast. Immature males resemble females, only gradually assuming the blue and chestnut of full maturity, and birds are seldom met with in the full male plumage. In nestlings the upper parts are blackish streaked with buff, the feathers of the lower parts buff edged with black.

Bill black, the base flesh colour ; iris brown ; legs dusky flesh colour.

Length 5·9 ; wing 2·9 ; tail 2·3 ; tarsus 1·1 ; bill from gape ·75.

Distribution.—This species, of which there are several races, is found in summer in the far north from Western Europe to the Pacific Coast of Asia. It winters in warmer climates from North Africa to Southern China. With us it is an extremely rare north-east monsoon visitor. A few specimens were procured by Layard at Ambagamuwa, and Legge believes that he once saw it in the North-Western Province.

Habits.—May be looked for in gardens and open country.

THAMNOBIA FULICATA.

The Black Robin.

Thamnobia fulicata (Oates, Vol. II., p. 115; Legge, p. 440).

Description.—Male: Whole body plumage glossy blue-black, except the lower abdomen and lower tail coverts, which are chestnut; wings and tail a less glossy black; a white patch on the lesser and median wing coverts; towards the moulting season the plumage loses some of its gloss and hue.

Female: Feathers of upper plumage dusky-brown with slightly brighter brown edges, most noticeable on the wing coverts; wing quills rather paler brown; upper tail coverts and tail black; lower parts dusky-brown with a slightly grayish tinge, the tips of the abdominal feathers and the lower tail coverts dull chestnut.

Young: Blackish-brown above, the wing coverts and quills with broad rufous edges; upper tail coverts and tail blackish; feathers of head and fore-neck tipped with rufescent gray; lower parts dark brown mottled with rufous; centre of abdomen and under tail coverts pale chestnut.

Bill, legs, and feet black; iris brown.

Length 6·3; wing 2·85; tail 2·5; tarsus 1; bill from gape ·7.

Distribution.—Abundant all over the low-country, more especially in the drier districts. It ascends the hills up to about 4,000 feet. It also occurs in the southern half of the Indian Peninsula.

Habits.—A very familiar bird, whether in town gardens, near villages, in chenas and low scrub jungle, or round tanks, and fields. It is as active and perky in all its movements, and as fearless of man as its namesake, the

English Robin. The note is a cheerful little chirp. The breeding season begins in March and lasts right on through the dry weather to September. The nest is a little loose structure of moss, hair, roots, or grass, placed in all sorts of cavities, from a hole in a bank, or an empty coconut shell lying on the ground, to any available niche in an outhouse or verandah. There are generally only two eggs, at times three. They vary a good deal, the ground colour ranging from dull white to greenish or brownish-white, thickly spotted with reddish-brown and at times dull purplish-gray. Average size of a large Ceylon series .79 by .59.

COPSYCHUS SAULARIS CEYLONENSIS.

The Magpie Robin.

Copsychus saularis (Oates, Vol. II., p. 116; Legge, p. 433).

Description.—Male: Head, neck, breast, and upper plumage glossy blue-black; abdomen, sides of the body, and lower tail coverts white; wing coverts and quills black with a large white area formed by the lesser and median coverts, the outer webs of the innermost coverts and of the two innermost secondaries; the two central pairs of tail feathers black, the three outer pairs white, the remaining pair white, except for a black border on the inner web and at times a thin black edge on the outer web as well; wing lining white.

Females: The black of the wings, tail, and upper parts is rather rusty, the body feathers glossed with blue; chin, throat, and sides of neck dark gray; the white of the under parts not quite so clear as in the male; forehead, lores, and cheeks slightly mottled with gray.

In young birds the dark parts of the upper plumage are distinctly brown; the wing quills have rufous edges; the lesser coverts are more or less mottled with rufous; the throat and breast grayish-brown mottled with rufous.

Bill black; eyelids lead colour; iris hazel brown; legs and feet dark lead colour.

Length about 8; wing 3.8; tail 3.5; tarsus 1.15; bill from gape 1; females are slightly smaller.

Distribution.—This species is found almost throughout the Indian Empire. The Ceylonese form is given sub-specific

rank. It is common over the whole of the Island up to about 5,500 feet, except in the heart of the damp forests.

Habits.—As familiar and tame a bird as the last species. It is equally abundant in town gardens, village compounds, cultivated lands, scrub-jungle, and open forest. It feeds on the ground on insects, and is active on its feet. It has the habit of cocking its tail perpendicularly at the end of its run. The song is varied and full, and, especially during the breeding season, is poured out for long periods in the early morning and late evening. The breeding season is generally from March to August, but at times in the early part of the north-east monsoon. The nest is rather a rough structure of grass, root fibres, &c., placed in the hole of a tree, in any niche of a wall, or among the cadjans in the roof of an out-house or watch hut. There are usually three eggs, very seldom four. They are rather dumpy and slightly pointed. The ground colour is pale bluish-green, or light green, thickly sprinkled with various shades of sepia brown and occasionally bluish-gray. The markings tend to coalesce at the larger end, but vary considerably in distribution. Average size .92 by .69.

CITTOCINCLA MACRURA MACRURA.

The Shama Robin.

Cittocinclla macrura (Oates, Vol. II., p. 118 ; Legge, p. 437).

Description.—Male : Whole head and neck, back, wing coverts, and chest glossy blue-black ; rump and upper tail coverts white ; wing quills and primary coverts rusty-black ; four central tail feathers entirely black, the rest black at the base, white at the end ; abdomen, vent, and under tail coverts chestnut ; thighs white above, black at the knee. In females the black parts are more slaty-brown, and the chestnut of the lower parts pale rufous ; quills and wing coverts with narrow rufous edges.

Young birds vary ; in most the upper plumage is dark brown with some light chestnut spots ; the quills are edged with rufous ; the lower parts rusty-red mottled with brown on the throat and breast.

Bill black ; iris brown ; legs pale flesh colour.

Length about 11 ; wing 3·7 ; tail about 6 ; tarsus 1·1 ; bill from gape ·95.

Distribution.—Found throughout the greater part of the low-country forests, but less common in the west and south-west. It ascends the hills to about 3,500 feet. It occurs in Central and Southern India, the sub-Himalayan region from the Ganges eastward and in Assam and Burma.

Habits.—A shy bird, which spends most of its time in forest undergrowth and bamboo scrub. It feeds on insects, and is generally found in pairs. It is our finest songster ; the notes are lower and richer than those of the Magpie Robin. I have found eggs from February till June. The nest is made of dry leaves, grass, and twigs, and is placed in the hole of a tree or dead stump in the forest. The eggs are, as a rule, slightly smaller and more elongated at the narrow end than those of the Magpie Robin. The ground colour is pale grayish-white, at times with a slight green tinge, thickly and rather streakily freckled all over with umber brown. At times the markings are more pronounced at the larger end. Average size ·89 by ·64.

Sub-family *Brachypteryginæ*.

Genus **Larvivora**.

Blue Chats.

In the classification adopted by Oates, the *Brachypteryginæ* formed a sub-family of the *Crateropodidæ*, and, as he remarks, connect them with the *Turdidæ*. I have, however, followed Stuart Baker, in transferring the Ceylon species *Arrenga blighi* from this sub-family to the *Turdinæ*, and the sub-family itself, which now contains only one migratory Ceylon species, to its present position in the *Turdidæ*. The young appear to have discarded the normal mottled plumage characteristic of the family, but the affinities seem to be with the Thrushes and not with the Babblers. The Blue Chat in its general colouration is not unlike the Blue Flycatchers of the genus *Cyornis*. It is, however, strictly

terrestrial in its habits, skulking in the undergrowth, and, as might be expected in a ground bird, has a long tarsus, whereas the Flycatchers are arboreal and have a weak, short tarsus.

The bill is short and slender ; the nostrils are thin ovals, and not overhung with hairs ; the rictal bristles are scanty ; the wing is moderate in length and somewhat pointed ; the tail short ; the feet are delicate, the middle toe is much the longest. The sexes are dissimilar.

LARVIVORA BRUNNEA.

The Indian Blue Chat.

Larvivora brunnea (Oates, Vol. I., p. 182 ; Legge, p. 446).

Description.—Male : Upper plumage, wing coverts, and tail dull blue ; lores, cheeks, ear coverts, and a band down the sides of the neck dull black ; a white line over the eye to the nape ; wings dusky-brown, the outer webs bluish ; in some specimens the point of the chin and a narrow line on the cheeks white ; throat, breast, and sides of body bright chestnut paling into white on the abdomen, vent, and lower tail coverts.

Female : Head, upper plumage, and lesser wing coverts dark olive-brown, tinged with russet on the tail coverts ; greater wing coverts and quills brown, tinged with rufous on the outer webs, the coverts also with rufous tips ; tail brown washed with russet ; forehead, lores, and sides of head rufous with brown mottlings ; centre of chin and throat, abdomen, and under tail coverts pure white ; sides of chin and throat and the breast rusty fulvous, each feather with a brown margin ; sides of body unmarked fulvous.

Young birds resemble the adult female.

Bill black above, paler beneath ; iris dark brown ; legs and feet flesh colour.

Length 5·5 ; wing 3 ; tail 2 ; tarsus 1·05 ; bill from gape ·72.

Distribution.—This Chat is with us a north-east monsoon migrant. The flight is weak, and it appears to cross by the

shortest sea-route from South India to the north of the Island in October. It then makes its way to the central hills. Many of our visitors are yearling birds. The species occurs over the greater part of India, being a resident on many of the hill ranges and visiting the plains in winter.

Habits.—A skulking bird, which keeps almost entirely to the undergrowth in forest, appearing for short periods at the edge of the jungle, or by the side of jungle paths, and searching actively on the ground for the insects on which it feeds.

Sub-family *Turdinæ*.

Thrushes.

The true Thrushes are larger and, as a rule, more gregarious than the other sub-families of the *Turdidæ*. Their food is not wholly insectivorous, and berries form a considerable part of their diet. The eight species found in Ceylon are all of fairly stout build and of medium size from 8 to 10½ inches in length. None of them are very familiar, as they are all local in their distribution; most of them are rare, and all, save one or two, are met with only in the hills. Four species are peculiar to this Island, while the others are, with one possible exception, rare migrants. The first six species on the list are structurally much alike, and there has been considerable diversity of opinion in dividing them into genera. The wing is moderate, and generally somewhat pointed; the tail is never of great length, and in *Geocichla* and *Oreocincla* is distinctly short; the rectal bristles are feeble; the tarsus is moderately long, stout, and serviceable. The birds spend a good deal of their time on the ground. There is one moult a year, in the autumn, but in many species there is a partial change of plumage in spring, due to the dropping off of the margins of the feathers. In the young the lower plumage is more or less barred or spotted, and in some species this characteristic is maintained in the adults. As regards the last two species, *Arrenga blighi* and *Irena puella*, I have followed Stuart Baker in transferring them from the *Crateropodidæ* to the *Turdinæ*, although the young are no longer spotted. *Arrenga blighi* is Thrush-like in its general

build and appearance, but the wing is more blunt than in the rest of the sub-family. The nest and eggs also, as far as is known, are Thrush-like. *Irena puella* is more aberrant, and has distinct affinities with the Bulbuls. As in the Bulbuls, there are a few long hairs springing from the nape. The wing is rather pointed; the rectal bristles are well developed, and the bill more arched than in other Thrushes. The tarsus is short, and the habits arboreal. The nest and eggs are of a distinct type, unlike either those of the Thrushes or Bulbuls.

Key to Ceylon Turdinæ.

A.—Only a slight difference between the sexes; plumage almost uniform blackish; lower tail coverts same colour as lower parts.

Merula kinnisi (Ceylon Blackbird).

B.—Sexes unlike; plumage more or less pied; under tail coverts unmixed white. Genus *Geocichla*.

(1) No chestnut in plumage; some white in tail; males: black and white; females: olive-brown and buffy-white and with lower plumage barred, not pied.

G. Wardi (Pied Ground Thrush).

(2) Head and most of lower plumage chestnut; male: back and scapulars bluish-gray; female: back and scapulars greenish-brown with yellowish edges.

G. citrina citrina (Orange-headed Ground Thrush).

C.—Sexes unlike; upper plumage blue or brown suffused with blue; lower tail coverts not white; males: lower parts and tail coverts same hue as rest of plumage; females: lower parts fulvous with sub-terminal black bars, lower tail coverts fulvous barred with black.

Petrophila solitaria pandoo (Western Blue Rock Thrush).

D.—Sexes alike ; lower plumage barred or spotted even in adults. Genus *Oreocincla*.

(1) Bill large and coarse ; upper plumage with darker margins ; lower plumage tawny-buff with black crescent-shaped bars.

Oreocincla imbricata (Ceylon Thrush).

(2) Bill more moderate ; upper body plumage and tail unmarked brown ; lower plumage white with black spots.

O. Spiloptera (Spotted-wing Thrush).

E.—A slight difference in sexes ; plumage mainly dark blue or brown suffused with blue ; a bright blue patch on the “ elbow ” of the wing.

Arrenga blighi (Bligh’s Whistling Thrush).

F.—Sexes markedly different ; tarsus noticeably shorter than in other genera ; plumage pied ; males vivid blue and black ; females brownish-blue and brown.

Irena puella (Fairy Bluebird).

MERULA KINNISI.

The Ceylon Blackbird.

Merula kinnisi (Oates, Vol. II., p. 124) ; *Turdus kinnisi* (Legge, p. 449).

Description.—Male : Upper plumage, including wings and tail, slaty-black, each feather with slightly paler bluish-gray margins, most noticeable on the wings and wing coverts ; lower plumage slightly rusty-black with paler margins, the abdomen tinged with grayish.

Female : Upper body plumage dark bluish-gray, with blackish markings towards the tips ; wing quills and tail slightly browner than in the male ; under parts tinged with earthy-brown ; in some, probably not fully adult specimens, the feathers of the abdomen have light shaft-streaks.

In young birds the head and hind-neck are brownish, and the upper plumage has a distinct bluish gloss ; the lower plumage is dull brown, with buff shaft-streaks and dark tips.

Bill orange-yellow ; iris pale brown ; legs and feet pale yellow ; in young birds the bill and legs are brownish.

Length 9·5 ; wing 4·4 ; tail 3·6 ; tarsus 1·25 ; bill from gape 1·2.

Distribution.—Peculiar to Ceylon, and confined to the hills above 2,500 or 3,000 feet. Allied species occur on the hill ranges of Southern India.

Habits.—Rather a shy bird, passing most of its time in the jungle undergrowth, or on the edges of cover. It is not uncommon round Nuwara Eliya, and may be seen in the more secluded parts of the gardens in that town, or on up-country estates. Out of the breeding season it often collects in fairly large parties to feed on tree fruits in the jungle. It is a fair songster, and is most vocal in the early mornings and towards sunset. The breeding season is from April to June. The nest is a somewhat massive cup of grass, moss, and roots, strengthened with a few twigs and lined with fine roots. It is usually placed in a low fork of a tree, but may be found on stumps, niches in tree trunks, outhouses, &c. There are generally four eggs. The ground colour is pale green, blotched fairly evenly with reddish-brown and umber, and with some smaller underlying spots of reddish-gray. Average size 1·05 by ·82.

(*GEOCICHLA WARDI*.)

The Pied Ground Thrush.

Geocichla wardi (Oates, Vol. II., p. 137) ; *Turdus wardi* (Legge, p. 453).

Description.—Adult male : Whole head, neck, breast, upper plumage, wings, and tail black ; a broad white stripe from the bill over the eye to the nape ; wing coverts and quills with more or less conspicuous white tips, except the outer primaries and primary coverts, in which a portion of the outer web is white ; rump and upper tail coverts with crescent-shaped white tips ; the two outer pairs of tail feathers all white, except for a patch of black on the outer webs, the amount of white decreases on the inner feathers, the central pair being almost wholly black ; abdomen, vent, and under tail coverts white ; sides of body and axillaries white, each feather with a broad irregular crescent of black ; wing-lining black tipped with white.

Females: Head, upper plumage, wings, and tail olive-brown, the wing coverts and inner quills tipped with buff, the outer webs of the primaries with pale brown edges; a few white tips on the rump and upper tail coverts; outer tail feathers with a patch of white on the tip; a buff streak from the bill over the eye to the nape; sides of head and throat mixed buff and dark brown; chin almost unmarked white; upper breast pale buff with broad, dark brown margins; lower breast and flanks white with crescent-shaped blackish bars; centre of abdomen, vent, and lower tail coverts white.

Immature males resemble females, but are of a richer brown above, while the breast feathers are olive-brown with drop-shaped white centres.

Bill yellow, the base of the upper mandible dusky; iris brown; legs and feet pale brownish-yellow.

Dimensions a little variable; length about 8·5; wing 4·5; tail 3·2; tarsus 1; bill from gape 1·15.

Distribution.—Breeds on the Himalayas and appears to winter chiefly in the hill ranges of Southern India and Ceylon. It has been seen on passage in various parts of the Indian Peninsula. In Ceylon it is a north-east monsoon migrant to the hills at elevations of over 2,500 feet. In some localities it appears to be irregular in its visits, in others more constant.

Habits.—A shy bird, which keeps mainly to thick cover on the outskirts of forest, patana woods, &c. It occasionally leaves its shelter, and may be seen on the lawns in up-country gardens. At times it collects in small scattered flocks to feed on fruit, such as guavas and wild figs, being partly frugivorous.

GEOCICHLA CITRINA CITRINA.

The Orange-headed Ground Thrush.

Geocichla citrina (Oates, Vol. II., p. 140; Legge, p. 457).

Description.—Male: Whole head, neck, and lower parts to vent orange-chestnut, darker on the crown, and paler on the lower parts; vent, thighs, and lower tail coverts pure white; feathers of back, scapulars, rump, upper tail coverts, and lesser wing coverts bluish-gray with paler edges; the median wing coverts with broad white tips; outer coverts and quills dark brown with bluish-gray outer webs; the

central tail feathers and the outer webs of the rest bluish-gray, the remainder of the tail dark brown, the whole with indistinct cross-rays; axillaries white with pale gray tips; wing-lining gray tipped with white.

In females the chestnut parts are paler, and the gray of the upper plumage is washed with olive-green; back and scapulars greenish-brown with yellowish margins.

Bill blackish-brown, the gape and base of lower mandible flesh-colour; iris dark brown; legs and feet fleshy-pink.

Length 8.5; wing 4.6; tail 3; tarsus 1.3; bill from gape 1.1.

Distribution.—Breeds throughout a large part of the Himalayas. In winter it occurs sparingly in the plains of India proper, but is more common in Assam and Burma. In Southern Burma it appears to be a partial resident. In Ceylon it is one of our rarest migrants, single specimens having been recorded from the Jaffna and Hambantota Districts and the Eastern Province.

Habits.—May be looked for during the north-east monsoon by river banks, or the sides of paths in heavy forests. It keeps mainly to the ground, turning over dead leaves in damp spots in search of insects.

PETROPHILA SOLITARIA PANDOO.

The Western Blue Rock Thrush.

Petrophila cyanus (Oates, Vol. II., p. 146); *Monticola cyana*; Legge, p. 460).

Description.—Male: In winter the whole body plumage is blue, the colour brightest on the eye-brow, throat, and ear coverts; most of the feathers have narrow whitish fringes and dull brown sub-terminal bars; lores and round the eye blackish; wings and tail dark brown, the quills edged with blue and tipped with white. At the end of winter the feathers nearly all lose their light fringes and dark bars, so that the body plumage is almost uniform blue.

Female: Upper plumage brown suffused with dull blue; lower plumage fulvous with sub-terminal black bars; wing-lining and under tail coverts barred with black. In summer the fringes and bars largely disappear as in the male.

Young birds resemble females, but have broader white fringes.

Bill, legs, and feet black ; iris hazel.

Length about 9·5 ; wing 4·9 ; tail 3·4 ; tarsus 1·2 ; bill from gape 1·2.

Distribution.—The Blue Rock Thrush breeds over a wide range from Southern Europe to China and winters in Northern Africa and Southern Asia. It varies considerably, the present sub-species, which is the Western form, visits almost the whole of the Indian Empire in winter. In Ceylon it is only an occasional visitor, which has been recorded from a few localities in the hills.

Habits.—A shy restless bird, which may be looked for in bare rocky spots, especially under high precipices. Birds which visit us appear to frequent the same locality during the whole of their stay.

OREOCINCLA IMBRICATA.

The Ceylon Thrush.

Oreocincla imbricata (Oates, Vol. II., p. 154 ; Legge, p. 455).

Description.—Head and upper body plumage olive-brown, slightly paler on the rump and upper tail coverts, the feathers with crescent-shaped black tips giving the plumage a scaly appearance ; feathers of the head and neck each with a pale shaft-streak, which adjoining the black tip becomes a tawny patch, this is more noticeable in some specimens than in others ; wings dark brown, the secondary coverts tipped and narrowly edged on the outer web with tawny-buff, the primary coverts black on the inner web and tip, the outer web washed with tawny-buff, the quills more faintly washed on the outer web with the same hue ; tail olive-brown, the three feathers next the outermost on each side blackish with paler tips ; face and lower parts rich tawny-buff, the chin and abdomen paler, each feather with a bold black crescent-shaped tip, these tips become almost obsolete on the chin, centre of abdomen, and lower tail coverts ; axillaries white at the base, black at the tip ; wing-lining black tipped with white.

Bill blackish-brown, paler at base of lower mandible ; iris brown ; legs and feet fleshy-brown, at times with a bluish tinge.

Length about 9·5 ; wing 4·9 ; tail 3 ; tarsus 1·1 ; bill from gape 1·4.

Distribution.—Peculiar to Ceylon and confined to the hills over 3,000 feet. Closely allied species are found on the Nilgiris, Eastern Himalayas, and Burma.

Habits.—An uncommon and shy bird, which may be found in open but secluded spots in wooded country, or in thick scrub. It keeps almost wholly to the ground, turning over fallen leaves for the insects on which it feeds. Nothing is known of the nidification.

OREOCINCLA SPILOPTERA.

The Spotted-wing Thrush.

Oreocincla spiloptera (Oates, Vol. II., p. 155) ; *Turdus spiloptera* (Legge, p. 451).

Description.—Upper plumage and lesser wing coverts rich olive-brown with a tinge of russet ; median and greater wing coverts blackish-brown with a clear white spot on the tip ; wing quills dark brown, the outer webs with paler edges ; tail rusty olive-brown with very faint cross-rays ; lores whitish ; ear coverts and cheeks mixed black and white ; lower parts white, the sides of the breast and body tinged with gray ; the feathers of the fore-neck, breast, and upper half of the abdomen tipped with more or less fan-shaped black spots ; axillaries white tipped with dark brown ; wing-lining dark brown tipped with white.

In birds from the wet zone the upper plumage is darker than in specimens from drier districts.

In nestlings the feathers of the upper plumage have pale shaft-streaks, while the spots on the wing coverts and the ground colour of the lower parts are buff.

Bill blackish, paler near the gape ; iris brown ; eye-lid lead-gray ; legs and feet dusky bluish-gray, or fleshy-gray.

Length about 8·4 ; wing 4 ; tail 3·1 ; tarsus 1·4 ; bill from gape 1·1.

Distribution.—Peculiar to Ceylon. Found in the hills up to about 4,000 feet and in the forests at their base, extending almost to the sea in the west and south-west. In the northern forest tract it is rarer, but has been obtained as far north as Trincomalee.

Habits.—A shy bird, which may be found in damp jungle, bamboo scrub, and forest undergrowth. It spends most of its time on the ground hunting for insects. The male has a pretty whistle, and sings from a perch on a low bough, chiefly in the morning and evening. Both sexes have a weak little note uttered while searching for food. The breeding season extends from January to about May. The nest is placed either in the fork of a sapling a few feet from the ground, or among the roots of a tree growing on a bank or little eminence. It is a loose-looking, though compactly put together structure of small twigs, roots, moss, and grass, lined with finer materials of the same sort, the egg cavity being a deep cup. There are two or three eggs, in shape regular ovals. The ground colour is pale bluish-green, scattered over with markings of light reddish-brown, or light red and reddish-gray. The marks tend to coalesce at the larger end. Average size 1.12 by .75.

ARRENGA BLIGHI.

The Ceylon Whistling Thrush.

Arrenga blighi (Oates, Vol. I., p. 183); *Myiophoneus blighi* Legge, p. 463).

Description.—Male: Head and neck dull black; feathers of back, scapulars and breast dark blue with black bases; a patch of bright blue on the least wing coverts and the point of the wing; remainder of wing and the tail brownish-black, the wing quills with narrow bluish edges; rump and upper tail coverts black tinged with chocolate brown; abdomen, vent, and under tail coverts dull brown.

According to Legge, females resemble males, but have a lighter and brighter wing spot.

Immature birds are largely dark brown above, with traces of the blue wing spot, and chocolate brown on the whole of the lower parts, the feathers of the forehead, throat, and breast with lighter centres.

Bill, legs, and feet black ; iris brown.

Length about 8·25 ; wing 4·3 ; tail 3·3 ; tarsus 1·4 ; bill from gape 1·25.

Distribution.—Peculiar to the Island and one of our rarest residents. It is confined to the hill country at elevations of over 3,000 feet.

Habits.—This species keeps to the neighbourhood of mountain streams running through forest-clad gorges. It hides in the shade of the forest, now and again showing itself on the rocks in the stream bed. The cry, according to Legge, is a long-drawn, plaintive, though loud, whistling note. Its diet appears to be mainly insectivorous. Mr. E. Green discovered what he believed to be the nest of this species on March 1.* “ It was placed on a sheltered ledge of rock by the side of a waterfall and hidden by surrounding ferns. It was a very compact, solid structure of moss and fern roots, the top forming a level platform, in which a small and rather deep cavity was sunk for the eggs. The platform exceeded in area the hollow space, and when first found the fresh body of a small fish was lying upon it, its head having apparently just been devoured. In the hollow of the nest was a single egg, bluntly oval, with a smaller and larger extremity ; the colour dull greenish-white stained with pale reddish at the end. I was unable to get a sight of the birds, though I heard them in the bushes close by, uttering the complaining note common to many thrushes. I had on former occasions seen specimens of what I believe to be *M. blighi* frequenting this stream.”

IRENA PUELLA.

The Fairy Bluebird.

Irena puella (Oates, Vol. I., p. 240 ; Legge, p. 466).

Description.—Male : The whole of the upper parts, lesser wing coverts, and under tail coverts glistening ultramarine blue shot with lilac ; sides of head and lower parts deep black ; greater wing coverts, wing quills, and tail black ; some of the coverts have blue tips and the central tail feathers are washed with blue.

* *Vide* “ Taprobanian,” Part II., Vol. III., 1887, p. 27.

Females : Upper plumage, lesser wing coverts, and lower tail coverts brownish-blue with brighter edges ; tail brown, the central feathers and outer webs of the others, except the outermost pair, the same blue as the back ; wing coverts and quills dark brown, the greater coverts and innermost quills tinged with blue on the outer webs ; sides of head and lower plumage brownish-blue.

Immature birds resemble females, the change into adult male plumage is gradual.

Bill, legs, and feet black, iris crimson.

Length 10·5 ; wing 5 ; tail 4 ; tarsus ·80 ; bill from gape 1·15.

Distribution.—Very rare and probably a casual visitor. It has been obtained near Kandy and in the Ratnapura District. In India it occurs on the Malabar Coast, on the lower slopes of the Eastern Himalayas, the Assam hills. Burma, the Andamans, and Nicobars.

Habits.—May be looked for in tall forest. It feeds entirely on fruit, and is generally found in small parties or pairs on the top of the higher trees. In India the breeding season is from February to April. The nest is a shallow cup of moss or twigs placed in a sapling or small tree. Two eggs are laid. The colour is pale green, streaked and blotched with pale, dull or reddish-brown. Average size (of Indian eggs) 1·14 by ·77.

Family *Ploceidæ*.

Weaver Birds and Munias.

With the *Ploceidæ* we come to the first of two families in which the bill is strong and conical, while the nostrils are pierced within, or only just outside the line of the forehead, and lie closer to the ridge than to the cutting edge of the bill. There is never more than the trace of a notch in the upper mandible. The primaries are ten in number, but the first is quite small. Africa is the strong-hold of the family, but it is also well represented in South-Eastern Asia and Australia. There are two sub-family groups.

(a) *Ploceinæ*, or Weaver Birds, in which the first primary, though small, is quite easily seen, and which have a partial spring moult as well as the usual moult in autumn.

(b) *Viduinæ*, or Munias, in which the first primary is exceedingly small, and which have no spring moult.

Sub-family *Ploceinæ*.Genus **Ploceus**.*Weaver Birds*.

The Weaver Birds comprise two Ceylon species of about the size of the Sparrow, to which in build they bear a considerable resemblance. They feed largely on grain and are very gregarious. They always breed in colonies and take their name from the neatly woven flask-shaped nests which they construct.

In addition to the autumn moult, there is a partial moult in spring, after which the males assume a bright yellow crown. The bill is stout and conical ; the wings are of moderate length and rather rounded, the first primary though small is plainly visible and reaches just beyond the primary coverts ; the tail of 12 feathers is short and rounded ; the tarsus is strong, but of moderate length, the claws are fairly long and curved.

— *Key to Ceylon Ploceinæ.*

1.—Breast plain or not conspicuously streaked.

Ploceus passerinus baya (Common Weaver Bird).

2.—Breast conspicuously streaked.

P. manyar manyar (Striated Weaver Bird).

PLOCEUS PASSERINUS BAYA.

The Common Weaver Bird.

Ploceus baya (Oates, Vol. II., p. 175) ; *Ploceus philippinus* (Legge, p. 641).

Description.—Male in breeding plumage : Forehead, crown, and nape canary-yellow, blending on the nape into the dark brown of the hind-neck ; feathers of the back and scapulars almost black with broad yellow margins ; lower back and rump unstreaked brown ; upper tail coverts with pale tips ; wing coverts, quills, and tail feathers dark brown with pale fulvous edges ; lores, face, ear coverts, and throat dark brown ; breast bright yellow ; rest of lower parts fulvous, paling into whitish on the vent and lower tail coverts.

Males in off season and females all the year round : The yellow is absent, the upper plumage being dark brown with fulvous margins ; a fulvous streak over the eye ; sides of head pale fulvous brown ; lower parts pale fulvous, darker on the breast and flanks, and almost white on the abdomen, vent, and lower tail coverts ; the sides of the breast and the flanks at times have narrow brown streaks ; wings and tail as in breeding male.

Bill, of male in breeding season, dark horny-brown, lighter at the gape and base of the lower mandible, otherwise yellowish horn-colour ; iris brown ; legs and feet flesh-colour.

Length 5·85 ; wing 2·85 ; tail 1·9 ; tarsus ·8 ; bill from gape ·65.

Distribution.—*P. passerinus* occurs over the whole of the Indian Empire, and ranges south-east to Java and Sumatra. The present sub-species is found over the greater part of India proper. In Ceylon it is met with throughout the low-country, but is perhaps commoner in the maritime districts than inland. It is local and occasionally shifts its quarters.

Habits.—Occurs in flocks on the borders of open land and scrub jungle, generally not far from water, and frequently by the side of a paddy field or tank. The presence of a flock can always be told by the incessant chattering and shrill whistling made by the birds. They have a strong rapid flight and feed voraciously on paddy and other grain. The breeding season appears to be intermittent, and extends over a great part of the year, probably varying in different localities. I have taken eggs in February, June, August, and November. The birds breed in colonies, the long flask-like nest, familiar to most people, being hung from the fronds of a palm or the spreading branches of a tree. The construction shows great skill. The upper part of the nest is cone-shaped and hangs from a single point. When this cone is woven to a sufficient length, the birds add a strong transverse loop, like an inverted basket handle, a little to one side of the centre. The bottom of the egg chamber is then worked in on one side of the loop, while on the other the weaving is carried downwards to form the long entrance funnel, which

is added to by the male long after the hen has begun to sit. There are generally two, but not infrequently three, and very occasionally four eggs. They are pure white ovals slightly pointed at the small end. Average size $\cdot 79$ by $\cdot 57$.

PLOCEUS MANYAR MANYAR.

The Striated Weaver Bird.

Ploceus manyar (Oates, Vol. II., p. 179 ; Legge, p. 646).

Description.—Male in breeding plumage. Top of head rich yellow ; remainder of upper plumage, including wings and tail, deep blackish-brown, with tawny margins to the feathers ; cheeks, ear coverts, sides of neck, and throat brownish-black ; chest and flanks tawny-brown with blackish shaft-stripes, which are broadest on the chest ; centre of abdomen, vent, and under tail coverts whitish. Both the amount of striation and the depth of colour on the lower parts vary.

Males in off season and females at all times. Plumage of head and upper parts blackish-brown with tawny edges ; a light stripe over the eye ; the lower part of the cheeks and throat yellowish-white ; breast and flanks striated as in the breeding male.

Bill, in breeding males, bluish-black, paler at the gape, in females and non-breeding males yellowish horn-colour ; iris brown ; legs flesh-colour.

Length $5\cdot 75$; wing $2\cdot 75$; tail $1\cdot 8$; tarsus $\cdot 75$; bill from gape $\cdot 65$.

Distribution.—The striated Weaver Bird is found throughout the Indian Empire, and extends south-east to Java. It is divided into several sub-species. Its occurrence in Ceylon is distinctly local. It is abundant among the reed beds of the tanks and swamps of the Tangalla district, and I have found colonies in similar reed beds at one or two tanks in the Puttalam District. It probably occurs in various other suitable localities in the low-country.

Habits.—In Ceylon this species confines itself to the vicinity of reed beds in swamps and tanks. Like the last species, it

occurs in flocks, which can be heard at some distance. It appears to feed on insects as well as on grass seeds. The breeding season is about February and March, and again in June. The nest is constructed like that of the last species, but the top is almost square, not tapering, being hung from the points of several bulrush leaves gathered together; the funnel, too, is shorter. The eggs resemble those of the Common Weaver Bird, and are two or three in number. Average size $\cdot 76$ by $\cdot 58$.

Sub-family *Viduinæ*.

Munias.

The *Viduinæ* are a fairly numerous group of small finch-like birds, the largest of which seldom exceed 5 inches in length. They differ from the Weaver Birds in having an exceedingly minute first primary, and by not undergoing any change of plumage in spring. They are all more or less gregarious, except in the breeding season, and all build large globular nests of grass, often using fine grass stems with the flower heads still attached. The entrance is generally a round opening at one side of the ball. The eggs are invariably pure white, and the clutches are large, frequently consisting of six eggs or even more. *Munias* feed on grain and small grass seeds. Five species are found wild in Ceylon. One of them belongs to the genus *Munia*, in which the tail is short and round, while the middle pair of feathers are narrow and pointed. The plumage in this genus is mainly black and chestnut. The other species are all included in the genus *Uroloncha*, in which the tail is longer, while the outer feathers are considerably shorter than those in the centre.

None of the *Munias* are known to migrate, but as many species are frequently kept as cage birds, several exotic forms from time to time occur as escapes. Three such species have been recorded in the Island :—

(1) *Munia oryzivora* (The Java Sparrow).—This species has the head black with white cheeks and ear coverts; the rump and tail are also black; the remainder of the upper

parts, with the wings, neck, and breast, are bluish-gray; the abdomen, sides, and thighs are vinous, and the under tail coverts white.

This is a native of the Malay Peninsula and Archipelago, and is a familiar cage bird. It appears to be acclimatized near Madras, and in Legge's time it seems to have flourished temporarily round Colombo; it may still be seen, occasionally, on the Galle Face (*vide* Legge, p. 646).

(2) *Munia atricapilla* (The Chestnut-bellied Munia).—This species resembles *M. malacca*, but the lower breast and sides of the body are chestnut, not white. Its natural habitat is in Northern India, Assam, and Burma. Its occurrence has been recorded by Layard at Galle and by Legge in Colombo (*vide* Legge under *M. rubronigra*, p. 652).

(3) *Sporæginthus amandava* (The Indian Red Munia).—This bird belongs to a genus in which the middle tail feathers are broad and rounded, and the plumage of the two sexes differs. In the male the head, neck, breast, and upper parts are crimson; the rump, upper tail coverts, and part of the lower plumage are spotted with white; the wings are brown with white spots; the abdomen, vent, and tail largely black.

In the female the upper plumage and wings are mainly brown; the rump and upper tail coverts washed with crimson; the lower plumage is brownish tinged with fulvous yellow on the abdomen.

It occurs all over India, also in Siam, Cochin-China, and parts of Malaya. The only Ceylon records are by Legge (*vide* Legge, p. 662, under *Estrelida amandava*). He found a small flock on the outskirts of Colombo in 1870, and again one or two birds at Galle in 1872. In both cases the occurrence in the vicinity of a large town is suspicious, but the birds may possibly have been storm-driven from India.

Key to Ceylon Viduinae.

A.—Tail rounded and short; head black, contrasting with the colour of the back. Genus *Munia*.

(1) Lower breast and sides of body white.

M. malacca (Black-headed Munia).

B.—Tail longer and more pointed ; crown and nape much the same colour as back. Genus *Uroloncha*.

(a) Some white on rump or upper tail coverts.

(1) Rump white ; throat and breast black.

U. striata (White-backed Munia).

(2) Upper tail coverts and whole of lower parts white.

U. malabarica (White-throated Munia).

(b) No white on rump or tail coverts ; lower parts chequered.

(1) Chin and throat blackish ; chequering includes the whole abdomen.

U. kelaarti (Ceylon Munia).

(2) Chin and throat chestnut ; centre of abdomen not chequered.

U. punctulata (Spotted Munia).

MUNIA MALACCA.

The Black-headed Munia.

Munia malacca (Oates, Vol. II., p. 182 ; Legge, p. 652).

Description.—Whole head, neck, upper breast, the middle of the abdomen, vent, thighs, and under tail coverts deep black ; rest of lower plumage white ; back, scapulars, and wing coverts chestnut ; wing quills brown edged with chestnut ; upper tail coverts shining maroon ; tail feathers brown edged with glistening chestnut, which at times approaches the maroon hue of the tail coverts. In young birds the upper plumage, wings, and tail are rufous-brown ; the under plumage pale buff. The adult plumage is acquired gradually by moult.

Bill pale lavender ; iris dark brown ; legs and feet lead blue.

Length 5 ; wing 2·2 ; tail 1·55 ; tarsus ·65 ; bill from gape ·45.

Distribution.—Rather local, and found chiefly in the east and south-east of the Island ; in the low-country frequenting the long grass of swamps, in the hills the long mana grass of the patanas, and further east the grassy glades of the park country. In other parts of the country it appears to be local and scarce. It occurs over the southern half of India,

Habits.—As noted above, this *Munia* is found among long grass. It generally occurs in small parties, or at times larger flocks, and feeds on grass seeds, often doing some damage to crops. The breeding season appears to be from March to August in the low-country, and about May in the hills. The nest is of the usual type described in my remarks on the sub-family. It is generally placed in a tuft of long grass or fern, occasionally in a low bush. There are four to six pure white eggs. The shape is a slightly pointed oval. Average size $\cdot 66$ by $\cdot 46$.

UROLONCHA STRIATA.

The White-backed Munia.

Uroloncha striata (Oates, Vol. II., p. 185); *Munia striata* (Legge, p. 660).

Description.—Forehead and crown blackish with indistinct white shafts; upper plumage, ear coverts, and sides of neck dark brown, deepening on the tail coverts and wing coverts into blackish, each feather with a white shaft; a broad white band across the lower back and rump; wing quills blackish-brown; tail almost black; face, chin, throat, fore-neck, and breast deep black; abdomen and sides of body white; vent, thighs, and under tail coverts blackish.

Young birds are more rufous-brown above and the throat and breast are brown with paler shafts and margins.

Bill, upper mandible blackish; lower bluish; iris reddish-brown; legs and feet bluish lead-colour.

Length $4\cdot 5$; wing 2 ; tail $1\cdot 75$; tarsus $\cdot 55$; bill from gape $\cdot 4$.

Distribution.—Common over almost all the low-country. It ascends the hills up to about 2,500 feet; on the Uva patanas it is found up to about 4,000 feet. In India it occurs south of a line drawn from about Bombay to South-west Bengal.

Habits.—Not so gregarious as some species. It occurs in small parties, and frequents waste scrubby land, clearings in the jungle, patches of grass in forests, &c. It visits paddy fields when the grain is in ear, and also levies considerable toll on kurakkan chenas. It breeds intermittently, chiefly during

the north-east monsoon, but occasionally as late as August. The nest is a loose ball of grass of the usual type, placed in a bush or the branches of a low tree from 3 to 10 feet from the ground. The situation chosen is generally rather a solitary spot, such as the edge of the forest at the head of a tank, or by a grassy roadside in the jungle. There are 4 to 6 eggs, pure white ovals, occasionally rather pointed. Average size $\cdot 60$ by $\cdot 43$.

UROLONCHA KELAARTI.

The Ceylon Munia.

Uroloncha kelaarti (Oates, Vol. II., p. 187; *Munia kelaarti* (Legge, p. 650).

Description.—Upper plumage chocolate-brown with pale shafts, the crown rather darker; rump and upper tail coverts almost black with white cross-shaped spots, the longer tail coverts with shining yellow tips; wing quills blackish-brown; tail almost black; sides of neck and of breast pinkish-brown; cheeks, lores, chin, throat, and fore-neck brownish-black; lower plumage from breast irregularly chequered white and black.

Young birds are dark brown above; they lack the pale shafts and the white marks on the rump; the whole of the lower parts, including the throat and fore-neck, are mingled brown and pale buff.

Bill blackish, base of lower mandible bluish; iris sepia-brown; legs and feet lead-colour, at times with a greenish tinge.

Length $4\cdot 7$; wing $2\cdot 1$; tail $1\cdot 7$; tarsus $\cdot 55$; bill from gape $\cdot 45$.

Distribution.—Peculiar to Ceylon and confined to the hills, rarely descending as low as 2,000 feet. It is commonest on the central ranges, from the Peak to the Nuwara Eliya plateau.

Habits.—Less gregarious than most Munias, only collecting in flocks to roost. The flight, too, is more rapid. It is found deep in hill forests as well as in gardens or on estates. Like the other species it feeds on seeds, and like the sparrow it will hunt for food on dunghills, rubbish heaps, or roadsides. The

breeding season is from May to December. It frequently places its nest among the bushy creepers growing on the walls and verandahs of up-country bungalows, but it also builds in forest trees or bushes. The nest is of the usual globular type. The four or five eggs are slightly pointed ovals of pure white, and measure about $\cdot 61$ by $\cdot 45$.

UROLONCHA MALABARICA.

The White-throated Munia.

Uroloncha malabarica (Oates, Vol. II., p. 188); *Munia malabarica* (Legge, p. 662).

Description.—Upper plumage, wing coverts, and inner quills pale earth-brown, darker on the crown; primary quills rather darker, the outer webs almost black; upper tail coverts white, the outer webs of the outside coverts black; tail blackish; sides of head and all the lower parts pale buffy-white, the lower flanks with a rusty tinge.

Bill, upper mandible partly black, partly horn-colour, lower mandible black; iris brown; legs and feet mauve or lilac.

Length $4\cdot 75$; wing $2\cdot 1$; tail 2 ; tarsus $\cdot 55$; bill from gape $\cdot 4$.

Distribution.—In Ceylon this *Munia* is found only in the dry maritime districts of the north and south-east. It is, however, widely distributed over the whole of India proper and ranges into Afghanistan.

Habits.—Found in dry sandy pastures round the lagoons of the north and south-east coasts, in dry paddy fields, &c. It goes about in flocks frequently in company with the Finch Lark *P. grisea*. It feeds entirely on the ground, mainly on small grass seeds, but occasionally visits fields of ripening paddy. The breeding season is from December to March. The nest is generally the usual globular mass of grass, with the opening at one side, but at times it is only partially domed, and in some cases the dome is altogether wanting.

The average clutch is probably from four to six eggs, but in India as many as fifteen have been found in one nest, probably the product of several birds. They are rather broad, glossless white ovals. Average size $\cdot 62$ by $\cdot 45$.

UROLONCHA PUNCTULATA.

The Spotted Munia.

Uroloncha punctulata (Oates, Vol. II., p. 189); *Munia punctulata* (Legge, p. 656).

Description.—Upper plumage dull chocolate-brown with paler shafts; rump darker with yellowish bars and white streaks; upper tail coverts glistening yellowish-brown; tail feathers brown edged with the hue of the tail coverts; wing quills chocolate-brown with chestnut edges; sides of head, chin, and throat rich chestnut; lower parts white, all the feathers, except on the centre of the abdomen, with conspicuous wavy edges and cross-bars of blackish-brown; lower tail coverts tawny with, at times, some black marks.

Young birds are uniform rufous-brown above and pale buff below.

Bill bluish-black; iris lightish-red; legs and feet black or lead-colour.

Length 5; wing 2·2; tail 1·75; tarsus ·6; bill from gape ·45.

Distribution.—Our commonest species: abundant all over the low-country and in the hills to about 2,500 feet, or in patana districts to about 4,000 feet. It occurs throughout India, except in the north-west; also in Assam and parts of Burma.

Habits.—A gregarious species occurring in large flocks in paddy fields, grass lands, village gardens, and compounds. It is seldom found far from cultivation, except in patana country. It commits considerable depredations on paddy crops. The birds roost in colonies in low trees and bushes. Breeding appears to be carried on almost throughout the year. The nest is of the usual type and is placed in a low tree, generally a lime or orange tree, or some other thorny species, in an untidy native garden. There are often several nests in the same tree. There are usually four to six white eggs, oval in shape. Average size ·66 by ·45.

Family FRINGILLIDÆ.

Sub-family *Fringillinæ*.*Finches.*

The Finches agree with the Ploceidæ in having a strong conical bill with the nostrils pierced close to the line of the forehead and near the ridge of the bill. The edges of the mandibles are smooth, the rictal bristles are few and short, and there are twelve tail feathers. The chief outward structural point of difference is that there are only nine primaries in the wing, the first being nearly as long as the second. In the sub-family *Fringillinæ* the bill is moderate in size, and the cutting edges of the mandibles are in contact for the whole length of the bill. The wings and tail are moderate in length, the tarsi and feet fairly well developed. There is one yearly moult, in autumn. The two sexes generally differ in their plumage and young birds resemble adult females.

The Finches are a very large group of birds, found all over the world, except in Australia, but chiefly in cool or temperate regions. They are very poorly represented in Ceylon, the only common species being the ubiquitous House Sparrow, while one other species of a closely allied genus has been recorded as a straggler.

Key to Ceylon Fringillinæ.

A.—A yellow patch on the throat ; bill comparatively long and slender.

Gymnorhis flavicollis flavicollis (Yellow-throated Sparrow).

B.—No yellow patch on throat ; bill short and stout.

Passer domesticus indicus (House Sparrow).

GYMNORHIS FLAVICOLLIS FLAVICOLLIS.

The Yellow-throated Sparrow.

Gymnorhis flavicollis (Oates. Vol. II., p. 235) ; *Passer flavicollis* (Legge, p. 605).

Description.—Male : Upper plumage from forehead to tail coverts sandy-brown ; lesser wing coverts cinnamon-red ; median coverts brown with white tips ; greater coverts and

secondary quills brown with buff margins and tips ; primaries darker brown with narrow buff margins ; primary coverts black ; chin dull white ; a rich yellow spot on the throat ; the sides of the head and neck and the breast pale ashy-brown ; rest of lower parts ashy-white, darker on the flanks.

In females the throat spot is paler yellow and the shoulder patch is rufous-brown, not cinnamon-red.

Bill, of males, generally black in winter, brown in summer ; of females always brown ; iris dark brown ; legs and feet dusky-bluish.

Length 5·5 ; wing 3·2 ; tail 2·1 ; tarsus ·6 ; bill from gape ·6.

Distribution.—A mere straggler to Ceylon, only once recorded. Legge came across a flock near Madampe in the Chilaw District in October, 1876, and secured two specimens. It occurs over the greater part of India and ranges into Persia.

Habits.—This species goes about in small parties, or occasionally during the winter, in larger flocks. It may be looked for in thin jungle, open country bordered with trees, also in groves or gardens. The chirrup and flight much resemble those of the House Sparrow.

PASSER DOMESTICUS INDICUS.

The House Sparrow.

Passer domesticus (Oates, Vol. II., p. 236 ; Legge, p. 600).

Description.—Male : Top of head, from forehead to nape, ashy-gray ; lores and round the eye, chin, throat, and middle of breast black, some of the breast feathers with ashy-white tips ; rest of lower plumage ashy-white ; cheeks, ear coverts, and sides of neck white ; a broad chestnut streak over the eye to the nape ; upper back and scapulars chestnut with broad black streaks ; lower back, rump, and scapulars ashy-gray ; lesser wing coverts chestnut ; median coverts blackish with broad white tips ; greater coverts and innermost quills black with broad rufous margins and paler tips ; remaining quills dark brown with pale rufous edges ; tail feathers grayish-brown with paler edges.

After the autumn moult the feathers of the back and breast have ashy margins, which are soon abraded.

Female.—Top of the head to hind-neck, rump, and upper tail coverts sandy-brown; feathers of back and scapulars pale rufous with blackish inner webs; wing coverts and quills marked as in the male, but both the ground colour and markings are more dingy and in tone with the hue of the back; tail pale brown with light edges; a pale buff stripe over the eye to the nape, with a darker brown stripe below it; sides of head ashy-brown; lower plumage ashy-white, darker on the breast.

Young birds at first resemble the adult female, but the under surface is tinged with buff.

Bill, of males, generally black in winter, horny-brown in summer; of females always brown; iris brown; legs and feet pale brown.

Length 5·7; wing 2·9; tail 2·2; tarsus ·7; bill from gape ·53.

Distribution.—Ubiquitous in every town and village of the Island. The Indian race, which is smaller and lighter than the European form, is found practically throughout the Indian Empire, and extends eastwards to Cochin-China.

Habits.—The Sparrow in Ceylon sticks as closely as in England to the neighbourhood of man, and owing to the more open construction of houses in the east is more of a nuisance inside dwellings than its English relative. It is never found far from habitations, except when the paddy crops are ripening, when with its usual eye to the main chance it visits the fields and threshing-floors in considerable numbers. It feeds on insects, however, as well as on grain. It breeds pretty well all the year round, making a large, untidy nest of dry grass, &c., in any hole or ledge, on the inside or outside of a house, on which it sets its fancy. Once it has settled on a nesting site in any dwelling room or verandah it is most difficult to dislodge. If the nest is demolished, it will be renewed again and again. It will occasionally build in a thick tree or bush. There are usually four, at times five, eggs. They vary a good deal in size and markings. The ground colour is generally

grayish or greenish-white, with markings in various shades of brown or dull grayish-purple, sometimes uniformly distributed, but generally heavier at the large end. Average size .80 by .58.

Family HIRUNDINIDÆ.

Swallows.

The Swallows are a familiar family found all over the world. Their whole structure is adapted to an aerial existence, and their food consists of insects which are captured entirely on the wing. Their wings are greatly elongated; there are only nine primaries, the first being almost as long as the second. The bill is broad, flat, and triangular, with a very wide gape, and the merest trace of a hook at the tip; the rictal bristles are weak. The legs and feet are feeble, and the tarsus is smooth. The tail has twelve feathers, and is generally long and forked. The sexes are alike, and there is only one moult yearly, in the spring. The immature plumage does not greatly differ from that of the adult. Swallows resemble Swifts in their outward form, but there are wide structural differences. The Swift has ten primaries, the first being large, only ten tail feathers, and a hooked bill. The feet of the Swallow are typically Passerine, the Swift has the hind toe either directed forwards or reversible.

Many members of the family are migratory, and found over a wide expanse of the globe; others are resident, and in some cases confined to a small area. All of the species authentically recorded from Ceylon belong to the genus *Hirundo*—or true Swallow—in which the tarsus and toes are bare, and the greater part of the upper plumage is of a highly glossy blue-black.

The Martins have either the tarsus and toes feathered—genus *Chelidon*—or the upper plumage brown and without gloss—*Cotile* and *Ptyonoprogne*. Legge, however, records that two competent ornithologists, Messrs. Bligh & Parker, have observed, without being able to secure, a species of Martin with a darkish under surface (*vide* Legge, pp. 598 and 1217). If specimens are ever obtained, they may possibly turn out to be a species of Crag Martin—*Ptyonoprogne*—either

P. rupestris or *P. concolor*. The former species has a wide range over the Old World, and the latter is found over a great part of India proper. They might, however, possibly be *Chelidon urbica* with a feathered foot. This last species also is found over a wide extent of Europe, Africa, and Asia, and has been recorded as far south as the Nilgiris and Travancore.

Four species of *Hirundo* occur in the Island.* One of these is a common migrant, one a chance visitor; the other two are resident, and one of them is peculiar to Ceylon.

Key to Ceylon Hirundinidæ.

A.—Rump same colour as the back.

(1) A dark glossy band across the chest.

Hirundo rustica rustica (The Swallow).

(2) No dark band across the chest.

H. javanica (Nilgiri House Swallow).

B.—Rump chestnut, contrasting with the dark back.

(1) Lower plumage pale rufous, much paler than the ear coverts.

H. daurica erythropygia (Syke's Striated Swallow).

(2) Lower plumage chestnut of same shade as the ear coverts.

H. hyperythra (Ceylon Swallow).

HIRUNDO RUSTICA RUSTICA.

The Swallow.

Hirundo rustica (Oates, Vol. II., p. 277; Legge, p. 587).

Description.—Forehead, chin, and throat chestnut; lores black; upper plumage, including wing coverts, glossy purplish-blue; wing quills and tail black with a greenish lustre; all tail feathers, except the middle pair, with a white patch on the inner web; sides of the head and neck and a broad band across the breast glossy-black, a few of the feathers on the

breast band fringed with chestnut ; rest of lower parts pale rufous, deeper on the tail coverts. In females the lower parts are almost pure white.

The above description applies to the sub-species *H. rustica rustica*, which breeds in Europe and North-western Asia, and winters in Africa and South-western Asia. The Far Eastern race *H. rustica gutturalis*, which breeds in Japan and North-eastern Asia, has the lower plumage below the pectoral band pure white, while the chestnut of the throat encroaches on the black band so as nearly to sever it in the centre. It is also slightly smaller and with a shorter tail. Many of our birds are intermediate between these two races, while there is one specimen in the Museum from the Northern Province, which seems almost typical *gutturalis*.

Yearling birds, of which our visitors largely consist, on their arrival have the top of the head brownish, the forehead grayish, the throat rufescent-white turning in patches to chestnut, and the pectoral band brown. The long outer tail feathers are not fully grown. They assume the adult plumage before leaving in spring.

Bill, legs, and feet black ; iris dark brown.

Length up to 7·5 ; wing 4·6 ; tail up to 4 ; tarsus ·4 ; bill from gape ·57. Females slightly smaller and with shorter tails.

Distribution.—Found all over the Island, but rare at high elevations. As noted above, the European race occurs over the west of the Old World, breeding in temperate climates and wintering in Africa and South-western Asia. In Central Asia this race appears to pass gradually into the eastern form. Many of the birds which winter in the east of India are intermediate between these two races, typical *gutturalis* being seldom found west of the Bay of Bengal.

Habits.—The young birds appear to come first, and arrive, generally *viâ* the north of the Island, about the middle of September. The old birds come a little later. All leave about the middle of April. Both at their coming and going they congregate in large flocks, which seem to find telegraph wires their most convenient perch. They scatter during their stay and hawk far and wide after flying insects.

HIRUNDO JAVANICA.

The Nilgiri-House Swallow.

Hirundo javanica (Oates, Vol. II., p. 279 ; Legge, p. 597).

Description.—A broad forehead, chin, throat, upper breast, ear coverts, and cheeks rusty-red ; lores blackish ; upper plumage and lesser wing coverts black with a greenish-blue gloss ; wings and tail rusty-black ; all the tail feathers, except the middle pair, with a white spot on the inner webs ; lower plumage ashy-brown, paling on the centre of the abdomen ; under tail coverts blackish, tipped with white.

In young birds the upper plumage is without gloss, and some of the secondaries have rufous margins ; the lower parts are paler.

Bill black ; iris dark brown ; legs and feet brown.

Length 5 ; wing 4·05 ; tail 1·8 ; tarsus ·35 ; bill from gape ·63 ; tail only slightly forked.

Distribution.—Resident in the hills, where it is common at the higher elevations, but seldom descends as low as 2,000 feet. It is found in the South Indian hills as far north as the Nilgiris, also in the Andamans, Tenasserim, and Malaya, including the Archipelago.

Habits.—The most familiar Swallow in the higher hills. The flight is easy, but not very swift. The birds often have a regular beat, and are fond of the steep-sided railway cuttings through cabook (laterite), which are so common on the up-country line. They are fearless of man, and frequently build their nests in the eaves of verandahs, or even inside rooms. They are, however, equally ready to breed on the little ledges on the face of rocks, or in cabook cuttings, and I have found the nest in the entrance of a railway tunnel. The breeding season is from April to June, and again in September. The nest is a little half cup of mud, firmly glued to the perpendicular surface, against which it is built, and lined with feathers or occasionally small scraps of rag, &c. The two or three eggs are rather broad ovals, slightly pointed at the smaller end. The ground colour is pinkish-white, with dull purple and reddish-brown markings, chiefly at the larger end. Average size ·66 by ·50.

HIRUNDO DAURICA ERYTHROPYGIA.

Syke's Striated Swallow.

Hirundo erythropygia (Oates, Vol. II., p. 283 ; Legge, p. 594).

Description.—Upper plumage down to the lower back, with the lesser and median wing coverts glossy steel-blue ; rump and shorter upper tail coverts chestnut ; longer tail coverts glossy-black ; remainder of wing and the tail dark brown with a blue gloss on the outer webs ; lores brown ; the feathers under the eye mixed brown and rufous ; ear coverts and a partial collar on the hind-neck chestnut ; sides of the neck glossy-blue ; the whole lower plumage pale rufous with fine brown shaft-streaks ; under tail coverts tipped with black.

Bill and legs black ; iris brown.

Length 6·5 ; wing 4·3 ; tail 3·2 ; tarsus ·5 ; bill from gape ·45.

Distribution.—The Indian race of this Swallow is found over the greater part of the plains of India as far south as the Nilgiris. It is the merest straggler to Ceylon, having been recorded once from the Jaffua peninsula and once from the Uva hills near Haputale.

Habits.—In India this species is found round mosques and other buildings, and also in the vicinity of walls and bridges. The flight is comparatively slow.

HIRUNDO HYPERYTHRA.

The Ceylon Swallow.

Hirundo hyperythra (Oates, Vol. II., p. 284 ; Legge, p. 592).

Description.—Whole upper plumage, including wings and tail, glossy blue-black, except the rump and shorter upper tail coverts, which are dark chestnut ; whole under surface and sides of neck chestnut with narrow indistinct brown shaft-streaks, except on the vent and lower tail coverts ; the latter have broad black tips.

In young birds the chestnut parts are paler, the streaks on the throat and fore-neck are broader, and the breast is mottled with blackish-brown.

Bill blackish-brown ; iris sepia-brown ; legs and feet vinous-brown.

Length 6·6; wing 4·75; tail 3·2; tarsus ·55; bill from gape ·6.

Distribution.—A resident species peculiar to Ceylon. It is found all over the low-country and in the central hills up to about 3,000 feet. On the Uva patanas I have seen it at an elevation of about 4,000 feet. In the northern forest tract it is widely distributed, but not very numerous; it is more abundant in the south, especially round Galle, and is occasionally seen in Colombo.

Habits.—May be seen hawking for insects over paddy fields, tanks, marshes, and patanas, as well as round houses in villages and the vicinity of towns. The flight is slower and heavier than that of the common Swallow, but it is often found in company with that species in the low-country and with *H. javanica* in the hills. The breeding season is from April to June. The nest is a solid, retort-shaped structure of mud, glued on to the under surface of a verandah roof, the arch of a bridge or culvert, or the roof of a rock cave. The interior is lined with a felted layer of feathers. The two or three eggs are elongated ovals of pure white without any gloss. Two eggs in my collection measure ·95 by ·57.

FAMILY MOTACILLIDÆ.

Wagtails and Pipits.

The Wagtails and Pipits form a family of rather small, slim-built birds, with straight, slender bills, slender legs and feet, and fairly long tails. The wing has only nine primaries, the first being nearly as long as the second; the inner secondaries—or tertiaries—are elongated, and in the closed wing reach almost, if not quite, to the tip of the longest primary. The rectal bristles are fairly well developed. The family, which is found chiefly in the Old World, especially in the north of Europe and Asia, divides naturally into two groups: Wagtails and Pipits. The Wagtails are most daintily formed birds with longish tails, which they vibrate perpetually while standing or running. They frequent grassy lands, or the banks of streams and tanks, running over the ground in search of insects. Most of the species are migratory, and

none of the five forms found in Ceylon are resident ; two are the merest stragglers to the Island. Four of these species belong to the genus *Motacilla*, in which the sexes are alike or almost so. They undergo, however, striking seasonal changes in plumage as well as various metamorphoses between the nestling and adult stages. In consequence birds of the same species may be seen at the same time and place in very different phases of plumage. The characteristics given in the key, however, will always serve to distinguish our four Ceylon species. The remaining Wagtail is a forest bird, which does not undergo such continual changes.

In the Pipits the family characteristics are not so emphasized. With their soberly streaked upper plumage and shorter tails they resemble the Larks.

Three Pipits are found in Ceylon, all being sub-species of *Anthus richardi*. Two of these forms are migratory, the third is a common resident. The sexes are alike. Immature birds are very spotted beneath, the spots becoming reduced in size and number each year of the bird's life. There is little difference between the summer and winter plumage, but the colours are brightest just after the moult, in autumn.

Key to Ceylon Motacillidæ.

I.—Upper plumage, not streaked. Wagtails.

A.—Central pair of tail feathers of same colour and as long as the adjoining pair. Genus *Motacilla*.

(a) Rare stragglers, plumage white, black, and gray : throat and fore-neck black or with a sharply defined black patch ; hind claw curved and shorter than its toe.

(1) Ear coverts and sides of neck white.

M. alba dukhunensis (White Wagtail).

(2) Ear coverts and sides of neck black.

M. maderaspatensis (Large Pied Wagtail).

(b) Adult plumage largely greenish above, yellow beneath ; young birds may be grayish above and whitish beneath, but have no black patch on fore-neck.

- (1) Tail 3·5 or more, and with three white feathers on each side ; hind claw about ·25 and shorter than its toe.

M. melanope (Gray Wagtail).

- (2) Tail about three and with only two white feathers on each side ; hind claw about ·45, and longer than its toe.

M. flava borealis (Gray-headed Wagtail).

B.—Central pair of tail feathers shorter than the adjoining pair and of a different colour.

- (1) Wing coverts and breast broadly barred black and white.

Dendrognathus indicus (Forest Wagtail).

II.—Upper plumage streaked ; the two outermost feathers on each side of tail largely white. Pipits.

- (1) Length about 7·5 ; tail about 3·2 ; hind claw about ·75 and not much curved.

Anthus richardi richardi (Richard's Pipit).

- (2) Length about 7 ; tail about 2·9 ; hind claw about ·5, and considerably curved.

A. richardi striolatus (Blyth's Pipit).

- (3) Length about 6·5 ; tail 2·4 ; hind claw about ·5, and not greatly curved.

A. richardi rufulus (Indian Pipit).

MOTACILLA ALBA DUKHUNENSIS.

The White Wagtail.

Motacilla alba (Oates, Vol. II., p. 287 ; not in Legge).

Description.—Summer : Forehead, front of crown, sides of head, and of neck clear white ; back of crown, nape, hind-neck, chin, throat, fore-neck, and breast deep black ; upper plumage from the nape, with the lesser wing coverts gray ; upper tail coverts black with white margins on the outer webs ; rest of wing coverts and the inner quills blackish with broad white margins ; rest of quills black with narrow white margins ; two outermost pairs of tail feathers almost entirely white, the rest black ; lower parts from breast white.

In winter the chin, throat, and fore-neck become white and the black of the breast is confined to a narrow crescent-shaped patch, the horns of the crescent extending up the sides of the fore-neck.

Young birds in their first autumn resemble adults in winter plumage, but the back of the crown, the nape, and hind-neck are gray, like the back, while the white parts of the head are tinged with primrose-yellow.

Bill black, bluish beneath ; iris brown ; legs, feet, and claws blackish-brown.

Length about 7·75 ; wing 3·5 ; tail 3·6 ; tarsus ·85 ; bill from gape ·75.

Distribution.—A recent addition to our list. At the end of November, 1917, I saw several strange Wagtails on the maidan at Puttalam, and secured one which proved to be a young male of this form. The other birds stayed for some weeks, but left at the end of January. This species occurs over most of the Old World, breeding in the north of its range, from the British Isles to Eastern Siberia, and wintering in Southern Europe, Northern Africa, and Southern Asia. It is divided into several sub-species, the present race breeding in Central Siberia and wintering in India and Burma. It seldom, however, penetrates as far as the south of India, though possibly it may occasionally visit the Island unnoticed among other Wagtails.

Habits.—The birds I saw frequented the grassy flats round Puttalam resthouse along with numbers of the Gray-headed Wagtail. It might be looked for on open grassy spaces, wherever there are troops of the last-mentioned species

MOTACILLA MADERASPATENSIS.

The Large Pied Wagtail.

Motacilla maderaspatensis (Oates, Vol. II., p. 291 ; Legge, p. 607).

Description.—Male : A broad white eyebrow from the nostril to the nape ; head, neck all round, and upper plumage to the tail coverts glossy-black ; lesser and median wing

coverts less glossy-black ; greater coverts almost entirely white ; quills black bordered with white ; two outer pairs of tail feathers almost entirely white, the remainder black with narrow white edges ; lower parts from breast downwards white, the flanks grayish.

Females are smaller, and their upper plumage is tinged with gray.

Young birds are grayish-brown where the adults are black ; the white eyebrow does not extend forward of the eye ; there is some white on the chin and throat, and the white parts are tinged with buff.

Bill, legs, and feet black ; iris dark brown.

Length about 8·75 ; wing 3·9 ; tail 4·1 ; tarsus 1 ; bill from gape ·8.

Distribution.—A very rare straggler to Ceylon, having been recorded once from one of the islands of the Northern Province. In India it is resident, and is found ovre practically the whole of India proper.

Habits.—A true Water Wagtail, which is rarely found far from water. It may be looked for near rivers, tanks, &c. It is very active in all its movements. It feeds on insects, and will even tackle dragon-flies.

MOTACILLA MELANOPE.

The Gray Wagtail.

Motacilla melanope (Oates, Vol. II., p. 293 ; Legge, p. 610).

Description.—Male in winter : Top and sides of head, hind-neck, back, scapulars, and lesser wing coverts ashy-gray with a brownish-green tinge ; rump and upper tail coverts yellowish-green ; outermost pair of tail feathers entirely white, next two pairs with some black on the basal portion of the outer webs ; three middle pairs black with greenish margins ; medium and greater wing coverts and quills dark brown with white margins, which disappear on the outer primaries ; a narrow.

dull white eyebrow from the lores to the ear coverts ; chin, throat, and fore-neck white ; rest of lower parts bright yellow, deepest on the vent and under tail coverts.

In spring the lores change to dark brown, the white eyebrow becomes broader and clearer, and the ear coverts dark slate-colour ; the chin, throat, and fore-neck become black with small white edges to the feathers, and there is a broad white moustache stripe down the sides of the neck. Our birds appear to leave before this change is much advanced.

Females in winter resemble males ; in summer the dark throat patch is represented by a row of dark brown spots on each side of the throat and neck ; the lower parts are less bright yellow.

Young birds on their arrival resemble adults in winter, but the chin and throat are tinged with yellow, and the rest of the lower parts are less bright, at times almost white.

Bill horn-colour, paler at the base of the lower mandible ; iris brown ; legs and feet flesh-colour.

Length about 7·5 ; wing 3·15 ; tail 3·7 ; tarsus ·75 ; bill from gape ·7 ; hind claw, measured straight from base to tip ·25.

Distribution.—A regular migrant, arriving about the middle of September, and staying near the coast for a few days after its arrival. The birds then move on, some to the interior of the northern forest tract, but the majority to the hills. They leave again about the end of March.

This species has a wide range, breeding in the temperate climates of Europe and Asia and on the Himalayas, and wintering in Northern Africa and Southern Asia.

Habits.—May occasionally be seen in the sandy beds of rivers in the northern forest tract, but in the hills it is a very familiar species along the streams and water-courses. It is fond of perching on the roofs of houses, on tree stumps and bushes, as well as on rocks in the stream bed. When perched or running it perpetually balances its tail. The flight is undulating, but swift ; the note is a cheerful little whistle. It is by no means shy.

MOTACILLA FLAVA BOREALIS.

The Gray-headed Wagtail.

Motacilla borealis (Oates, Vol. II., p. 294 ; Legge, p. 617).

Description.—Male on arrival in autumn : From forehead to hind-neck slaty-gray ; back, scapulars, and rump dull olive-green ; upper tail coverts dark brown edged with olive-green ; four middle pairs of tail feathers black with narrow yellowish-green edges ; two outer pairs mainly white ; wing coverts and quills blackish-brown with pale margins often tinged with yellowish-green ; lores and cheeks dark brown ; usually an indistinct whitish eyebrow ; lower parts yellow, the sides of the chest brown ; at times the centre of the breast is mottled with white and blackish-brown.

During the winter the upper parts become worn and browner, and the black bases of the breast feathers become conspicuous.

In summer plumage, to which some birds change before leaving, the head from forehead to nape is dark bluish-gray ; the upper parts become greener, the pale borders of the wing feathers more yellow ; the lores, cheeks, and ear coverts are black, and the whole lower plumage bright yellow.

Females in winter resemble males ; in summer both the upper and lower plumage is duller ; the lores, cheeks, and ear coverts are brown, and the black bases of the breast feathers more conspicuous.

Birds in their first autumn are rather different ; the upper parts are grayish-brown, which shades into gray-blue on the rump ; the upper tail coverts are black edged with gray ; the tail and wings as in the adult, but the edges of the wing feathers are white ; there is a broad whitish eyebrow ; lores and ear coverts grayish-brown ; lower parts white, the breast darker and at times mottled with brown.

Bill, blackish-brown, paler at the base of the lower mandible ; iris brown ; legs and feet dark horn-colour.

Length about 6·75 ; wing 3·2 ; tail 3·1 ; tarsus ·9 ; bill from gape ·7 ; hind claw measured straight ·45.

Distribution.—The Gray-headed Wagtail, divided into several geographical races, is found over the greater part of the Old World, breeding in the north and wintering in the south. The present sub-species breeds in Northern Europe and Western Siberia, wintering in Africa and in Southern Asia as far east as the Malay Peninsula. It is one of our commonest Passerine migrants, arriving about the middle of September. It is abundant during the north-east monsoon all over the low-country, but is less numerous in the south-east of the Island than in the north. In the hills it is not nearly so common as the last species. It leaves for the most part in April.

Habits.—On its first arrival this Wagtail may be seen in swarms on grassy flats near the sea in the west and north of the Island. A number of birds remain in these haunts. Others spread inland to newly ploughed paddy fields, grassy land round tanks, &c. They are restless birds continually running about or taking short flights in their hunt for flies and other small insects. They roost at night in large colonies in the long grass of swamps, &c.

DENDROGNATHUS INDICUS.

The Forest Wagtail.

Limoniidromus indicus (Oates, Vol. II., p. 300 ; Legge, p. 614).

Description.—Upper plumage, including ear coverts and lesser wing coverts, dull olive-green ; tail coverts blackish-brown ; median and greater wing coverts black with broad whitish tips, which form two conspicuous wing bars ; wing quills brown, the innermost secondaries with broad olive-brown tips, remaining quills with edges of yellowish-white on the central portion of the outer webs ; most of the primaries also with a patch of the same colour near the base ; middle pair of tail feathers the same hue as the back ; next three pairs blackish-brown, the next pair white with broad brown bases, the outermost pair almost entirely white ; cheeks, chin, throat, and lower plumage white with a yellow tinge on the chest, which is crossed by two broad black bands, the lower band being incomplete in the middle.

Bill, upper mandible dark brown, lower flesh-colour ; iris olive-brown ; legs and feet flesh-colour.

Length 6·5 ; wing 3·1 ; tail 2·8 ; tarsus ·85 ; bill from gape ·75.

Distribution.—A migrant, breeding in Northern China and Eastern Siberia, and wintering from India eastwards to Southern China, but rare in most parts of India.

In Ceylon it is almost confined to the northern forest tract, but may occasionally be met with elsewhere.

Habits.—Generally found by the grassy sides of roads running through forest. It is, for instance, fairly numerous from October to March on the sides of the roads leading from Puttalam to Anuradhapura and Kurunegala. The birds are generally in pairs, which keep flying in front of one in little flights of about 100 yards, perching on low branches, and moving on as one catches up with them. They will continue in this manner for some distance before they double back. When hunting for food they run about on the ground and wag their tails from side to side, instead of up and down as other Wagtails do.

ANTHUS RICHARDI RICHARDI.

Richard's Pipit.

Anthus richardi (Oates, Vol. II., p. 307) ; *Corydalla richardi* (Legge, p. 621).

Description.—Upper plumage fulvous-brown, the feathers of the head and back with dark brown centres ; wings dark brown with brownish-buff margins ; outermost tail feathers almost entirely white, the next pair brown at the base, along the shaft and on the marginal portions of the inner web, the rest dark brown with paler edges ; a broad buff stripe above the eye ; lower plumage brownish-buff ; the sides of the throat, the fore-neck, and breast streaked with dark brown.

Bill brown, paler beneath ; iris brown ; legs flesh colour.

Dimensions a little variable ; length about 7·7 ; wing 3·75 ; tail about 3·2 ; tarsus 1·2 ; bill from gape ·8 ; hind claw about ·75, and not greatly curved.

Distribution.—This, the largest race of the species, breeds in Central Asia and Siberia. In winter it is found over a wide extent from the British Isles and France to China; it occurs at this season over the eastern half of India proper and the whole of Burma. In Ceylon it arrives about the beginning of October, and some birds linger till May. It spreads fairly widely throughout the low-country, but is found chiefly in the maritime districts. It occurs on the hills on some of the lower patanas, but does not appear to ascend to any great elevation. In Colombo it is not much seen before February, apparently visiting that part of Ceylon only on its return journey.

Habits.—Usually met with on pastures and grassy flats, especially near the sea, in company with its smaller resident relative *A. r. rufulus*. It may sometimes be found, generally just after its arrival or before its departure in the longer grass of marshy lands. It is a swift runner, and has a rapid undulating flight.

ANTHUS RICHARDI STRIOLATUS.

Blyth's Pipit.

Anthus striolatus (Oates, Vol. II., p. 308); *Corydalla striolata* (Legge, p. 628).

Description.—In plumage it resembles *A. r. richardi*, but is rather smaller; the tarsus and feet are shorter and the hind claw is considerably shorter and more curved.

Length about 7; wing 3·5; tail 2·9; tarsus 1; bill from gape ·75; hind claw ·5, and considerably curved.

Distribution.—Breeds at high elevations on the Himalayas and winters throughout the Indian Empire. Not very much is known of its distribution in Ceylon, but it probably escapes notice owing to its resemblance to Richard's Pipit. The only authentic record of its occurrence in the Island is by Legge, who found it south of Trincomalee near the Virugal-oya.

Habits.—Resemble those of Richard's Pipit. It may be looked for on pasture lands near the sea. It runs about actively, with sudden halts, and holds itself very erect. According to Brookes, it rises with a loud discordant note.

ANTHUS RICHARDI RUFULUS.

The Indian Pipit, or Tittlark.

Anthus rufulus (Oates, Vol. II., p. 308); *Corydalla rufula* (Legge, p. 625).

Description.—A much smaller edition of *A. richardi richardi*, but the tone of the upper plumage is grayer and the lower parts generally whiter. The bill is proportionately larger.

Dimensions a little variable. Length about 6·5; wing 3·15; tail 2·4; tarsus 1; bill from gape ·75; hind claw ·5.

Distribution.—A resident form, found throughout the Indian Empire and thence south-east to the Malay Archipelago and the Philippines. It also occurs over a great part of Africa. It is found abundantly throughout the whole Island, except at the very highest elevations, such as the Horton Plains, where it is scarce.

Habits.—May be met with everywhere, on grassy flats near the sea, pastures, dry paddy fields, and open patanas. It is very tame and fearless, and runs about actively through the heat of the day. The flight is swift and undulating. It breeds during the dry weather from April to July. The nest is a small cup of dry grass and grass roots, well concealed in a slight depression under the shelter of a tussock of grass. The lining is of finer material than the outside of the nest. The two or three eggs are almost oval in shape. The ground colour is whitish, or at times greenish stone, generally fairly thickly spotted with dull brown and occasionally fainter markings of dingy purple. I have two clutches which are much darker and with deep brown, streaky markings covering the greater part of the surface. Average size of a fair Ceylon series ·80 by ·60.

Family ALAUDIDÆ.

Larks.

The typical Larks closely resemble the Pipits, having the same soberly streaked plumage and long inner secondaries. They are, however, slightly plumper in form, the bill is not quite so slender, and the tail a little shorter, while unlike the Pipits they soar and sing while soaring. They are also distinguished from them and from all other Indian Passeres by the transversely scutellated hinder aspect of the tarsus.

In all the other families the hinder aspect of the tarsus is covered by two long "laminæ" or thin scales, which run, one on each side of the back edge of the tarsus, from the toes to the tarsal joint. In the Larks this covering consists of several scales on each side, which are set transversely and overlap.

All the Ceylon forms have ten primaries, the first being always small, and in one form microscopic. In some outside genera the first primary is altogether wanting. The wing, as a rule, is somewhat pointed, the head is often crested, but no Ceylon species has a perceptible crest. The shape of the bill varies considerably in the different genera, but the edges of the mandibles are smooth, except for a slight notch in the upper one. The rictal bristles are well developed.

Larks are found all over the Old World, but only one genus occurs in America and they are unknown in Australia. They are somewhat gregarious, and generally frequent cultivated or open grass lands, while many are desert-loving species. Three forms, each belonging to a different genus, occur in Ceylon. The main generic distinctions are given in the following key.

Key to Ceylon Alaudidæ.

A.—Sexes similar ; bill moderate ; length about 6.

- (1) First primary exceedingly minute ; nostrils concealed by plumelets ; wing somewhat pointed : outside tail feather almost entirely white, the next with a whitish outer web and tip ; hind claw long and straight.

Alauda gulgula australis (Indian Sky Lark).

- (2) First primary nearly half length of second ; nostrils exposed ; wing round ; outside tail feather brown with a rufous-white border on the outer web ; hind claw long and curved.

Mirafra affinis (Madras Bush Lark).

B.—Sexes dissimilar ; bill short and deep ; length about 5 ; nostrils covered with plumelets ; tarsus short.

Pyrrhuloxia grisea grisea (Ashy-crowned Finch Lark).

ALAUDA GULGULA AUSTRALIS.

The Indian Sky Lark.

Alauda gulgula (Oates, Vol. II., p. 326 ; Legge, p. 630 and 1217).

Description.—Feathers of upper plumage rich, dark brown broadly edged with brownish-buff ; on the hind-neck and upper back the margins are very broad, the brown being reduced to a wide shaft-stripe ; wing coverts slightly paler brown and with whitish tips ; wing quills brown with fulvous margins, the outer webs tinged with rufous at the base ; the outside tail feather almost entirely buffy-white ; the next with the outer web and extreme tip buffy-white, rest of tail brown with paler margins ; a whitish streak from the nostrils over the eye ; ear coverts and cheeks streaky-brown ; lower plumage pale, slightly rufous-buff, the breast boldly streaked with dark brown ; sides of the body more faintly streaked.

Young birds are more rufous ; the feathers of the upper surface are rounded and white at the tips.

Bill dark horny-brown above, paler beneath ; iris brown ; legs fleshy-brown.

Dimensions rather variable ; length about 6·3 ; wing 3·35 ; tail 2·1 ; tarsus ·9 ; bill from gape ·7.

Distribution.—The Indian Sky Lark is found almost throughout the Indian Empire, and ranges eastwards to Southern China and the Philippines. The present sub-species occurs in Southern India and Ceylon. With us it appears to be resident all the year round in the drier parts of the low-country. In the damp west and south-west it is only a north-east monsoon visitor, probably because it nests on the ground, and in these parts cannot be sure of a dry spell during the breeding season. It is also resident in the drier hill country, and I have found it breeding at 4,500 feet on the Uva Patanas.

Habits.—Much the same as those of the English Sky Lark. It is fairly abundant on the grassy flats round the coastal lagoons and at the head of some of the larger inland tanks. The song is not so loud or sustained as that of the English Sky Lark, nor does it mount and sing for so long a period. The breeding season is during the dry weather, from April

to July. The nest is a neatly made little cup of grass and grass roots, lined with finer materials of the same nature and built in a little depression of the ground under the shelter of a tussock of grass. The two or three eggs are slightly pointed ovals in shape. There are two types. In one the egg is a dull whitish stone-colour, thickly spotted, chiefly at the larger end, with dull, dark brown over fainter marks of dingy purplish-gray. In the other the colour is a more glossy whitish with smaller and more evenly scattered freckles of yellowish-brown and dull gray. Average size $\cdot 84$ by $\cdot 60$.

MIRAFRA AFFINIS.

The Madras Bush Lark.

Mirafra affinis (Oates, Vol. II., p. 335; Legge, p. 634).

Description.—Upper plumage and wing coverts dark brown with broad, brownish-buff margins, which are paler on the hind-neck and wing coverts; wing quills brown with rufous margins and a rufous area on the basal portions of the inner webs; tail feathers brown with pale rufous edges, the outside feather with a broader edge on the outer web; lores brownish; an indistinct buff streak over the eye; ear coverts and cheeks buff streaked with brown; lower parts whitish-buff, palest on the chin and throat, the lower throat and the breast streaked with broad, triangular patches of rich brown; flanks tinged with brown.

Bill: upper mandible dark brown, the margin and lower mandible, except the tip, flesh-coloured; iris reddish or yellowish-brown; legs and feet fleshy-white.

Dimensions rather variable: length about 6; wing $3\cdot 2$; tail 2; tarsus 1; bill from gape $\cdot 7$.

Distribution.—Common all over the low-country, except in the dampest districts where it is not so abundant. It is not found in the hills except as a straggler. It also occurs over a large part of Southern India.

Habits.—Found wherever there is dry pasture or any little open stretch of dry grass. It is fond of perching on bushes or dead branches of trees. The song is sweet, but low and not nearly so sustained as that of the Sky Lark. The bird

when singing mounts rapidly for a short distance and then sinks down with its wings extended. The breeding season is from about April to July. The nest much resembles that of the Sky Lark, and is placed in similar situations, but is at times more or less domed with a thin covering concealed among the dry stems and blades of the tussock of grass, in the shelter of which it is placed. The two or three eggs are rather broad, slightly pointed ovals. The ground colour is whitish with generally a fair amount of gloss. The markings vary a good deal in size and density, and range from reddish to yellowish-brown over paler marks of dull purple and purplish-gray. Average size $\cdot 84$ by $\cdot 63$.

PYRRHULAUDA GRISEA GRISEA.

The Ashy-crowned Finch Lark.

Pyrrhulauda grisea (Oates, Vol. II., p. 341; Legge, p. 637).

Description.—Male: Upper plumage ashy-brown, the feathers with pale gray margins, which are broadest on the forehead and crown; wing coverts and quills dark brown with whitish-gray margins, wider and more conspicuous on the coverts and inner quills; tail feathers light brown with whitish edges, the outer feather at times almost wholly white; lores, front part of cheeks, a streak over the eye, chin, throat, sides of neck, and lower parts to the tail coverts brownish-black; hind cheeks and ear coverts white; a grayish-white patch on the sides of the breast.

Female: The upper plumage is darker brown, at times tinged with rufous; the gray margins are narrower and darker, the whitish margins of the wing feathers not so conspicuous; ear coverts brown and gray, like the crown; those parts, which in the male are black or white, are grayish-white with ill-defined, dingy brown streaks.

Immature birds resemble females, but the margins on the upper plumage are broader and more distinct.

Bill whitish in males, a little darker in females; iris dark brown; legs and feet flesh-colour.

Length about 5; wing 3; tail $1\cdot 75$; tarsus $\cdot 6$; bill from gape $\cdot 5$.

Distribution.—This little species is found in the plains throughout the greater part of India proper. The Ceylon form appears to be a good sub-species, which probably also occurs in the dry south-east corner of India. With us it is confined to the dry maritime zones of the north, north-west, and south-east, but it occasionally straggles, probably storm-driven, to other parts, and has been seen in Colombo and at the top of Ramboda Pass.

Habits.—Found in little troops on arid plains near the coast. It feeds on the ground and squats very close, occasionally taking short little flights in the air, when it gives out a cheerful but weak little warble. The breeding season is from May to July. The nest is placed in a small depression on the bare plain, right out in the open, occasionally in the centre of an old desiccated patch of cowdung. It is a minute, shallow cup of fine, dry grass and grass roots, with occasionally a scrap of wool in the thin lining. The top is neatly levelled off flush with the surface of the ground so that the nest absurdly reminds one of a hole in a bagatelle board. There are only two eggs. The ground colour is whitish, rather sparingly, but evenly freckled with fine spots of yellowish-brown. Occasionally the markings form a zone round the middle. Average size $\cdot 75$ by $\cdot 54$.

Family ZOSTEROPIDÆ.

Genus **Zosterops.**

White-eyes.

The White-eyes are a group of which the classification has been much in dispute. Oates has placed them among the *Crateropodidæ*, other ornithologists either with the Sunbirds—*Nectariniidæ*, the Flowerpeckers—*Dicæidæ*, or the Honey-eaters—*Meliphagidæ*. Their natural affinities, on the whole, seem to be near the Sunbirds, and I have followed Stuart Baker, who accords them family rank and places them just before that group. They are all very small, arboreal birds, which are found over a great part of Africa and in Southern Asia and Australia. The bill is curved, slender, and pointed,

the rectal bristles are few and small. The tongue is peculiar ; according to Gadow, it is split into two and each half is broken up into numerous, stiff, horny fibres, like a little brush. The nostrils are covered by a large membrane and the eye is surrounded by a velvety fringe of small white feathers—a very characteristic mark of the family. The wing is short and rounded ; there are ten primaries, the first being microscopic. The tail is short and square, the legs and feet weak. Two species occur in Ceylon, one of which is peculiar to the Island.

Key to Ceylon Zosteropidæ.

- (1) Upper plumage greenish-yellow.

Zosterops palpebrosa palpebrosa (Indian White-eye).

- (2) Upper plumage dark olive-green.

Z. ceylonensis (Ceylon White-eye).

ZOSTEROPS PALPEBROSA PALPEBROSA.

The Indian White-eye.

Zosterops palpebrosa (Oates, Vol. I., p. 214 ; Legge, p. 582).

Description.—Upper plumage greenish-yellow, slightly purer yellow on the forehead and upper tail coverts and on the sides of the neck, where it blends into the primrose-yellow of the throat and fore-neck ; wings and tail brown, edged with the same greenish-yellow hue as the sides of the neck ; a ring of white feathers round the eye ; lores and a small streak below the eye black ; breast, abdomen, and flanks grayish-white, the centre of the abdomen at times faintly washed with yellow ; under tail coverts yellow ; wing-lining white.

Bill blackish, bluish at base of lower mandible ; iris rather variable, generally grayish or brownish-olive ; legs and feet slate blue.

Length 4·25 ; wing 2·1 ; tail 1·6 ; tarsus ·6 ; bill from gape ·47.

Distribution.—Found all over the low-country and in the hills to about 4,000 feet, above which it is replaced by the next species. This White-eye, divided into several races, occurs all over India proper and in part of Upper Burma.

Habits.—A rather gregarious little bird, which associates in flocks or small parties, hunting among the leafy boughs of trees, either in forests or gardens. It feeds partly on insects, partly on buds and flowers. The breeding season is mainly from June to August. The nest is a dainty little cup of tendrils, fine grass stalks, and moss woven together with cobwebs, and generally lined with a little vegetable down. It is placed in the slender fork of a small branch about 6 to 20 feet from the ground. The two eggs are pale, uniform blue, and are rather pointed at the small end. Average size $\cdot 62$ by $\cdot 46$.

ZOSTEROPS CEYLONENSIS.

The Ceylon White-eye.

Zosterops ceylonensis (Oates, Vol. I., p. 215; Legge, p. 585).

Description.—Upper plumage and sides of neck dark olive-green, paler on the rump and darker on the crown and forehead; wings and tail brown edged with the green of the back; a ring of white round the eye; lores and a small streak below the eye blackish; chin, throat, neck, and upper breast, thighs and tail coverts greenish-yellow; lower breast, abdomen, and flanks grayish-white, the abdomen at times tinged with yellow; wing-lining white.

Bill blackish, base of lower mandible bluish or slaty; iris variable, generally yellowish or reddish-brown; legs and feet bluish or pale leaden.

Length $4\cdot 6$; wing $2\cdot 2$; tail $1\cdot 7$; tarsus $\cdot 65$; bill from gape $\cdot 6$.

Distribution.—Peculiar to Ceylon and confined to the hills down to about 3,000 feet.

Habits.—Gregarious like the last species. It is found in little flocks among forest, in trees and bushes on open places near woods, or in leafy gardens. It breeds from March to May. The nest and eggs closely resemble those of the last species. Average size of eggs $\cdot 64$ by $\cdot 45$.

Family NECTARINIIDÆ.

Sub-family *Nectariniinæ*.*Sunbirds.*

The Sunbirds are a family of small birds, which, in the Tropics of the Old World, correspond to the Humming Birds of Tropical America. Together with the next family—*Dicaeidae*—they are characterized by the finely serrated edges on the terminal third of each mandible. The tongue is tubular; the bill long, curved, and cylindrical; the rictal bristles are short; the wings moderate; there are ten primaries, the first being small; the legs and feet are weak, the claws curved and sharp.

The sexes are markedly different; the males are clad mainly in brilliant metallic hues, the females in a more sober garb, generally of pale brown above and yellow beneath. Most field observers are of the opinion that for two or three months in the year the males of most species drop their breeding plumage and more or less resemble females. Oates, however, after examining the large series from India in the British Museum, states that this cannot be so, as the series includes males, in full plumage, shot in practically every month of the year, and that it is only immature males which resemble the hens. His data may, however, be accounted for by the fact that the off-season plumage is, admittedly, worn for only a short period, and that the breeding season, as often happens in India, overlaps in different localities, or even in some districts, with different birds.

Sunbirds are entirely arboreal, and feed mainly on nectar, which they extract from blossoms with their long tongues. They do not, however, hover on the wing, for sustained periods while sipping, as do Humming Birds, but cling, while feeding, to an adjoining stem. They nearly all build the most beautiful little pear-shaped nests, which are hung from a twig or the under side of a broad leaf, but one Ceylon species—*Loten's* Sunbird—as will be noted, is an exception to this rule.

Four species have been recorded from Ceylon, all belonging to one genus—*Arachnechthra*—of the sub-family *Nectariniinæ*. The other Indian sub-family, the Spider Hunters—*Arachnotherinæ*—is not represented in the Island.

Key to Ceylon Nectariniinæ.

A.—Bill large, over .75 inch* ; males in full plumage with metallic and dark hues ; females pale brown above, uniform dingy yellow beneath.

(1) Bill over 1 inch ; males with snuff-brown abdomen.

Arachnechthra lotenia (Loten's Sunbird).

(2) Bill .8 inch ; males with blue-black abdomen.
A. asiatica (Purple Sunbird).

B.—Bill smaller, .6 inch* ; males with brilliant plumage above and on fore-neck and upper breast ; lower breast and abdomen in both sexes yellow.

(1) Males : upper tail coverts metallic red ; females : uniform pale yellow beneath, rump and upper tail coverts dull red.

A. minima (Small Sunbird).

(2) Males : upper tail coverts metallic purple ; females : chin and throat ashy-white ; rest of lower parts bright yellow.

A. zeylonica (Purple-rumped Sunbird).

ARACHNECHTHRA LOTENIA.

Loten's Sunbird.

Arachnechthra lotenia (Oates, Vol. II., p. 358) ; *Cinnyris lotenius* (Legge, p. 563).

Description.—Male in full plumage : Head, upper plumage, and lesser wing coverts metallic green, changing to lilac according to the angle from which it is viewed ; greater coverts and wings deep brown ; tail black glossed with purple ; chin and throat dull purple with, in certain lights, a metallic green gloss, which becomes more brilliant on the sides of the neck ; breast a stronger purple ; rest of lower parts snuff brown, separated from the purple of the breast by a band of maroon red ; on each side of the breast a small yellow tuft, at times mixed with orange.

* I.e., the distance in a straight line from gape to tip.

Female: Upper plumage, including wings and sides of head and neck, olive-brown; tail black, the outer feathers with brownish-white tips; lower parts dull yellow.

Males after the autumn moult resemble females, with the exception of a broad metallic stripe down the fore-neck and a certain amount of metallic gloss on the lesser wing coverts and tail coverts. The breeding plumage is gradually assumed after a few weeks.

Bill, legs, and feet black; iris brown.

Length 5·5; wing 2·3; tail 1·6; tarsus ·6; bill from gape 1·1. Females are slightly smaller.

Distribution.—Common in most parts of the low-country, except in the arid coast zone of the north, north-west, and south-east. It occurs in the hills up to about 3,000 feet, in certain localities considerably higher. It is also found in Southern India.

Habits.—Familiar in flower gardens throughout its range. In the jungle it avoids forest, and is commonest in open bushy spaces near trees. It feeds mainly on the nectar and pollen of flowers, and is very partial to *Hibiscus* blossoms. At times it eats small spiders and other soft insects. The breeding season is from February to May. The nest is usually, not the little hanging structure made by most species, but placed in the large flocculent masses of cobweb spun in low bushes by a certain species of spider.

In the interior of the mass the birds press out a more or less globular chamber, lining the walls with vegetable down, and generally providing a little eave of cobweb over the entrance, which is at one side. If spider's webs are not available, they appear on occasions to construct a little pear-shaped, hanging structure like that of the next species. The two or, very rarely, three eggs are long ovals, rather pointed at the small end. The ground colour is grayish-white, evenly marked all over with fine, streaky spots of grayish-brown, at times with a dull purplish or greenish tinge. Occasionally the marks are concentrated in a zone towards the large end. Average size ·69 by ·46.

ARACHNECHTHRA ASIATICA.

The Purple Sunbird.

Arachnechthra asiatica (Oates, Vol. II., p. 359) ; *Cinnyris asiaticus* (Legge, p. 566).

Description.—Male in full plumage : Upper parts, including lesser wing coverts and sides of head and neck, metallic green glossed with purple when viewed at certain angles ; greater wing coverts and wings dull, dark brown very faintly washed with purple ; tail black glossed with purple ; chin, throat, and fore-neck dark metallic purple ; breast metallic greenish-blue glossed with purple ; pectoral tuft yellow, at times streaked with orange ; remainder of lower parts black, shot with deep blue ; lower tail coverts more metallic and glossed like the breast ; below the breast there is at times an incomplete dull maroon band.

Female : Upper plumage pale olive-brown ; wing coverts and quills darker and with pale edges ; tail blackish with narrow whitish tips on the outer feathers ; an indistinct whitish eyebrow ; lower plumage fairly bright yellow.

Males after the autumn moult resemble females, except for a broad stripe of purple down the fore-neck, while the wing coverts, quills, and tail remain practically unchanged.

Bill, legs, and feet black ; iris deep brown.

Length 4·5 ; wing 2·25 ; tail 1·4 ; tarsus ·55 ; bill from gape ·8.

Distribution.—A little local, but found over the greater part of the Island, at all elevations, where there is open bush-covered country ; it is commonest in the drier districts. It occurs all over India and most of Burma and ranges into Persia on the north-west and Cochin-China on the east.

Habits.—Very similar to those of Loten's Sunbird. Like that species it feeds on spiders, &c., as well as on nectar. The breeding season is during the first half of the year. The nest is a beautiful, little pear-shaped structure hung from a twig. The walls are made of all sorts of little scraps of dry grass, dead wood, &c., woven together with cobwebs. The outside is ornamented with little bits of bark, dried flower

buds, empty chrysalis cases, scraps of dead twigs, &c., the interior is lined with soft vegetable down; the entrance is at one side, and is protected by a neat little eave. There are generally two eggs. These are typically a little less elongated than those of the last species. The ground colour is generally brownish-white, evenly marked all over with fine streaky spots of brown; zonally marked specimens are by no means rare. Average size $\cdot 67$ by $\cdot 47$.

ARACHNECHTHRA MINIMA.

The Small Sunbird.

Arachnechthra minima (Oates, Vol. II., p. 363); *Cinnyris minimus* (Legge, p. 572).

Description.—Male in full plumage: Forehead and crown metallic green; lores, cheeks, and ear coverts black; back and scapulars crimson; rump and upper tail coverts bright metallic red with a lilac gloss; lesser and median wing coverts black with crimson tips; greater coverts and quills dull black; chin and throat metallic lilac; upper breast and sides of neck crimson; rest of lower parts pale yellow, separated from the crimson chest by a band of black; pectoral tufts sulphur yellow.

Females: Head, hind-neck, back, and scapulars olive-green; rump and upper tail coverts dull red; tail feathers dark brown with rufous edges; wings brown with olive-green edges to the feathers; lower plumage pale yellow.

After the autumn moult males resemble females, but retain the lilac rump and a little red on the shoulder of the wing.

Bill, legs, and feet black; iris dark brown.

Length about $3\cdot 75$; wing $1\cdot 9$; tail $1\cdot 3$; tarsus $\cdot 6$; bill from gape $\cdot 6$.

Distribution.—The inclusion of this bird in the Ceylon list rests on the records of Layard and Holdsworth, the former of whom recorded it from the north of the Jaffna peninsula, while the latter stated that it is occasionally seen near Colombo. It may be looked for in the extreme north of the Island. In India it is found on the west of the peninsula, from about Bombay to Cape Comorin.

Habits.—In India this species goes about in little troops of three or four and shifts its quarters a good deal. It is found in gardens and low brushwood. On the Nilgiris it breeds about September. The nest and eggs are small editions of those of *A. asiatica*. Size of eggs about $\cdot 62$ by $\cdot 42$.

ARACHNECHTHRA ZEYLANICA.

Purple-rumped Sunbird.

Arachnechthra zeylonica (Oates, Vol. II., p. 364); *Cinnyris zeylonicus* (Legge, p. 569).

Description.—Male: Forehead, crown, and lesser wing coverts metallic green shot in some lights with lilac; hind-neck, sides of neck, back, scapulars and median coverts, and a band across the fore-neck dull, deep maroon; rump and upper tail coverts metallic purple; greater wing coverts and quills dark brown with rust-coloured edges; tail dull black faintly washed with purple, the outer feathers with traces of a white tip; sides of head copper-brown; chin and throat metallic purple; breast, abdomen, and under tail coverts bright yellow; flanks and wing-lining silky, grayish-white.

Female: Upper plumage grayish-brown, the back tinged with green; upper tail coverts and tail black, the outer tail feathers with traces of a white tip; wings brown, the quills with rufous edges; an indistinct whitish eyebrow; sides of head ash-gray; cheeks, chin, and throat grayish-white; rest of lower parts yellow; flanks and wing-lining silky, grayish-white.

Bill, legs, and feet black; iris red.

Length about $4\cdot 5$; wing $2\cdot 1$; tail $1\cdot 4$; tarsus $\cdot 6$; bill from gape $\cdot 6$.

Distribution.—Common all over the Island, ascending during the north-east monsoon to the highest elevations. It is most abundant in the districts with a fairly heavy rainfall. In India it occurs over the peninsula proper and in Bengal.

Habits.—Familiar in town gardens, but it is also more partial than the other species to heavy jungle and forest. Like our other Sunbirds, it feeds on soft insects as well as on nectar and pollen. The breeding season is mainly during the

first half of the year. The nest is a little pear-shaped structure, like that of the Purple Sunbird, but usually a trifle more globular and more carefully concealed, being generally hung from a twig at the back of a bunch of leaves instead of in plain view. There are two eggs. The ground colour is dull greenish or greenish-white, the markings greenish or olive-brown, often arranged mainly in a zone or a cap near the large end. Average size .62 by .46.

Family DICÆIDÆ.

Flowerpeckers.

Like the Sunbirds, the Flowerpeckers have the terminal third of both mandibles serrated, though the serrations are so fine that the aid of a lens is required to see them, except in a very good light. The bill, however, is short and triangular, not long and cylindrical. The rictal bristles are poorly developed, but in some forms the nostrils are covered by a tuft of hairs.

The wing in certain genera has nine primaries, in others, including all our Ceylon species, there are ten, the first being small. The tail is always short, and the legs and feet weak. Most Flowerpeckers build elaborate little hanging nests resembling those of the Sunbirds.

All the species are of extremely small size. The forms found in Ceylon are rather sober hued, but many of the family are brilliantly coloured. In some species the sexes are dissimilar. The family is found over the Oriental region and a part of Australia. None of them are migratory. Three species, each belonging to a separate genus, occur in Ceylon and one is not found elsewhere.

Key to Ceylon Dicæidæ.

A.—Bill slender.

(1) Sexes alike ; lower parts grayish.

Dicæum erythrorhyncum (Tickell's Flowerpecker).

B.—Bill stout ; lower mandible swollen.

- (1) Sexes dissimilar ; lower parts white and yellow ; nostrils covered with hairs.

Acomorhynchus vincens (Legge's Flowerpecker).

- (2) Sexes alike ; lower parts ashy-yellow streaked with greenish-brown ; nostrils exposed.

Piprisoma squalida squalida (Thick-billed Flowerpecker).

DICÆUM ERYTHORHYNCHUM.

Tickell's Flowerpecker.

Dicæum erythrorhynchum (Oates, Vol. II., p. 381) ; *Dicæum minimum* (Legge, p. 574).

Description.—Upper parts ashy-olive, slightly tinged with green towards the rump ; wings and coverts brown, the coverts and inner secondaries with paler edges ; tail blackish-brown ; lores and cheeks whitish, darkening on the ear coverts ; lower parts grayish-white, the sides of the chest darker, the centre of the breast and abdomen tinged with buff.

Bill, dark brown above, fleshy beneath ; iris brown ; legs and feet brownish slate-colour.

Length 3·3 ; wing 1·8 ; tail ·95 ; tarsus ·5 ; bill from gape ·45.

Distribution.—Common all over the Island at all elevations. It occurs over the greater part of India and in portions of Burma.

Habits.—Our smallest bird. It is generally found wherever there are trees infested with the parasitic *Loranthus*, on the berries of which it feeds with avidity. In the forest it also feeds on the berries of jungle creepers. Usually not more than two birds are seen together. It is a restless little species, continually darting from branch to branch. The cry is a sharp, but weak little chirp. The breeding season appears to be from April till August. The nest is generally a pear-shaped

structure, like that of a Sunbird, but I once saw a nest, presumably of this species, like a little hammock suspended at either end from a twig. The two or three eggs are pure white, glossless ovals. Average size $\cdot 6$ by $\cdot 40$.

ACMONORHYNCHUS VINCENS.

Legge's Flowerpecker.

Acmonorhynchus vincens (Oates, Vol. II., p. 382); *Pachyglossa vincens* (Legge, p. 577).

Description.—Male: Top and sides of head, the upper plumage, and lesser wing coverts dull, steel blue, paling a little on the rump; the concealed bases of the feathers black; wings and tail blackish, the coverts and inner secondaries edged with the hue of the back, the secondaries faintly edged toward the tip with bluish-green, the basal portion of the inner webs of the quills white; four central tail feathers unmarked, the remainder with white tips, increasing in breadth on the outer feathers; chin, throat, and chest white; breast saffron-yellow, paling to almost white on the lower tail coverts.

Female: Head and hind-neck ashy-blue; upper plumage olive-brown, tinged with green on the lower back and rump; wings and tail not so black as in the male; lower parts not so brightly coloured.

Bill black, paler at base of lower mandible; iris brownish-red; legs and feet blackish-brown.

Length $4\cdot 1$; wing $2\cdot 35$; tail $1\cdot 2$; tarsus $\cdot 5$; bill from gape $\cdot 45$. Females are slightly smaller.

Distribution.—Peculiar to Ceylon, and confined mainly to the forest of the wet low-country zone, but it has recently been recorded from Pussellawa in the Central Province at an elevation of 3,000 feet.

Habits.—Rather a rare little bird, living entirely among, or near heavy jungle. It associates in small flocks, hunting among creepers on the trunks of trees for berries. Nothing is known of its nidification.

PIPRISOMA SQUALIDA SQUALIDA.

The Thick-billed Flowerpecker.

Piprisoma squalida (Oates, Vol. II., p. 382); *Piprisoma agile* (Legge, p. 579).

Description.—Upper plumage olivaceous-brown, the rump and upper tail coverts tinged with green; wings and tail brown edged with olive, the tail feathers with white tips, broad on the two outer feathers, more narrow on the others; lores grayish; face and ear coverts brownish; chin and throat white; a narrow brown streak down each side of throat; lower parts pale ashy-yellow with greenish-brown streaks.

Bill leaden brown; iris orange with a golden inner circle legs dusky lead-colour.

Length 4; wing 2·2; tail 1·1; tarsus ·5; bill from gape ·4.

Distribution.—Rather rare; its chief haunts appear to be in the interior of the northern forest tract, but it occurs sparingly in Uva and parts of the Central Province. It occurs over a great part of India proper.

Habits.—Keeps rather to the tops of trees in forest, where it feeds on spiders and small insects. The breeding season is probably in April and May. The nest resembles a little pocket, with the opening at one side, hung from a twig. It is composed of vegetable fibres and flower buds felted together with cobwebs so firmly that it can be squeezed up and yet regain its shape. The two or three eggs are white or pinkish, freckled over with small brownish-pink or claret-coloured spots. Average size (of Indian eggs) ·63 by ·45.

Family PITTIDÆ.

Pittas.

The Pittas (*vide* my introductory remarks on the Order) are the sole Indian family belonging to the group *Mesomyodi*. In addition to the different structure of the syrinx, they are also distinguished from all other Indian Passerine birds by the formation of the wing. There are ten primaries, but the first, instead of being notably small, is almost as long as the second. Their long legs, very short tail, and beautiful

distinctive colouration also serve to render their identification easy. Pittas occur all over South-eastern Asia, being most numerous in the Malay Archipelago. Some species extend into Australia, while one is found in Africa. They all live on the ground, and are insectivorous. They can hop and run well. Most species are found in thick undergrowth, and many of them are more or less migratory. Only one form is found in Ceylon, and it occurs only as a migrant.

PITTA BRACHYURA.

The Indian Pitta.

Pitta brachyura (Oates, Vol. II., p. 393); *Pitta coronata* (Legge, p. 687).

Description.—Forehead and crown yellowish-brown, divided in the centre by a slightly irregular black band, running back to the nape and bordered below by a narrow white band over the eye; a broad black band from the gape of the bill across the face and ear coverts, merging on the nape with the median black band; a few feathers below the eye whitish; back, scapulars, and upper rump green, the upper back more or less washed with light brown; lower rump and upper tail coverts shining turquoise-blue; tail black tipped with dull blue; lesser wing coverts shining turquoise-blue with a black patch where the wing joins the back; median coverts and innermost secondaries green; greater coverts green, the outer feathers washed with blue and with black bases; primary coverts black; primaries black with grayish tips and a white band across their bases; secondaries black with white tips and a broad border of bluish-green on the terminal half of the outer webs; chin, throat, and sides of neck up to the black band white; remainder of lower parts fawn colour; the middle of the abdomen, vent, and lower tail coverts scarlet.

Bill blackish, the ridge and basal part of lower mandible reddish-brown; iris dark brown; legs and feet flesh-colour.

Length about 7; wing 4.1; tail 1.7; tarsus 1.4; bill from gape 1.1.

Distribution.—A fairly common north-east monsoon migrant, arriving in October and leaving in April. It spreads all over the Island, but only occasionally visits elevations of over 5,000 feet. It occurs over practically the whole of India proper, but in many parts in the north and south of its range it is a seasonal migrant.

Habits.—A shy bird, which keeps to thick cover in undergrowth, secondary jungle, and thick woods. It may occasionally be seen in the evening flitting from one cover to another. Its presence is usually made known by its shrill rather pleasant call, which is uttered chiefly in the early morning and evening, and is well expressed by the vernacular names—*avichchiya* in Sinhalese and *ayitta* in Tamil. Birds on their first arrival on the west coast are much exhausted by their flight, and frequently take shelter in town gardens or even bungalows. Stray specimens occasionally loiter, and have been obtained during the south-west monsoon, but it is not likely to be found breeding in Ceylon.

EXPLANATION OF THE PLATES.

Plate I.

Fig. 1.—*Parus major mahrattarum* ; $\times \frac{1}{3}$.

Fig. 2.—*Molpastes hæmorrhous hæmorrhous* ; $\times \frac{1}{3}$.

Fig. 3.—*Dissemurus paradiseus ceylonensis* ; $\times \frac{1}{5}$.

Fig. 4.—*Lanius schach erythronotus* ; $\times \frac{1}{3}$.

Fig. 5.—*Eulabes ptilogenys* ; $\times \frac{1}{5}$.

Plate II.

Fig. 1.—*Acridotheres tristis melanosternus* ; $\times \frac{1}{4}$.

Fig. 2.—*Merula kinnisi* ; $\times \frac{1}{4}$.

Fig. 3.—*Munia malacca* ; $\times \frac{1}{2}$.

Fig. 4.—*Alauda gulgula australis* ; $\times \frac{1}{4}$.

Fig. 5.—*Zosterops ceylonensis* ; $\times \frac{1}{2}$.

FIG. 1.

FIG. 2.

FIG. 3.

FIG. 4.

FIG. 5.

FIG. 1.

FIG. 2.

FIG. 3.

FIG. 4.

FIG. 5.

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