THE VERDITER FLYCATCHER
(*Eumyias thalassima thalassima*).
Two-thirds Nat. Size.

THE PARADISE FLYCATCHER
(*Tchitrea paradisi paradisi*).
Male.
Female.

THE BIRDS OF SOUTHERN INDIA

INCLUDING

MADRAS, MALABAR, TRAVANCORE COCHIN, COORG AND MYSORE

BY

LT.-COL. H. R. BAKER, INDIAN ARMY (*Retd.*)

AND

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BOOK NO.
1312

ZOOLOGICAL GARDEN
370R
CALCUTTA

MADRAS
PRINTED BY THE SUPERINTENDENT, GOVERNMENT PRESS

PRICE, ~~15~~ 16 *rupees*] 1930

PREFACE

AT the present time when a person interested in the bird-life of Southern India wishes to identify a specimen of bird or egg he must search in some such voluminous works as the "*Fauna of British India—Birds*" or "*Jerdon's Birds of India*," etc., a tedious and unsatisfactory task because much of these works contain descriptions of birds found all over India and not of those of any one particular Presidency. The new edition of the "*Fauna of British India—Birds*," which is near completion will, when finished, consist of eight volumes, so the necessity of a book dealing exclusively with the birds resident in or visitors to the South of India can easily be realized.

There is little original matter in this work, but we have tried to compile, as accurately as possible, all information there is on the birds of this area and hope, that with its help, the study of ornithology in Southern India may be increased.

The only references we have given are to the two editions of the "*Fauna of British India—Birds*" (*F.B.I.*). While at home we had the privilege of seeing the MSS. of the addenda and corrigenda for Mr. Stuart Baker's last volume of the second edition and through his kindness have been able to make use of it.

Mr. Hugh Whistler is working out a collection of birds from South India but his results are not published yet; we have therefore been unable to incorporate his notes in this volume. When the collection has been worked out there may, possibly, be some corrections to make.

We must thank Mr. Stuart Baker for his kind help in revising a good deal of the manuscript, for the use of his many articles on Indian bird-life and for the interest he has taken in this work. Major Phythian Adams also helped us in the revision and we are indebted to him for some interesting notes as well as much other invaluable help; thanks are also due to many authors and publishers for material used in the compilation of this work; quotations are duly acknowledged.

We have also to thank the Bombay Natural History Society for the permission to use the coloured plates prepared by them and which make such a difference to the book.

The cost of having special plates drawn for this work would have been prohibitive so we were fortunate in being able to use these.

There is an apology to be made, which is, that our measurements are not consistent in all cases, some being given in inches and others in millimetres. Nowadays, in scientific works, millimetres are always used, but for the ordinary student inches are much simpler and preferable. There has not been sufficient time to convert the millimetres into inches, so we have taken the liberty of copying a scale from "*A Practical Handbook of British Birds*."

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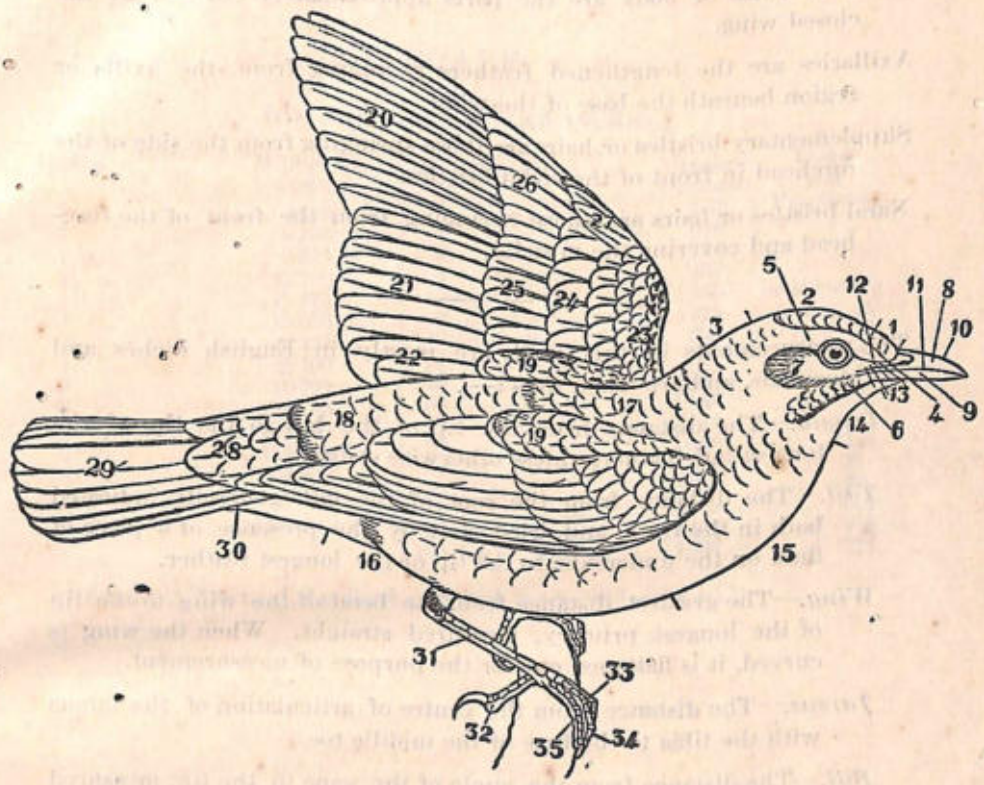

DIAGRAM OF A BIRD, to illustrate the terminology of the plumage and limbs. (From *Fauna of British India.*)

1. Forehead.
2. Crown.
3. Nape or occiput.
4. Lores (space in front of eye).
5. Supercilium.
6. Cheeks.
7. Ear-coverts.
8. Upper mandible or maxilla.
9. Lower mandible.
10. Culmen or upper profile of maxilla.
11. Commissure or line of junction of the two mandibles.
12. Rictal bristles or vibrissæ.
13. Chin.
14. Throat.
15. Breast.
16. Abdomen.
17. Back.
18. Rump.
19. Scapulars.
20. Primaries (the earlier or outermost 9 or 10 quills of the wing).
21. Secondaries (wing-quills springing from the radius and ulna).
22. Tertiaries.
23. Lesser wing-coverts.
24. Median wing-coverts.
25. Greater wing-coverts.
26. Primary wing-coverts.
27. Winglet or bastard-wing.
28. Upper tail-coverts.
29. Tail-feathers or rectrices.
30. Under tail-coverts.
31. Tarsus.
32. Hind toe or first toe or hallux.
33. Inner or second toe.
34. Middle or third toe.
35. Outer or fourth toe.

Flanks or sides of body are the parts approximately covered by the closed wing.

Axillaries are the lengthened feathers springing from the axilla or region beneath the base of the wing.

Supplementary bristles or hairs are those springing from the side of the forehead in front of the rictal bristles.

Naral bristles or hairs are those springing from the front of the forehead and covering the nostrils.

The measurements in this work are mostly in English inches and decimals, and are taken thus :—

Length.—The distance from the tip of the bill to the tip of the longest tail-feather, unless otherwise stated.

Tail.—The distance from the root of the tail, generally indicated both in the fresh and dried state by the presence of a piece of flesh on the underside, to the tip of the longest feather.

Wing.—The greatest distance from the bend of the wing to the tip of the longest primary, measured straight. When the wing is curved, it is flattened out for the purpose of measurement.

Tarsus.—The distance from the centre of articulation of the tarsus with the tibia to the base of the middle toe.

Bill.—The distance from the angle of the gape to the tip, measured straight.—" (*Fauna of British India*)."

SCALE

(OF MILLIMETRES AND INCHES.)

Inches.	Millimetres = mm.
$\frac{1}{8}$	3·175
$\frac{1}{4}$	6·350
$\frac{3}{8}$	9·525
$\frac{1}{2}$	12·700
$\frac{5}{8}$	15·875
$\frac{3}{4}$	19·050
$\frac{7}{8}$	22·225
1	25·400
2	50·799
3	76·199
4	101·600
6	152·399
12	304·800

Millimetres = mm.	Inches Decimals.	Inches and Fractions.
1	·039	
2	·078	
3	·118	
4	·157	
5	·196	or about $\frac{3}{16}$
8	·315	,, $\frac{5}{16}$
10 (= 1 cm.)	·393	,, $\frac{3}{8}$
15	·590	,, $\frac{19}{32}$
20	·787	,, $\frac{25}{32}$
30	1·181	,, $1\frac{3}{16}$
40	1·574	,, $1\frac{9}{16}$
50	1·968	,, $1\frac{31}{32}$
60	2·362	,, $2\frac{3}{8}$
70	2·756	,, $2\frac{3}{4}$
80	3·149	,, $3\frac{5}{32}$
90	3·543	,, $3\frac{1}{32}$
100 (= 10 cm.)	3·937	,, $3\frac{15}{16}$

(From "*A Practical Handbook of British Birds*, 1919, *page* xii.")

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ZOOLOGICAL GARDEN CALCUTTA

Order PASSERES.

"The deep plantar tendons passerine, palate ægithognathous"—(*Fauna of British India*).

Family CORVIDÆ.

"The intrinsic muscles of the syrinx fixed to the bronchial semi-rings. The edge of both mandibles smooth, or the upper one simply notched; hinder aspect of the tarsus smooth, composed of two entire longitudinal laminæ; wing with ten primaries; nostrils clear of line of forehead, hidden by feathers and bristles; rectrices twelve."

"The first primary exceeding half the length of the second; plumage more or less glossy and firm; length of bill considerably more than its depth"—(*Fauna of British India*).

Genus **CORVUS** Linn. 1766.

"Nostrils distant from forehead about one-third the length of bill; nasal bristles rigid and straight, reaching to about middle of bill; or rictal bristles and feathers in front of face altogether absent"—(*Fauna of British India*).

(1) Corvus coronoides culminatus (Sykes).

THE SOUTHERN JUNGLE CROW.

(*Fauna of British India*, 2nd edition, No. 6.)
(*Fauna of British India*, 1st edition, No. 4.)

Description—Male. Length 21″; wing 13·5″; tail 7·5″ to 8″; tarsus 2·2″; bill and legs black; irides dark brown.

Above glossy black with purple reflections; below dull black.

Female. Similar to male.

Locality, habits, etc. A common permanent resident on hills and plains and is more a bird of the forests and jungles than the next species which is a town bird in habits; a daring robber and scavenger; nothing comes amiss to it in the shape of food—young birds, eggs, bits of bread or meat, fruit, lizards, grass-hoppers, winged ants, anything and everything is received into its capacious maw.

"Does not occur on the Nelliampathy Hills"—(*A. P. Kinloch*).

Breeding season. February to August.

Nest. Of sticks and twigs, usually placed high up on a tree. Contrary to the habits of the next species, this crow builds in forests as well as in the vicinity of human dwellings.

Eggs. 3 or 4, rarely 5; they vary considerably in shape and size, also in the shades and depth of colouring. The ground colour is generally green, sometimes inclining to bluish, with spots and smudges of brown. Average measurement 1·65″ × 1·16″.

(2) Corvus splendens splendens (Vieill.).

THE COMMON INDIAN HOUSE-CROW.

(*Fauna of British India*, 2nd edition, No. 11.)
(*Fauna of British India*, 1st edition, No. 7 part).)

Description—Male. Length about 17″; wing 10·5″ to 11·5″; tail about 7″; tarsus 1·9″; bill from gape 2″; bill and legs black; irides dark brown.

Nape, ear-coverts, neck, back and breast ashy; lower back dull black; the remainder black with glossy reflections.

Female. Similar to male.

Locality, habits, etc. A common permanent resident on the plains less common on the hills, where its thieving propensities are too well known to need recapitulation.

"Does not occur on the Nelliampathy Hills"—(*A. P. Kinloch*).

Breeding season. February to August.

Nest. A platform of sticks and twigs placed at varying heights from the ground on any convenient tree. Unlike *C.c. culminatus* it does not object to sharing a tree with others, though it is quick and bold enough in keeping its own particular corner free from intruders. It is in the nest of this crow that the Indian Koel (*Eudynamis s. scolopaceus*) usually deposits its eggs.

Eggs. 4 to 6. (Mr. Stuart Baker took 7 from nests in Dibrugarh.) As in the case of *C.c. culminatus*, these also vary greatly in shape, size and colour, the most usual type being regular ovals of green or bluish green spotted and specked principally at the large end with rusty brown. Average measurement, 1·43″ × 1·04″.

Genus **DENDROCITTA** Gould 1833.

Nasal bristles short, never reaching the middle of bill; tail greatly graduated, the outer feathers much less than half the length of the tail, middle tail-feathers of uniform width throughout or widening gradually towards the tip. Nasal bristles thick, straight and quite concealing the nostrils—(*Fauna of British India*).

(3) Dendrocitta rufa rufa (Lath.).

THE INDIAN TREE-PIE.

Plate II.

(*Fauna of British India*, 2nd edition, No. 26.)
(*Fauna of British India*, 1st edition, No. 16 (part).)

Description—Male. Length 18″; wing 6″ to 6·75″; tail about 12·5″; tarsus 1·3″; bill from gape 1·3″; bill dark slaty, albescent at base; legs dark brown; irides reddish brown.

Head, neck and breast brownish black; back and upper tail-coverts rusty; wing-coverts grey, the feathers all broadly tipped with black,

Female. Similar to male.

Locality, habits, etc. A permanent resident on the plains, but does not appear to ascend the hills. They go about either in pairs or small parties and fly with an undulating flight. They have many notes, some harsh and some otherwise, and when seated may be seen bobbing up and down and uttering them. They are very destructive to eggs and young birds, and I have on several occasions seen them turning out a nest and letting the contents fall on the ground and then sipping them up. They also eat fruit and insects—(*C.M.I.*)

"Very rare on the Nelliampathy Hills"—(*A. P. Kinloch*).

Breeding season. May and June.

Nest. Of thorny twigs lined with fine twigs and grass-roots placed high up in the fork of a tree.

Eggs. 4; pale greenish white, spotted and blotched all over with bright red and pinky purplish. Some have also the ground-colour salmon. The eggs vary enormously. (Mr. Stuart Baker has specimens marked with dull dark greenish, and latterly received some from the Punjab almost a pure pale blue.) Average measurement 1·12″ × 0·89″.

(4) **Dendrocitta leucogastra** Gould.

THE SOUTHERN TREE-PIE.

(*Fauna of British India*, 2nd edition, No. 31.)
(*Fauna of British India*, 1st edition, No. 17.)

Description—Male. Length 19″; wing about 5·5″; tail 12″; tarsus 1·2″; bill from gape 1·1″; bill black; legs dark plumbeous; irides blood-red.

Whole of head except posterior portion of crown, chin, throat and upper breast, black; posterior portion of crown to upper back, white; remainder of back brownish fawn; upper tail-coverts and lower breast white; wings black with a white band across primaries; under tail-coverts chestnut; tail-feathers grey broadly tipped black; centre feathers less so, and outer ones nearly all black.

Female. Similar to male.

Locality, habits, etc. A common permanent resident in wooded districts of the plains and ascends the hills to about 5,000 feet; it is entirely arboreal, keeping to the tree-tops, generally in pairs, sometimes in small parties and occasionally as many as twenty together. Its food mainly consists of fruit, but insects of various kinds are also devoured. Its notes have a peculiar metallic sound.

Mr. A. P. Kinloch writes:—"I have noticed a curious fact about these birds—never a day passes but I see several individuals, and never have I yet seen a Tree-pie that was not accompanied by a Racquet-tailed Drongo (*Dissemurus paradiseus malabaricus*) or more commonly by a pair or more. I don't know the reason for this strange association; perhaps they find mutual pleasure in each other's voices? The Racquet-tailed Drongo's powerful song is certainly a wonderfully beautiful performance."

Breeding season. March and April.

Nest. Of thorny twigs lined with fine twigs and grass-root, placeds low or high up in the fork of a tree or thick bush.

T. F. Bourdillon says :—"The nest is small for so large a bird and is not domed ; the interior diameter is 3 inches or so."

Eggs. "Usually 3, sometimes 2 only, and rarely 4 ; cream-white in colour, profusely speckled and blotched with ashy and yellowish brown markings, more abundantly towards the lower end ; the shell is glossy and fine. Average measurement (of 3 eggs) 1·13″ × 0·85″"—(*T. F. Bourdillon*).

Family PARIDÆ.

"The first primary never exceeding half the length of the second and usually much less than half ; plumage firm ; length of bill considerably more than its depth"—(*Fauna of British India*).

Genus **PARUS** Linn. 1766.

Head not crested ; tail slightly rounded, outer feather falls short of the tip of tail by about the length of the hind claw—(*Fauna of British India*).

(5) Parus major mahrattarum Hartert.

THE SOUTHERN GREY TIT.

Plate II.

(*Fauna of British India*, 2nd edition, No. 55.)
(*Fauna of British India*, 1st edition, No. 31 (part).)

Description—Male. Length 5·5″ to 6″ ; wing 2·62″ ; tail 2·25 to 2·6″ ; tarsus ·65′ ; bill from gape ·5′′ ; bill black ; legs plumbeous ; irides brown.

Head, chin, throat, breast and a line down the abdomen, black.

Cheeks and ear-coverts white ; back, rump and upper tail-coverts bluish ashy ; wings black with a white bar ; beneath ashy white tinged with pale reddish ; under tail-coverts pure white.

Female. Similar to male.

Locality, habits, etc. A common permanent resident on the hills ; scarce on the plains, in fact we think it is doubtful whether it is found at all at elevations below 2,000 feet. It frequents hedge-rows, gardens and clearings, and is usually seen in small parties. Its food consists principally of small caterpillars and insects such as swarm in gardens and orchards ; but it is also very partial to fruits, for which reason many people shoot it at sight if detected amongst the fruit trees, forgetting or not realizing that the Tit is only paying itself back in a small way in kind for the immense good it has done the garden and orchard by helping to rid it of insect pests ; the number of green caterpillars and other insects that a pair of Tits will capture and take in a single day to their nestful of young ones is simply amazing.

"Rare on the Nelliampathy Hills"—(*A. P. Kinloch*).

Breeding season. February to June.

Nest. Of fur of any sort sometimes hare's and often goat's hair, moss, etc., wedged in holes or crevices in banks, walls or trees.

THE TREE-PIE
(*Dendrocitta rufa rufa*).
One-third Nat. Size.

THE GREY-TIT
(*Parus major cinereus*).
Two-thirds Nat. Size.

Eggs. 4 to 6 ; white spotted with rusty red. Average measurement 0·70″ × 0·53″.

(6) Parus nuchalis Jerdon.

THE WHITE-WINGED BLACK TIT.

(*Fauna of British India*, 2nd edition, No. 58.)
(*Fauna of British India*, 1st edition, No. 33.)

Description—Male. Length 5·5″ ; wing 2·6″ ; tail 2·1″ ; tarsus ·7″. "Bill from gape ·45″. Bill black ; legs slaty plumbeous ; irides dark brown "—(*Fauna of British India*).

"Above and a broad mesial stripe from throat to vent, black ; cheeks, sides of neck, of breast and of belly, under tail-coverts, a spot on nape and band across wing, white ; tertials broadly margined externally and tipped with white ; outermost tail-feathers white except on inner border, the next with outer web and portion of inner web white, and the third with the outer web white at tip and for the most part of its basal half "—(*Jerdon's Ill. Ind. Ornith*).

Female. Similar to male.

Locality, habits, etc. Obtained by Jerdon on the Eastern Ghats, West of Nellore, and by Dr. Stewart at Bangalore. Apparently a resident bird wherever found, but very little is known about it. Jerdon records it as keeping to the tops of heavily wooded hills on the Eastern Ghats—(*Fauna of British India*).

Breeding season, etc. Nothing recorded.

Genus MACHLOLOPHUS Cabanis 1850.

Similar to *Parus*, but with a long pointed crest ; a broad ventral band—(*Fauna of British India*).

(7) Machlolophus xanthogenys aplonotus (Blyth).

THE SOUTHERN YELLOW-CHEEKED TIT.

(*Fauna of British India*. 2nd edition, No. 76.)
(*Fauna of British India*, 1st edition, No. 43.)

Description—Male. Length 6″ ; wing 3·25″ ; tail 2·5″ ; tarsus ·75″ ; bill from gape ·6″ ; bill black ; legs plumbeous ; irides brown.

Head with crest, chin, throat, neck and centre of breast and of abdomen, black ; back dark olive-green ; scapulars black edged ashy ; upper tail-coverts ashy ; tail dusky, edged externally with bluish ; the outer pair of feathers tipped and edged outwardly with white ; wings black with a white bar ; a yellow stripe from nostrils over the eyes meeting at the nape ; cheeks and sides of neck yellow ; sides of breast and abdomen yellow tinged green.

Female. Similar to male but of duller colouring.

Locality, habits, etc. Common on the hills at an elevation of about 4,500 feet and over. It keeps mostly to open forest.

Breeding season May to September.

Nest. Of moss and hair, placed in a hole in a tree.

Eggs. 5 ; white, spotted with red. Average measurement ·76″ × ·53″.

Family SITTIDÆ.

"Inner front and hind-toe very unequal in length ; rectrices twelve ; nostrils overhung by some hairs ; rictal bristles present "—(*Fauna of British India*).

Genus **SITTA** Linn. 1766.

" Bill about as long as head, short and straight ; nostrils covered with some hairs and rictal bristles strong ; wing rather pointed ; the first primary always less than half the length of second ; the tail is short and square or very slightly rounded ; sexes generally different in colour "—(*Fauna of British India*).

(8) Sitta castaneiventris castaneiventris (Frankl.).

THE CHESTNUT-BELLIED NUTHATCH.

Plate III.

(*Fauna of British India*, 2nd edition, No. 110.)
(*Fauna of British India*, 1st edition, No. 321.)

Description Male. Length 5·5″ ; wing 3″; tail 1·75″ ; tarsus ·7″ ; bill from gape ·85″ ; bill horny black, pale at base below ; legs plumbeous ; irides brown.

Above bluish grey ; palest on head and nape ; a black stripe from the gape through the eyes to the nape ; inner webs of wings blackish ; the two central tail-feathers blue-grey, remainder blackish ; the outermost ones tipped white ; cheeks and chin white ; rest of lower plumage chestnut or bay, deepest on the abdomen.

Female. Similar to male, but the lower plumage is cinnamon, instead of chestnut.

Locality, habits, etc. Essentially a jungle bird, frequenting the forests on the slope of the hills. Its habits are the same as those of the next species.

Breeding season. March to June or later.

Nest. Of leaves placed at the bottom of a hole in a tree, the entrance to which is plastered up only leaving sufficient space for the bird to enter.

Eggs. 2 to 5 ; white, spotted with pale red and with a few underlying pale claret spots. Average measurement 0·70″ × 0·55″.

(9) Sitta frontalis frontalis (Horsf.).

THE VELVET-FRONTED NUTHATCH.

(*Fauna of British India*, 2nd edition, No. 119.)
Fauna of British India, 1st edition, No. 325.)

Description—Male. Length about 5″ ; wing 3″ ; tail 1·5″ ; tarsus ·7″ ; bill from gape ·7″. Bill bright coral-red ; legs blackish ; irides bright yellow ; orbitar skin lemon-yellow.

Forehead velvety black; upper plumage cœrulean blue, lilac on the ear-coverts and sides of neck; tail black edged blue outwardly, white inwardly; chin and throat white, a small black stripe on each side of the head at the back; plumage beneath, pale lilac-brown rusty on the under tail-coverts and vent.

Female. Similar to male, but the black stripes at the back of the head are absent.

Locality, habits, etc. A common permanent resident on the hills where small parties may frequently be seen in gardens and in open spots in the forests climbing about the trunks and branches of the trees in search of insect food; the ease and rapidity with which they guide about and cling now head downwards, now upside down like a fly on the ceiling is remarkable.

Breeding season. February to June.

Nest. Of moss and hair lined with feathers in a hole of a tree; the entrance is *not* plastered up as with "*S. castaneiventris.*"

Eggs. 4; white-spotted with red. Average measurement 0·7″ × 0·56″.

Family TIMALIIDÆ.

"Nostrils bare or merely overhung by a few hairs or plumelets; rictal bristles always present; rectrices twelve"—(*Fauna of British India*).

Sub-family TIMALIINÆ.

"Sexes alike, gregarious; extremely noisy; legs and feet large; wing short and rounded; habits partly terrestrial, partly arboreal; colour of egg with few exceptions unspotted white or blue"—(*Fauna of British India*).

Genus **GARRULAX** Lesson 1831.

"Nostrils clearly visible, but overhung by numerous bristles"—(*Fauna of British India*).

(10) Garrulax delesserti (Jerdon).

THE WYNAAD LAUGHING-THRUSH.

(*Fauna of British India*, 2nd edition, No. 131.)
(*Fauna of British India*, 1st edition, No. 75.)

Description—Male. "Length 10″; wing 4·1″; tail 4″; tarsus 1·5″; bill from gape 1·3″—(*Fauna of British India*).

Bill—upper mandible blackish brown; lower mandible fleshy white; legs and feet fleshy white; irides crimson; "maroon brown"—(*A. P. Kinloch*).

Lores, ear-coverts and round the eyes black; forehead, crown, mantle and sides of neck deep slaty grey; forehead mottled with grey; back, rump and visible portions of wings chestnut brown, except the outer webs of the first few primaries which are duller; upper tail coverts brighter chestnut; tail black, tinged rufous at base; extreme

point of chin black; remainder of chin, cheeks and throat white; breast and upper parts of abdomen ashy grey; lower part of abdomen, vent, thighs and under tail-coverts deep chestnut.

Female. Similar to male.

Locality, habits, etc. Permanent resident on the hills at all elevations. It associates in small parties and is usually found in thick undergrowth.

Breeding season. March to May.

Nest. "Mr. Stewart describes the nest as 'a bulky deep cup', sometimes almost semi-domed, sometimes hardly bigger or stouter than that of *Molpastes*"—(*Stuart Baker*).

Eggs. The eggs are glossy pure white and measure 1·05 × ·84", and are 2 to 4 in number. Mr. J. Davidson was the first to take the eggs of this bird, but subsequently Mr. J. Stewart has taken many.

Mr. Bourdillon's nest and eggs described as blue were undoubtedly wrong.

Genus **TROCHALOPTERUM** Hodgs 1843.

Nostrils perfectly free and exposed, not overhung by either bristles or hairs—(*Fauna of British India*).

(11) Trochalopterum cachinnans cachinnans Jerdon.

THE NILGIRI LAUGHING-THRUSH.

(*Fauna of British India*, 2nd edition, No. 165.)
(*Fauna of British India*, 1st edition, No. 93.)

Description—Male. Length 9"; wing 3·25"; tail 3·5"; tarsus 1·25"; bill from gape ·9".

Bill and legs horny black; irides red.

Crown and nape slaty-brown, the feathers very narrowly margined with black; rest of upper plumage olive-brown; a conspicuous white a eye-stripe; chin black; throat and breast bright rufous; vent and under tail-coverts pale rufous.

Female. Similar to male.

Locality, habits, etc. A very common permanent resident on the hills where it frequents undergrouth, hedges and gardens; it usually associates in small parties, the members of which keep up a continual cry of "Pee-koko" "Pee-koko", from which the bird derives its local name. It is not particularly shy, yet evinces a disinclination to come out into the open, preferring to escape notice by hopping and creeping amongst the bushes. Being extremely partial to fruit, the "Pee-koko" is often ruthlessly shot if found helping itself in the orchard in spite of the fact that it undoubtedly does a great deal of good by feeding on caterpillars and other pests.

Breeding season. February to June.

Nest. Of twigs and moss lined with hair, placed in a bush or low tree.

Eggs. 2 or 3; pale blue, spotted with blackish brown. Average measurement 1·01 × 0·76".

The eggs of this bird differ from most Laughing-Thrushes, being more smudgy in their marking.

(12) Trochalopterum cachinnans cinnamomeum Davison.

DAVISON'S LAUGHING-THRUSH.

(*Fauna of British India*, 2nd edition, No. 166.)
(*Fauna of British India*, 1st edition, No. 94.)

Description—Male. Differs from the Nilgiri Laughing-Thrush in entirely wanting the black markings of the head and face; the lower parts are deep a cinnamon-brown rather than rufous and the crown is hair-brown instead of slaty-brown "—(*Fauna of British India*).

"Under wing-coverts rufous"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. Davison suggests the Palghat hills; also possibly the Palnis—(*Stuart Baker*).

Breeding season, etc. Nothing known at present.

(13) Trochalopterum jerdoni jerdoni (Blyth.)

THE BANASORE LAUGHING-THRUSH.

(*Fauna of British India*, 2nd edition, No. 167.)
(*Fauna of British India*, 1st edition, No. 95.)

Description—Male. Length 8·5"; wing 3·2"; tail 3·5"; tarsus 1·3"; bill from gape ·9". Bill dull black; legs and feet plumbeous brown; irides crimson lake.

"Point of forehead black; crown and nape slaty brown, the feathers edged darker; a broad white supercilium with a narrow black band above lores and a line through the eye black; ear-coverts greyish white; sides of neck ashy brown continued back and meeting round the neck; upper plumage, wings and tail olive-brown, tinged with rufous on the tail; chin and cheeks black; throat and breast streaked with ashy and white; abdomen rufous; sides, thighs and under tail-coverts olivaceous brown; under wing-coverts rufous"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. A permanent resident on the Palghat hills and the Chinna Coonoor Ghat, Nilgiris; also on the hills of Coorg and the Palnis.

Breeding season, etc. Nothing known at present.

(14) Trochalopterum jerdoni fairbanki (Blanford).

THE TRAVANCORE LAUGHING-THRUSH.

(*Fauna of British India*, 2nd edition, No. 168.)
(*Fauna of British India*, 1st edition, No. 96.)

Description—Male. "Differs from the Banasore Laughing-Thrush in having the forehead, crown and nape black or nearly so; the chin and

cheeks ashy-grey instead of black and the lower parts a much brighter rufous "—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. A permanent resident on Hills of South Travancore, the Palni and Anamalai hills from 3,000 feet upwards. "It is also found in Travancore on the Kanan Devan Hills at 5,000 feet and over "—(*Ferguson*).

Breeding season. February to May.

Nest. The nest of this Thrush has been taken by Messrs. Howard Campbell, Bourdillon and Stewart. It is in shape a deep cup made of moss, roots and tendrills lined with fern-stems and fine bends, etc.

Eggs. 2 or 3 ; cannot be distinguished from those of *T. cachinnans*. An egg in the collection of Mr. C.M. Inglis measures 1·02″ × ·75″.

(15) Trochalopterum jerdoni meridionale (Blanford).

BLANFORD'S LAUGHING-THRUSH.

(*Fauna of British India*, 2nd edition, No. 169.)
(*Fauna of British India*, 1st edition, No 97.)

Description—Male. "Differs from the Banasore Laughing-Thrush in having a much shorter white supercitium with no black lines above it. The lores and whole crown to nape are dusky brown ; the chin is nearly white and the centre of the abdomen also is white"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. A resident of the North Travancore hills at an elevation of over 3,500 feet.

"There are specimens from Chinipanni, the Patnas, Mynall and the Tinnevelly boundary, in the British Museum"—(*Fauna of British India*).

Breeding season. "Found breeding on the 10th June 1906 at Achencoil Gap, Travancore, by Mr. J. Stewart"—(*Stuart Baker*).

Nest. "The nest was a typical *Trochalopterum* nest placed in a scrubby bush in dense forest"—(*Stuart Baker*).

Eggs. "The eggs are like very highly coloured specimens of *T. cachinnans* but more boldly marked than the majority of this latter bird's eggs and with the markings much more numerous. They measure ·99″ × ·76″, 1·02″ × ·76″, and ·98″ × ·75″. The texture is close and fine and there is a considerable gloss. They are very Thrush-like eggs in their general appearance "—(*Stuart Baker*).

Genus **TURDOIDES** Cretzschmar. 1826.

"Differs from the True Laughing-Thrushes of the preceding genera in having the covering membrane of the nostrils more or less covered by plumes, though they have no overhanging hairs. The tail is about the same length as the wing and well-graduated "—(*Fauna of British India*).

THE CHESTNUT-BELLIED NUTHATCH
(*Sitta castanea castanea*).
Two-thirds Nat. Size.

THE JUNGLE-BABBLER
(*Turdoides terricolor terricolor*).
One-half Nat. Size.

(16) Turdoides terricolor malabaricus (Jerd.).

THE SOUTHERN JUNGLE BABBLER.

Plate III.

(*Fauna of British India*, 2nd edition, No. 184.)
(*Fauna of British India*, 1st edition, No. 110.)

Description—Male. Length 9 to 10″; wing 4″; tail 4″; tarsus 1·3″; bill from gape 1·2″. Upper mandible light horny, lower mandible light yellowish; legs pale fleshy; irides pale yellow. Head brownish ashy; rest of upper plumage brownish with pale shafts, the feathers centred grey, rump ashy brown; tail dark brown, shafts pale reddish brown; chin and throat ashy, the feathers tipped light brown; breast rufescent, the feathers centred grey with white quills; abdomen and vent rufescent.

"Differs from the Northern bird in being very much darker above and below, most noticeably so on the chin, throat, breast and flanks. The darker edging to the feathers also show up the central pale streaks more vividly"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. A common permanent resident on the hills up to an elevation of about 6,500 feet. Habits similar to other Babblers.

Breeding season. During the monsoon months.

Nest. Of roots lined finer roots generally placed in a thorny bush.

Eggs. 4; dark glossy blue. Average measurement 1·01″ × 0·78″.

(17) Turdoides griseus griseus (Gmel.).

THE WHITE-HEADED BABBLER.

(*Fauna of British India*, 2nd edition, No. 186.)
(*Fauna of British India*, 1st edition, No. 111.)

Description—Male. Length 9″; wing 4″; tail 4″; tarsus 1·3″, bill from gape ·9″. Bill and legs fleshy; irides whitish. Head and neck whitish; back brown, the feathers pale-shafted; tail brown with the outer feathers tipped white; chin and throat ashy; lower plumage fulvescent.

Female. Similar to male.

Locality, habits, etc. A common permanent residents on the plains especially in and around Madras, and ascends the hills to about 3,000 feet. Like the preceding Babblers this one associates in parties of 6 to 8 and frequents gardens, hedge-rows and clearings. The members of a party seem always to be on the best of terms with one another, hence possibly the local name of "Seven sisters"; they invariably keep close together whether while feeding, at rest, or on the move, probably more for mutual protection than anything else, for they seem to be aware of the feebleness of their flight and fighting powers and their consequent liability to capture by Hawks, though, should one of the party be seized, the others all go gallantly to its rescue and attempt by screaming and mobbing the enemy to effect its release. While at rest they delight to perch close together on a branch, and it is amusing to watch them assisting one another in their toilet; one bird will spread

out its wing or duck its head while another closely inspects its feathers presumably with the object of picking off any "inhabitants" it may find.

Breeding season. Almost throughout the year.

Nest. Of twigs lined roots, rudely made, generally placed in a thorny bush or tree.

Eggs. 4; dark glossy blue. Average measurement 1″ × 0·7″.

(18) Turdoides somervillei (Sykes).

THE BOMBAY BABBLER.

(*Fauna of British India*, 2nd edition, No. 188.)
(*Fauna of British India*, 1st edition, No. 113.)

Description—Male. "Length 10″; wing 4″; tail 4; tarsus 1·3″; bill from gape 1·1″. Bill greyish white; feet fleshy yellow; irides yellowish white; orbits yellow." "Forehead, crown and nape dark brown, the feathers with narrow pale edges: lores white; sides of head and neck, back, wing-coverts and tertiaries paler brown tinged with rufous; the feathers of the back with whiteshafts; rump and upper tail-feathers ferrugineous; tail reddish brown, both tail and tertiaries cross-rayed with blackish; primaries and secondaries black; chin and throat dark brown, each feather with a broad ashy margin; breast brown with broad white shaft-streaks; abdomen, vent and under tail-coverts deep ferrugineous; tail tipped paler below"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. Appears to be rare, one specimen only having been recorded, by Oates, from Kollachal in Travancore. It is fond of hilly country.

Breeding season. Breeds in the Madras Presidency, February to May, or latter.

Nest. Said to the similar to that of its congeners. Mr. E. Aitken writes in *Hume's Nest and Eggs*:—"I once found the nest of the Rufous-tailed Babbler (Bombay Babbler) at Khandalla. I cannot tell the level precisely but it cannot have been far from 2,000 from the sea. It was at the end of May or the very beginning of June. The nest was in a small, spreading tree in level, open forest country. The situation was just such a one as *A. malcolmi* generally chooses—the end of a horizontal branch with no other branches underneath it; but it was not so high as those of *A. malcolmi* usually are, for I could reach it from the ground. The nest was rather flat and contained three eggs, almost hatched, of an intense greenish blue colour".

Mr. Benjamen Aitken found it breeding in date-trees.

Eggs. 2 or 3; blue; or rather paler in colour than "*A. caudata* and measure ·90″ × ·74″."

Genus **ARGYA** Lesson 1831.

"This genus differs from *Turdoides* in its longer tail and in its longer, more slender bill"—(*Fauna of British India*).

(19) Argya caudata caudata (Dumont).

THE COMMON BABBLER.

(*Fauna of British India*, 2nd edition, No. 192.)
(*Fauna of British India*, 1st edition, No. 105.)

Description—Male. Length 8·5″; wing 3·15″; tail 4·2″; tarsus 1·1″; bill from gape 1″. Bill light brown, dark at tip; legs and feet dirty yellow; irides brown. Upper plumage brownish fulvous with broad brown shaft-streaks; quills and tail fulvous brown, margined paler, the latter tinged with olive and cross-rayed, lores brown, ear-coverts rufescent; chin and throat pale fulvous, nearly white; remainder of lower plumage pale fulvous, lighter on abdomen; sides more rufescent with brown shaft-streaks.

Female. Similar to male.

Locality, habits, etc. A common permanent resident as far south as the base of the Palnis; and in Rameswaram Island; it is generally met with in small parties in scrub jungle; its flight is feeble, consisting of a few rapid strokes followed by a sailing on outspread wings, the individuals of the party playing a sort of "Follow my leader" game from bush to bush when disturbed, each showing its resentment at having to "move on" by keeping up a continuous harsh chattering.

Breeding season. Most months of the year.

Nest. Cup-shaped, of grass and roots, placed in bushes.

Eggs. 3 to 4; glossy pale blue; average measurement 0·82″ × 0·68″.

(20) Argya malcolmi (Sykes).

THE LARGE GREY BABBLER.

(*Fauna of British India*, 2nd edition, No. 195.)
(*Fauna of British India*, 1st edition, No. 107.)

Description—Male. Length 11″ to 11·5″; wing 4·75″; tail 5·75″; tarsus 1·2″; bill from gape 1″. Bill horny above; whitish below; legs brownish white, feet darker; irides light yellow, in some instances almost white.

Forehead dark grey with white shaft-streaks; rest of upper plumage fulvous brown with dark centres; ear-coverts brown with white shaft-streaks; lores dusky; wings brown edged whitish fulvous; outer tail feathers white, the 4th pair with only the outer web whitish, remainder of tail feathers fulvous brown; the median feathers cross-rayed; lower plumage pale fulvous, darker and washed with pink on chin and breast.

Female. Similar to male.

Locality, habits, etc. A permanent resident on the Nilgiris; found in scrub jungle in parties of half a dozen or so; in habits, flight, etc., it resembles its congener *A. caudata*.

Breeding season. Throughout the year.

Nest. Cup-shaped, loosely constructed of dry grass, roots and twigs usually placed low down in some thorny bush, preferably a babool.

Eggs. 4; glossy dull blue, sometimes darker, sometimes lighter. Average measurement 1″ × 0·78″.

(21) Argya subrufa (Jerdon).

THE RUFOUS BABBLER.

(*Fauna of British India* 2nd edition, No. 196.)
(*Fauna of British India*, 1st edition, No. 108.)

Description—Male. Length 10"; wing 3·5"; tail 4·5"; tarsus 1·3"; bill from gape 1".

"Upper mandible from gape to nostril chrome yellow; rest of upper mandible blackish brown; lower mandible chrome yellow; legs dark yellowish fleshy; irides creamy white.

Forehead heavy grey with black shafts; whole upper plumage olive-brown with a rufous tinge; lores brown; cheeks, sides of head and neck olive-brown tinged with rufous; lower plumage light rufous paler on the abdomen and suffused with brown on thighs and under tail-coverts; under wing-coverts and edge of wings rufous; tail slightly cross-rayed" —(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. A permanent resident on the Nilgiris, the Western Ghats, the hills of Travancore, and Wynaad, frequenting thick jungle.

Breeding season. February to July.

Nest. Of leaves bound with grass and creepers, placed in a bush or tree.

Eggs. 2 to 4, generally 3; "clear blue with a faint greenish tinge, and usually with a fine gloss. Average measurement ·98 × ·75"—(*Hume N & E*).

Genus **POMATORHINUS** Horsf. 1821.

"Bill long, compressed, pointed, curved throughout; a few rictal bristles; wings short and rounded; 5th and 6th quills longest; tail moderate or long; rounded; tarsi long and stout; hind-toe large; claws large and moderately curved"—(*Fauna of British India*).

(22) Pomatorhinus horsfieldi horsfieldi Sykes.

THE DECCAN SCIMITAR-BABBLER.

(*Fauna of British India*, 2nd edition, No. 206.)
(*Fauna of British India*, 1st edition, No. 120 (part).)

Description—Male. "Length 250 to 260 mm.; wing 100 to 105 mm.; tail 105 to 108 mm. tarsus; 32 mm.; culmen 25 mm."—(*Fauna of British India*).

"Bill yellow, dusky at base of lower mandible; legs and feet greenish plumbeous"—(*Fauna of British India*).

"Upper plumage earthy brown; head the same colour as the back; a white supercilium from the nostrils to the nape; chin, throat, breast and middle of the abdomen white, in many specimens traces of a blackish line dividing the white of the breast from the upper plumage" —(*H. Harington*).

Female. Similar to male.

Locality, habits, etc. A resident of Kanara and the plains of Mysore, Madras and the Deccan—(*Stuart Baker*).

Breeding season. January to May.

Nest. Made of grass and lined with finer grass, placed on the ground in scrub jungle or forest—(*Stuart Baker*).

Eggs., 2 to 5 ; pure white with a rather fragile texture ; 24 eggs average about 1·05″ × 0·65″—(*Stuart Baker*).

(23) Pomatorhinus horsfieldi travancoriensis Harington

THE SOUTHERN INDIAN SCIMITAR-BABBLER.

(*Fauna of British India*, 2nd edition, No. 208.)
(*Fauna of British India*, 1st edition, No. 121.)

Description—Male. Length 8·5″ (Dr. Jerdon says 9·5″) ; wing 3·87″ ; tail 4″ ; tarsus 1·3″ ; bill from gape 1·2″;

Much darker than typical *horsfieldi* ; back a rich olive-brown, head decidedly darker than back and often blotched with black. White of breast and abdomen divided from brown of upper parts by a broad black band. Tail often nearly black at the end—(*Fauna of British India*).

Female. Similar to male.

On the 29th June 1922 Mr. G. Oakes of Downham, Kalhutty, Sigur ghat (elevation 5,500 feet), very kindly sent me a pair of these birds shot in his fruit garden. One was the ordinary type exactly fitting our description given above ; the other was a partial albino of which the following is the description :—Length 8·5″ ; wing 3·5″ ; tail 3·5″ ; tarsus 1·25″ ; bill from gape 1·2″. Bill orange-yellow ; the nostrils and a small portion of the basal part of the upper mandible greenish ; legs and feet pale leaden blue ; soles and claws yellow ; irides red-brown. The whole lower plumage from the chin pure silky white ; upper plumage including the head, white streaked in places with pale brown ; primaries and secondaries white, faintly edged externally with pale brown ; tertiaries white, rather broadly edged on both webs with pale brown ; tertiary coverts darker brown with white tips, the other coverts pure white ; tail white, with some of the feathers edged pale brown—(*H.R.B.*)

Locality, habits, etc. Common on the summit of the hills, scarcer on slopes : is more often heard than seen as it is a shy bird and keeps to the tangled undergrowth of gardens and sholas. It associates in parties of 3 or 4 and keeps up a constant flute-like whistle which may be interpreted in words as " wot-ho-ho-ho " another bird immediately replying, in lower notes, " yes, clear."

" A very pleasing liquid gurgling note "—(*A. P. Kinloch*).

" Travancore, the Nilgiris and Palni Hills "—(*H. Harington*).

Breeding season. January to March. " December to May "—(*Fauna of British India*).

Nest. Large, globular, of leaves and grass, usually placed on the ground under a dense bush.

Eggs. Usually 2, seldom 3 ; pure white, rather elongated. Average measurement, 1·08″ × ·77″.

(21) Argya subrufa (Jerdon).

THE RUFOUS BABBLER.

(*Fauna of British India* 2nd edition, No. 196.)
(*Fauna of British India*, 1st edition, No. 108.)

Description—Male. Length 10"; wing 3·5"; tail 4·5"; tarsus 1·3"; bill from gape 1".

"Upper mandible from gape to nostril chrome yellow; rest of upper mandible blackish brown; lower mandible chrome yellow; legs dark yellowish fleshy; irides creamy white.

Forehead heavy grey with black shafts; whole upper plumage olive-brown with a rufous tinge; lores brown; cheeks, sides of head and neck olive-brown tinged with rufous; lower plumage light rufous paler on the abdomen and suffused with brown on thighs and under tail-coverts; under wing-coverts and edge of wings rufous; tail slightly cross-rayed"—(*Fauna of British India*).

Female. Similar to male.

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Breeding season. February to July.

Nest. Of leaves bound with grass and creepers, placed in a bush or tree.

Eggs. 2 to 4, generally 3; "clear blue with a faint greenish tinge, and usually with a fine gloss. Average measurement ·98 × ·75"—(*Hume N & E*).

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(22) Pomatorhinus horsfieldi horsfieldi Sykes.

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(*Fauna of British India*, 1st edition, No. 120 (part).)

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"Bill yellow, dusky at base of lower mandible; legs and feet greenish plumbeous"—(*Fauna of British India*).

"Upper plumage earthy brown; head the same colour as the back; a white supercilium from the nostrils to the nape; chin, throat, breast and middle of the abdomen white, in many specimens traces of a blackish line dividing the white of the breast from the upper plumage"—(*H. Harington*).

Female. Similar to male.

Locality, habits, etc. A resident of Kanara and the plains of Mysore, Madras and the Deccan—(*Stuart Baker*).

Breeding season. January to May.

Nest. Made of grass and lined with finer grass, placed on the ground in scrub jungle or forest—(*Stuart Baker*).

Eggs. 2 to 5 ; pure white with a rather fragile texture ; 24 eggs average about 1·05″ × 0·65″—(*Stuart Baker*).

(23) Pomatorhinus horsfieldi travancoriensis Harington.

THE SOUTHERN INDIAN SCIMITAR-BABBLER.

(*Fauna of British India*, 2nd edition, No. 208.)
(*Fauna of British India*, 1st edition, No. 121.)

Description—Male. Length 8·5″ (Dr. Jerdon says 9·5″) ; wing 3·87″ ; tail 4″ ; tarsus 1·3″ ; bill from gape 1·2″;

Much darker than typical *horsfieldi* ; back a rich olive-brown, head decidedly darker than back and often blotched with black. White of breast and abdomen divided from brown of upper parts by a broad black band. Tail often nearly black at the end—(*Fauna of British India*).

Female. Similar to male.

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Locality, habits, etc. Common on the summit of the hills, scarcer on slopes : is more often heard than seen as it is a shy bird and keeps to the tangled undergrowth of gardens and sholas. It associates in parties of 3 or 4 and keeps up a constant flute-like whistle which may be interpreted in words as " wot-ho-ho-ho " another bird immediately replying, in lower notes, " yes, clear."

" A very pleasing liquid gurgling note "—(*A. P. Kinloch*).

" Travancore, the Nilgiris and Palni Hills "—(*H. Harington*).

Breeding season. January to March. " December to May "—(*Fauna of British India*).

Nest. Large, globular, of leaves and grass, usually placed on the ground under a dense bush.

Eggs. Usually 2, seldom 3 ; pure white, rather elongated. Average measurement, 1·08″ × ·77″.

Genus **DUMETIA** Blyth 1849.

"Tail much longer than the wing; bill shorter than head, slender and pale coloured"—(*Fauna of British India*).

(24) Dumetia hyperythra Frank.

THE RUFOUS-BELLIED BABBLER.

(*Fauna of British India*, 2nd edition, No. 229.)
(*Fauna of British India*, 1st edition, No. 135.)

Description—Male. Length 5·5″; wing 2·25″; tail 2·5″; tarsus ·7″; bill from gape ·6″. Bill livid pale horny; legs and feet pale fleshy; irides light brown.

Forehead and anterior half of crown reddish brown, the feathers of the former part rigid, pointed, with large fulvous streaks and with the shafts black when viewed in certain lights; feathers round the eye white; upper plumage, tail and exposed parts of wing, olive-brown; tail cross-rayed; cheeks and near the eyes fulvous with paler shafts; ear-coverts somewhat paler than the upper plumage and with pale shafts; entire lower plumage bright fulvous"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. This bird is of a shy disposition, frequenting thick bushes, and very typically Timaliine in its ways. It has the same gregarious, cheerful manners as have the genera *Argya*, etc.

Breeding season. June to August—(*Fauna of British India*).

Nest. "Ball-shaped, of grass, placed on or near the ground in bamboo or grass jungle"—(*Fauna of British India*).

Eggs. 4; "white, speckled with red. Average measurement, 0·67″ × 0·55″"—(*Fauna of British India*).

(25) Dumetia albigularis albigularis Blyth.

THE SMALL WHITE-THROATED BABBLER.

(*Fauna of British India*, 2nd edition, No. 230.)
(*Fauna of British India*, 1st edition, No. 136.)

Description—Male. Length 5·25″ to 5·75″; wings 2″; tail 2·5″; tarsus ·75″; bill from gape ·6″.

Bill and legs fleshy; irides pale yellow; orbital skin pale bluish. Plumage similar to the last but with a pure white throat.

Female. Similar to male.

Locality, habits, etc. Common on the hills at about 4,500 feet, where it frequents thick undergrowth, but the bird being extremely shy is not often seen. It goes about in small parties.

Breeding season. During the monsoon months. "April to July"—(*H. Harington*).

Nest. Small, globular with hole at side, of grass and straw placed in a clump of grasses usually on a bank and near the ground.

Eggs. 3 or 4; white, profusely spotted all over, but more so at the large end, with rusty brown; some underlying purple spots at the large end; average measurement .72″ × .56″.

Genus **PYCTORHIS** Hodgson 1844.

"Bill short deep, without a notch; oval and exposed nostrils; and a long tail much graduated, the outer feathers being about half the length of the central ones"—(*Fauna of British India*).

(26) Pyctorhis sinensis sinensis (Gmel.).

THE INDIAN YELLOW-EYED BABBLER.

(*Fauna of British India*, 2nd edition, No. 234.)
(*Fauna of British India*, 1st edition, No. 139.)

Description—Male. Length 6·5″; wing 2·62″; tail 3·25″ tarsus 1″; bill from gape .6″.

Bill black; legs waxy yellow; irides dark brown with a yellowish outer circle; orbits bright orange.

Above red-brown, more rufous on head and wings; tail dusky; lores, cheeks and whole lower plumage white, tinged rufous on flanks and abdomen.

Female. Similar to male.

Locality, habits, etc. A permanent resident on the hills and plains, ascending the former to about 6,500 feet. Frequents grass or small jungle going about either singly or in parties; it has a very pretty song which it utters while seated on a long piece of grass. (According to Bright it holds its prey down with its foot).

Breeding season. "June to August"—(*Barnes*).

Nest. "Cup-shaped, of grass and fibres lined with fine grass, placed in the small fork of a tree; sometimes it is suspended between stalks of growing corn or reeds"—(*Barnes*).

Eggs. 3 or 4; pale salmon, profusely speckled and streaked, or else sparingly but boldly blotched with brick-red. "Some eggs have a pinkish white ground, thickly mottled and speckled with bright, deep, brick-dust red; others have the pinkish white ground, but are boldly though sparingly blotched with patches and streaks of blood or bright brick-red, interspersed with a few inky purple spots or clouds; between these two types every variety is met with"—(*Barnes*). Average measurement .73″ × 59″.

Genus **PELLORNEUM** Swains. 1831.

"The tail is shorter than the wing, but is equal to or longer than twice the length of the tarsus; the bill is about equal to or a little more than three-fourths the length of the head, straight and notched at the tip; the nostrils are not overhung by hairs; the rictal bristles are very short"—(*Fauna of British India*).

(27) Pellorneum ruficeps ruficeps (Swains.)

THE SPOTTED BABBLER.

(*Fauna of British India*, 2nd edition, No. 240.)
(*Fauna of British India*, 1st edition, No. 144.)

Description—Male. "Length 7·5" ; wing 2·9" ; tail 2·8" ; tarsus 1·05"; bill from gape ·9" "—(*Fauna of British India*).

Bill horny above, fleshy beneath ; legs fleshy ; irides red.

Above olive-brown, crown and forehead rusty ; a yellowish white stripe from nostrils over eyes to nape ; ear-coverts light brown ; chin, throat, abdomen and vent white ; breast and flanks white tinged fulvous, with large olive-brown spots.

Female. Similar to male.

Locality, habits, etc. Found on the hills between 2,000 and 6,000 feet ; is not often seen owing to the fact that it is extremely shy and keeps to the thick undergrowth. Not found in Travancore. Observed by Mr. W. A. Hasted at Palmaner, Chittoor District.

Captain B. Russell has furnished us with the following notes :— "Common in the Saklaspur District of Mysore, elevation about 3,500 feet. An extremely shy bird, associating in parties of a dozen or so, skulking under the undergrowth and in ravines.

They very seldom perch, but sometimes run along the ground like a Wagtail, and sometimes hop—I know of no other bird that does both. They have a pleasing song which may be represented by '*Du*-did-*du*-du-du, did-*du*-du-du-did—' always in a descending scale and ending abruptly as if half-finished, when another member of the party takes up the song.

They nest here in April, May and June, the nest being composed of dried grass, large for the size of the bird, domed, with an opening at the side always facing away from the west, and placed usually at the bottom of a bush or stump.

The eggs are as you describe below, but I am uncertain about the underlying lilac specks and smudges."

Breeding season. March and April.

Nest. Of dry grass, with a canopy, placed on the ground under a bush.

Eggs. 3 or 4 ; white ground finely speckled with rusty red and having underlying lilac specks and smudges, denser towards the thick end where they form a cap. Average measurement 0·88" × 0·65".

(28) Pellorneum ruficeps granti Harington.

THE TRAVANCORE SPOTTED BABBLER.

(*Fauna of British India*, 2nd edition, No. 242.)
(*Fauna of British India*, 1st edition, No. 144 (part).)

Description—Male. Adult—Length 178 mm.; culmen 18 mm. ; wing 76 mm. ; tail 66 mm. ; tarsus 28 mm.

Irides dark red-brown ; bill above black, below boney white ; legs, feet and clans pale fleshy.

Similar to *Pellorneum ruficeps ruficeps* (Swains.) but altogether a much darker and more richly coloured form. Head dark chestnut; supercilium from behind the eye pale buff with dusky tips.

Locality, habits, etc. "Travancore"—(*H. Harington*).

"Common on the Nelliampathy Hills"—(*A. P. Kinloch*).

"Coorg, Wynaad and South-west Mysore"—(*Stuart Baker*).

Found between 1,500 and 4,000 feet, principally at about 2,000 feet.

Habits similar to those of the last bird.

Breeding season. Nothing recorded.

Nest. } Not distinguishable from those of *Pellorneum ruficeps*
Eggs. } *ruficeps*.

Genus **ALCIPPE** Blyth 1844.

"The wing and tail are about equal in length; the bill is stout and slightly curved, and the nostrils are overhung by some long hairs springing from the base of the forehead. The tail is but slightly graduated"—(*Fauna of British India*).

(29) Alcippe poioicephala poioicephala (Jerdon).

THE NILGIRI QUAKER-BABBLER.

(*Fauna of British India*, 2nd edition, No. 288.)
(*Fauna of British India*, 1st edition, No. 164.)

Description—Male. Length about 6"; wing 2·75"; tail 2·25"; tarsus ·8"; bill from gape ·7". Bill horny, pale at gape and on edges; legs fleshy; irides greenish white.

Head and nape ashy; back and rump olive-green, tinged rufous on rump; darker rufous on tail and wings; chin and throat whitish; rest of lower plumage fulvous.

Female. Similar to male.

Locality, habits, etc. Fairly common in jungles and wooded *nalas* on the hills up to about 4,500 feet. Mr. Ferguson in his "Birds of Travancore" (Bo. Nat. Hist. Soc. Journal, Vol. XV. 2) says "This Babbler is fairly common at an elevation of 2,000 feet and upwards. On the High Range it is perhaps more abundant than elsewhere;" but it descends to be level of the plains in winter where not breeding.

Breeding season. June to August or later.

Nest. Of straw, moss, dead leaves, etc., lined with fibres and roots, attached to a branch of a bush.

Eggs. 2; purplish or pinkish white with smudges, spots and lines of reddish purple. Average measurement 0·80" × 0·61".

Genus **RHOPOCICHLA** Oates 1889.

"Differs from *Alcippe* in having the nostrils rounder, exposed and pierced in anterior part of membrane, and in having a shorter tail when compared with the wing"—(*Fauna of British India*).

(30) Rhopocichla atriceps atriceps (Jerdon).

THE BLACK-HEADED BABBLER.

(*Fauna of British India*, 2nd edition, No. 294.)
(*Fauna of British India*, 1st edition, No. 166.)

Description—Male. Length 5·5″; wing 2·3″; tarsus ·9″; bill from gape ·7″.

"Bill, upper mandible black with commissure fleshy pink, lower mandible fleshy pink; legs and feet plumbeous or fleshy pink; irides bright yellow.

Forehead, crown, nape, ear-coverts and under eye, black; upper plumage wings and tail fulvous brown; lower plumage dull white, changing to olivaceous on the flanks and under tail-coverts"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. Found sparingly on the hill ranges up to 5,000 feet.

"Very common (on the Nelliampathy Hills). Found six young last week (February), are usually found in the thick greenery bordering a stream at the edge of a shola. I have always found them in large flocks of 12 to 24 birds, often in company with our Babblers"—(*A. P. Kinloch*).

Breeding season. About January to June.

Nest. "Egg-shaped, of blades of grass in clumps of bamboo or weeds near the ground"—(*Fauna of British India*).

Eggs. "2 or rarely 3; white speckled with brownish and purplish red; average length 0·77″; average breadth 0·55″"—(*Fauna of British India*).

(31) Rhopocichla atriceps bourdilloni (Hume).

BOURDILLON'S BABBLER.

(*Fauna of British India*, 2nd edition, No. 295.)
(*Fauna of British India*, 1st edition, No. 168.)

Description—Male. Length 5·3″; wing 2·2″; tail 1·9″; bill from gape ·7″.

Bill above black, below pale slaty; legs and feet dull brown; irides white.

Like the last but the black of the crown, nape, lores and cheeks replaced with brown, whilst the lower parts are ferruginous.

Female. Similar to male.

Locality, habits, etc. Mr. H. S. Ferguson writing to the Bo. Nat. Hist. Soc. Journal says "This Babbler is found only in Travancore where it is common throughout the whole of the Hill Range; it goes about in small parties and frequents the underwood uttering a low chattering continually. It is perhaps more frequently met with at about 2,000 feet. But I have shot it at 6,000 feet in the High Range and also at Kutyani in the low country 8 miles from Trivandrum."

Breeding season. March to May—(*T. F. Bourdillon*).

Nest. Mr. T. F. Bourdillon writes "I once had the nest of this bird brought to me with the bird itself and have since twice taken the nest myself.

In the last instance the nest was placed within two feet of the ground and was a domed structure not unlike that of "*Ochromela nigrorufa*," but in addition to the exterior frame of woven cerul leaves there was a lining of very fine roots."

Eggs. 2; white, sparingly speckled with rusty red, the spots larger and denser at the thick end. Average length 0·8"; average breadth 0·52".

Since Bourdillon found this bird, Mr. J. Stewart has taken numerous nests and eggs. A fine series in the collection of Mr. Stuart Baker agree well with Bourdillon's description.

Sub-family LIOTRICHINÆ.

"Sexes invariably dissimilar; solitary or occurring in small troops; colours brilliant; habits entirely arboreal; colour of egg usually spotted"—(*Fauna of British India*).

Genus **ÆGITHINA** Vieill. 1816.

"Bill about two-thirds the length of the head, with the culmen nearly straight, notched and pointed; wings very rounded, tail short and square. Plumage of rump remarkably soft and copious, and the males are in the habit at times of puffing it out"—(*Fauna of British India*).

(32) Ægithina tiphia tiphia (Linn).

THE COMMON IORA.

Plate IV.

(*Fauna of British India*, 2nd edition, No. 362.)
(*Fauna of British India*, 1st edition, No. 243.)

Description—Male. Length 5·25"; wing 2·5"; tail 2": tarsus ·75"; bill from gape ·7". Bill plumbeous, culmen horny; legs plumbeous; irides dark brown.

Head and neck glossy black; back black, the feathers tipped green; upper tail-coverts green; tail glossy black; wings black, the primaries faintly edged yellow, a white wing-spot; chin, throat, cheeks, sides of neck and the breast light yellow; all other parts paler yellow.

Female. All upper plumage green except the tail which is greenish brown; primaries black edged light yellowish green; a white wing-spot; face, chin, throat and all lower parts yellowish green.

Locality, habits, etc. Very common on the plains, but scarce on the hills which it ascends to about 4,500 feet. (Mr. Ferguson states that he has not met with it at all in the hills of Travancore and Mr. A. P. Kinloch says it is rare on the Nelliampathy Hills). It frequents gardens, topes and scrub jungle, and while searching amongst the leaves for insects keeps up a constant loud call which consists of two principal sets of notes; one that reminds us of the word "Bour-ba-kee", and the other which commences with a long drawn-out high

note followed by a shorter low note, or as Mr. Ferguson aptly expresses it "a prolonged plaintive indrawn whistle on 'A' sharp falling to a short note on 'F' sharp."

Breeding season. Most nests will be found between the months of June and September, though one may occasionally be found as early as April.

Nest. A beautifully made cup of fibres and fine roots coated with cobwebs, placed on the horizontal branch of a tree where it looks more like a knobby excrescence than a nest.

Eggs. 2 or 3 ; creamy white with streaks and blothes of pale brown and inky, formed in a zone round the large end ; it is typical of the eggs of this species, that the streaks run lengthways with the eggs. It is also remarkable that in Madras the tone of the egg is nearly always pink ; whereas in the North and North-west of India it is nearly always grey. Average measurement .69″ × .52″.

(33) Ægithina tiphia zeylonica Gmel.

THE CEYLON IORA.

(*Fauna of British India*, 2nd edition, No. 363.)
(*Fauna of British India*, 1st edition, No. 243 (part).)

Description—Male breeding. "Above from crown to rump much blacker than in the last bird and where the bases of the feathers show through these are much narrower, especially on the extreme upper back.

The non-breeding male and female are a much darker green above than *Æ. t. tiphia*.

Locality, habits, etc. Ceylon and S. Travancore only. Nidification and habits as in the last"—(*Fauna of British India*).

Genus **CHLOROPSIS** Jard. and Selby 1826.

"Bill slender and curved and about as long as the head ; tip notched and nostrils oval ; rictal bristles weak ; frontal feathers advanced up to the nostrils ; head not crested ; wing rounded ; tail short and square ; tarsus short, shorter than middle toe with claw"—(*Fauna of British India*).

(34) Chloropsis aurifrons davidsoni Stuart Baker.

THE MALABAR CHLOROPSIS.

Plate IV.

(*Fauna of British India*, 2nd edition, No. 369.)
(*Fauna of British India*, 1st edition, No. 248.)

Description—Male. Length 7·75″ ; wing 3·75″ ; tail 2·75″ ; tarsus 7″ ; bill from gape 1″.

Bill black ; legs plumbeous green ; irides dark brown.

Forehead light golden ; the whole upper plumage green ; a broad black stripe from the nostrils through the eyes down the sides of the

THE IORA
(*Aegithina tiphia tiphia*).
Female on nest.
Male.
Two-thirds Nat. Size.

THE GOLD-FRONTED CHLOROPSIS
(*Chloropsis aurifrons aurifrons*).
Male.
Two-thirds Nat. Size.

neck ; chin, throat and upper breast black ; a bright cœrulean-blue stripe from gape for about half an inch down each side of neck ; shoulders brilliant torquoise-blue.

Female. Somewhat smaller than the male and wants the golden forehead. Chin and throat pale green.

Locality, habits, etc. Found in the dense jungles of Malabar and on the hills up to about 4,500 feet.

"Common on the Nelliampathy Hills"—(*A. P. Kinloch*).

Breeding season. They have two breeding seasons, one before the rains break and again at the termination.

Nest. A shallow cup of roots, fine twigs, moss, etc., placed in the outer branches of high trees.

Eggs. The nest and eggs have been taken by Mr. T. R. Bell, the Conservator of Forests in Kanara. Ground colour an extremely pale pink, profusely speckled and freckled with pinkish red. In shape they are long ovals and in texture fine but not very glossy. The normal clutch is 2.

(35) Chloropsis jerdoni (Blyth).

JERDON'S CHLOROPSIS.

(*Fauna of British India*, 2nd edition, No. 374.)
(*Fauna of British India*, 1st edition, No. 252.)

Description—Male. "Length 7·5" ; wing 3·5" ; tail 3·25" ; tarsus ·7" ; bill from gape ·9". Bill black ; legs and feet pale slaty grey ; irides dark brown.

Lores, chin and throat black ; moustachial streak glistening blue ; forehead, ear-coverts and a band round the black, greenish yellow ; lesser wing-coverts bright azure blue ; remainder of plumage green"—(*H. J. Walton*).

Female. "Black of the male replaced by pale bluish green and the cheek-stripe is bright greenish blue"—(*Fauna of British India*).

Locality, habits, etc. "A very common bird in the low country (Travancore) and at the foot of the hills but does not ascend them"—(*Ferguson*).

Found in the forests of Malabar—(*H.R.B.*).

Observed by Mr. W. A. Hasted at Palmaner, Chittoor District.

This is a very favourite cage-bird in parts of Madras, and in captivity is almost entirely frugivorous in its diet.

Breeding season. April and August.

Nest. "Shallow cup-shaped of vegetable fibres and fine roots and stems of weeds ; at the extremity of one of the upper branches of a tree some 20 feet from the ground"—(*Fauna of British India*).

Eggs. 2 ; whitish marked with definite sparse spots of black or dark shades of brown. Average measurement 0·86" × 0·6".

Sub-family PYCNONOTIDÆ.

"Sexes alike ; solitary or occuring in small troops ; habits entirely arboreal ; tarsi very short, never exceeding in length the middle toe or claw'; wing more pointed and longer than in the *Timaliidæ* ; nape usually furnished with some hairs ; colour of egg so far as is known spotted "—(*Fauna of British India*).

Genus **MICROSCELIS** Gray 1840.

"Bill slender, about as long as the head ; a pointed crest ; rictal bristles very short, not exceeding a third of the length of culmen ; wing sharp, secondaries falling short of tip by a considerable distance ; tail distinctly forked and outer feathers curved outwards ; tarsus smooth and very short being between a sixth and a seventh of the length of the wing "—(*Fauna of British India*).

(36) Microscelis psaroides ganeesa (Sykes).

THE SOUTH INDIAN BLACK BULBUL.

(*Fauna of British India*, 2nd edition, No. 389.)
(*Fauna of British India*, 1st edition, No. 271.)

Description—Male. Length 9·75″ to 10″ ; wing 4·75″ ; tail 4·12″ ; tarsus ·75″ ; bill from gape 1·2″. Bill orange vermilion ; legs deep orange ; irides brown.

Head with short crest glossy black : whole upper plumage dark blackish grey ; whole of lower plumage dark grey, lighter on the vent ; under-tail-coverts tipped white.

Female. Similar to male.

Locality, habits, etc. A very common permanent resident on the hills from about 3,000 feet upwards ; associating in flocks, it is met with almost everywhere, where there are tall trees. It is a dreadfully noisy bird, its cries being heard almost the whole day long as the flock passes from tree to tree in search of food.

According to Mr. A. P. Kinloch the flocks break up in February and the birds then go about in pairs.

Breeding season. March to June.

Nest. Cup-shaped, of twigs and leaves, placed as a rule very high up in an Eucalyptus or other tree.

Eggs. 2 ; pale pink speckled and blotched with deep red and pale purple, confluent towards the large end. Average measurement 1·1″ × 0·75″. The eggs are very large for the size of the bird.

Genus **MOLPASTES** Hume 1873.

"Wing blunt ; the tail slightly rounded ; crest thick and of considerable length springing from every portion of crown and nape ; nuchal hairs extremely short "—(*Fauna of British India*).

(37) Molpastes hæmorrhous hæmorrhous (Gmel.).

THE CEYLON RED-VENTED BULBUL.

Plate V.

(*Fauna of British India*, 2nd edition, No. 398.)
(*Fauna of British India*, 1st edition, No. 278.)

Description—Male. Length 8″; wing 3·5″; tail 3·37″; tarsus ·85″; bill from gape ·85″. Bill black; legs horny black; irides dark brown.

Head, chin and throat black; upper plumage, neck and breast brown, the feathers edged pale except on lower back; upper tail-coverts white; tail blackish brown tipped white; wings brown, all except the primaries pale-edged: abdomen white; under tail-coverts crimson.

Female. Similar to male.

The species figured is a race of this and only differs in the shade of colour.

Locality, habits, etc. Very common on the plains, but becomes scarcer as the hills are ascended, Mr. Ferguson in his notes on the Birds of Travancore (Bo. Nat. His. Soc. Journal No. XV 2) says that he has never met with it in the Hills (of Travancore). I fancy he must have overlooked it, as it certainly occurs on the summits of the Nilgiris. It is by no means a shy bird, frequenting gardens and often building amongst the creepers on the trellis-work of one's verandah; its principal food consists of insects, caterpillars and berries, but it is also extremely fond of fruits and often pays the penalty for robbing strawberry beds and orchards. It is easily tamed and makes a charming pet if allowed to fly about one's house at will. I had one, years ago, in Cannanore that would fly up and sit on my finger to eat fruit, but unfortunately when the breeding season came on it took advantage of its liberty to go in search of a mate and never returned—(*H.R.B.*).

"Not found on the Nelliampathy Hills"—(*A. P. Kinloch*).

Breeding season. March to August. Nests of eggs and young are found so early and so late in the season that we think this Bulbul has often two broods in the year.

Nest. Of twigs and moss lined hair; sometimes also made of blades of coarse dry grass; placed in any low thick bush, often without any attempt at concealment, in fact, as we have stated above, the bird is not at all shy and does not fear the presence of human beings in the least.

Eggs. 2; sometimes 3; white, profusely spotted and blotched with dark red and purple. Average measurement ·86″ × ·65″.

Genus **OTOCOMPSA** Cabanis 1851.

"Crest very long confined to middle of crown; feathers of nape quite short; shafts of the feathers of the back soft"—(*Fauna of British India.*)

(38) Otocompsa emeria fuscicaudata (Gould).

THE SOUTHERN RED-WHISKERED BULBUL.

(*Fauna of British India*, 2nd edition, No. 411.)
(*Fauna of British India*, 1st edition, No. 289.)

Description—Male. Length 8″ to 8·5″; wing 3·5″; tail 3·75″ to 4″; tarsus ·8″; bill from gape ·85″. Bill and legs black; irides brown.

A tuft of crimson feathers on lower eyelids; head with crest black the crest pointed forwards; neck, back, rump and upper tail-coverts brown; tail dark brown; chin and throat white; breast ashy white with a brown collar: vent and under tail-coverts crimson.

Female. Similar to male.

Locality, habits, etc. A very common permanent resident on the hills, frequenting gardens, scrub jungles, Tea and Coffee estates, in fact, everywhere except in very dense forests. Ferguson, in his list of the "Birds of Travancore" writes that it is "the commonest of all Bulbuls and is found in the low country and throughout the hills, including the High Range up to 6,000 feet."

We also found it common at sea-level on the Malabar Coast but do not remember having seen it on the East Coast. Its food consists chiefly of caterpillars, insects and berries, but it is also a bold robber of the fruit garden.

Breeding season. February to July. Mr. A. P. Kinloch has found nests on the Western Ghats from 22nd November to the end of December as well as during the hot weather.

Nest. A neatly-made compact cup of twigs, moss, wool, etc., lined hair; the nests are exceedingly abundant on the Nilgiris, being found in Coffee or Tea-bushes, gorse bushes, garden hedges and such like places, anywhere in fact where the leaves are at all thick.

On 1st June 1922 at Kalhutty on the Sigur Ghat, at about 5,000 feet elevation I found a nest containing 2 fresh eggs placed in the bank at the side of a steep zigzag path through a coffee plantation. I had never found this Bulbul's nest or indeed any Bulbul's, in a bank before. Close by this one there was another R. W. Bulbul's nest containing 3 fresh eggs built in the usual manner in a coffee bush. The odd part if it was that only a few days previously a friend, Mr. T. H. Wapshare of Neduvattam, Nilgiris, had written to tell me he had seen a R. W. Bulbul's nest on his estate in a similar position and he enquired if I had ever seen or heard of such a case before, to which I had then replied in the negative—(*H.R.B.*)

Eggs. 2; sometimes 3; white, spotted all over with rusty red, and with a few underlying purple spots. Average measurement 0·91″ × 0·62″.

Genus **IOLE** Blyth 1844.

"Feathers of the crown are slightly lengthened, but they do not form a crest; bill about three-quarters the length of the head; nuchal hairs short"—(*Fauna of British India*).

(39) Iole icterica (Strickland).

THE YELLOW-BROWED BULBUL.

(*Fauna of British India*, 2nd edition, No. 419.)
(*Fauna of British India*, 1st edition, No. 295.)

Description—Male. Length 8″ to 8·25″; wing 3·62″; tail 3·5″; bill black; legs plumbeous black or pale blue; irides red or wood brown. Plumage above bright olive green; a stripe from nostrils over eyes and the whole of the lower plumage light yellow; wings dusky on their inner webs; shafts of tail-feathers beneath bright yellow.

Female. Similar to male.

Locality, habits, etc. "Common from an elevation of 6,500 feet downwards to foot of Ghats"—(*Davison*).

"A very common bird chiefly frequenting secondary jungle, wandering about in small flocks and feeding almost entirely on seeds and fruits"—(*F. W. Bourdillon*).

"Extremely common on the Nelliampathy Hills, also now (February ?) going in pairs instead of the usual noisy flocks"—(*A. P. Kinloch*).

Breeding season. March to May.

Nest. Of twigs and grass, placed in the fork of a tree.

Eggs. 2 or 3; pale pinkish speckled with light brownish red. Average measurement 0·96″ × 0·67″.

Genus **PYCNONOTUS** Kuhl. 1826.

"Crestless; bill of small size; nuchal hairs obsolete or small; solitary in habits and arboreal, and it is a rare occurrence to see any of them on the ground"—(*Fauna of British India*).

(40) Pycnonotus xantholæmus (Gould).

THE YELLOW-THROATED BULBUL.

(*Fauna of British India*, 2nd edition, No. 430.)
(*Fauna of British India*, 1st edition, No. 302.)

Description—Male. "Length 7·5″; wing 3·3″; tail 36‴; tarsus ·8″; bill from gape. 8″. Bill and legs black; irides red. Forehead, crown and sides of the head, yellowish green; the feathers near the nostrils dusky; chin and throat bright yellow; upper plumage grey; the upper tail-coverts tinged with green; wings and tail brown; outer webs washed with yellowish green and the tail-feathers tipped with yellowish white; breast and sides of the neck and of the body grey turning to whitish on the abdomen; under tail-coverts and edge of wings bright yellow; thighs dull yellow; under wing-coverts pale yellow"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. As little appears to have been recorded about this bird in the past, it is extremely interesting to read the article in the Bo. Natural History Soc. Journal, Vol. XVIII-4, dated from Bellary, 6th June 1908, and contributed by Mr. P. Roscoe Allen. He states *inter alia* that "the specimens I obtained in the extreme South of the

Cuddapah District on a peak of the Eastern Ghats, tallied exactly in dimensions and markings with Oates' description. The irides are brown . . . I succeeded on the 29th April in obtaining a specimen of the Yellow-throated Bulbul ; the bird is exceedingly shy and restless at the end of May they were not uncommon on the hill. Observed by Mr. W. A. Hasted at Udayagiri, Nellore District."

Breeding season. "On the 15th May I found a nest of this bird ; it was placed on the ground amongst dead leaves and between two over-arching granite boulders . . . I subsequently observed the bird on the nest."

Nest. "It was a very ordinary Bulbul's nest containing three eggs, much like the eggs of other species of the Bulbul family ; they measured 0·83" × 0·67".

Eggs. "On the 20th May, I found another nest containing eggs ; this was placed in a dwarf palm"—(*Roscoe Allen*). One of these birds was also shot and identified by Colonel C. L. Wilson, R. A., at Bellary on the 13th June 1901 (*vide* Vol. XVIII-4, page 907. Bo. Nat. Hist. Soc. Journal).

(41) Pycnonotus gularis (Gould).

THE RUBY-THROATED BULBUL.

(*Fauna of British India*, 2nd edition, No. 431.)
(*Jerdon, No* 455.)
(*Fauna of British India*, 1st edition, No. 303.)

Description—Male. "Length 6·5" ; wing 3" ; tail 2·75" ; tarsus 5·5" ; bill from gape ·7". Bill black ; legs greenish dusky ; irides light yellow. Head and cheeks pure glossy black ; plumage above yellowish green ; chin-spot black ; throat of a beautiful shining ruby-red, the feathers divided and somewhat bristly ; rest of plumage beneath yellow ; quills with their inner webs dusky"—(*Jerdon's III of Ind. Orrith*).

Female. Similar to male.

Locality, habits, etc. Rare and appears confined to ten forests of the West Coast up to about 2,500 feet ; found in light deciduous jungle such as that which so scantily clothes the Northern precipices of the Nelliampathy Hills.

Davidson says "Found in Kanara."

Ferguson says be found it in open forest at the foot of the hills (Travancore) and also in thick forest at about 2,000 feet.

Nest. "A small cup outwardly composed of a mass of large dead leaves formed with a few roots and spider's webs lined fine roots and grass." The nest is generally placed in a low bush—(*Davidson*).

Eggs. "2 ; very small, pink colour mottled thickly all over with very small dark reddish brown and purple spots"—(*Davidson*).

(42) Pycnonotus luteolus (Lesson).

THE WHITE-BROWED BULBUL.

(*Fauna of British India*, 2nd edition, No. 433.)
(*Fauna of British India*, 1st edition, No. 305.)

Description—Male. Length 7·5" ; wing 3·37" ; tail 2·87" ; tarsus ·9" ; bill from gape ·95" ; bill and legs horny black ; irides red.

Chin whitish, tinged yellow ; neck and breast yellowish white, tinged ashy, somewhat brown on the breast ; under tail-coverts and rump bright yellow ; a yellow patch on each side of the lower mandible at the gape ; a white stripe from the nostrils over the eyes to the ear-coverts ; another from the gape under the eyes ; top of head ashy brown ; neck and back olive-green, tinged brown ; upper tail-coverts yellowish green ; tail brown edged yellowish green, externally ; wings olive-green, outer edge of primaries bright yellow-green. Axillaries bright pale yellow.

Female. Similar to male.

Locality, habits, etc. A common resident on the plains though locally distributed. We met with it in numbers around Madras, at Trichinopoly and on the West Coast where it frequents gardens and scrub jungle. It is said to ascend the hills to about 3,000 feet.

Breeding season. March to May.

Nest. Of the usual Bulbul type.

Eggs. 2 or 3 ; reddish white with dark red spots. Average measurement 0·92″ × 0·62″.

Genus **MICROTARSUS** Eyton 1839.

" Feathers of head short and glossy ; bill about half the length of head and rictal bristles well developed ; upper tail-coverts reach to near the tip of tail ; tail rounded."—(*Fauna of British India*).

(43) Microtarsus poiocephalus (Jerdon).

THE GREY-HEADED BULBUL.

(*Fauna of British India*, 2nd edition, No. 441.)
(*Fauna of British India*, 1st edition, No. 313.)

Description—Male. " Length 7″ ; wing 2·9″ ; tail 2·9″ ; tarsus ·6″ ; bill from gape ·77″. Bill pale green ; legs and feet fleshy tinged orange ; irides blue-grey. Fore-head olive-yellow ; chin blackish ; cheeks greyish yellow ; remainder of head clear bluish grey ; upper sides of neck, back and scapulars olive-green ; rump-feathers black with broad yellow tips ; upper tail-coverts and the four middle tail-feathers bluish grey with dark shafts, the others black broadly edged on both webs and tipped with bluish grey ; the basal two-thirds of all suffused with olive-green wings black ; all the feathers edged with olive-green ; the outer webs of the innermost secondaries being wholly of this colour ; breast, abdomen and flanks oil-yellow ; under tail-coverts bluish grey "—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. A forest bird, very locally distributed and found only on the slopes of the hills.

Sir A. Cardew writing to the Bo. Nat. His. Soc. Journal, Vol. V, makes the following remarks which are well worth quoting *in extenso* :—

" This bird though probably very local " is not rare on some slopes of the Nilgiris, and I was fortunate enough to find several nests.

Nest. "The nest is of the usual Bulbul type but exceedingly slight and flimsy in structure so that it can easily be seen through and it is usually fastened by a few spider's threads to the branch of a small shrub at about 3 ft. from the ground. The nest is very shallow, being less than an inch deep inside by over two inches and a half broad. The birds breed in deep forest at an elevation of about 4,000 feet above the sea."

Breeding season. In the months of June and July and lay.

Eggs. "2 eggs, which, when new, are very handsome. The ground-colour is a faint pinky white, almost free from markings at the smaller end, while at the larger end it is covered with deep red markings forming a complete zone and spreading in scattered blotches and spots over two-thirds of the egg. The colour is at first particularly deep and rich, but within a week of the egg being blown it fades to such an extent that the eggs become duller in tone than those of the common Bulbuls '*Otocompsa*' and '*Molpastes*.' The eggs measure 0·9″ × 0·6″ and are decidedly elongated ovals, compressed at the smaller end."

Family CERTHIIDÆ.

"Wing with ten primaries; tongue non-tubular; nostrils clear of the line of the forehead; the space between the nostril and edge of the mandible less than the space between the nostril and culmen; plumage of nestling resembles that of adult female but paler; nostrils bare; rictal bristles absent"—(*Fauna of British India*).

Genus **SALPORNIS** Gray 1847.

"It has an extremely long, pointed wing, with a minute first primary and the second primary reaches to the tip of the wing. The foot is also differently shaped to that of *Certhia*. But the most remarkable feature is that it builds a cup-shaped nest *on* a branch of a tree, thus deviating entirely from the habits of all other creepers. The position of this bird requires further investigation. The bill is long, slender and curved downwards; the tarsus is short, and the hind claw is much shorter than hind toe. The tail is composed of twelve soft rounded feathers and nearly square.

The sexes are alike and the young are similar to the adult and there is nothing to lead to the belief that there is any spring moult"—(*Fauna of British India*).

(44) **Salpornis melanotus** (Frankl.).

THE SPOTTED GREY CREEPER.

(*Fauna of British India*, 2nd edition, No. 456.)
(*Fauna of British India*, 1st edition, No. 347.)

Description. "Length about 6″; tail 2·3″; wing 3·5″; tarsus ·65″; bill from gape 1″. Legs and feet dark plumbeous; bill above dark blackish horny, below pale horny; irides dark brown.

Whole upper plumage, wings and tail black, spotted and barred with white; forehead and crown brownish; a broad white supercilium;

lores and a line through the eye unspotted black; chin and throat white, the sides of the latter sometimes speckled with black; lower plumage pale cinnamon—fulvous barred with black and with white tips to some of the feathers "—(*Fauna of British India*).

Locality, habits, etc. Occurs rarely on the extreme north-west of Madras.

These birds keep to the largest trees, running round the stems in all directions and flying with a steady flight, not unlike that of a Woodpecker, but swifter and more elegant.

Breeding season. April.

Nest. A nest was taken by Mr. Cleveland at Hattin in the Gurgaon District and a note is given on it in Humes "*Nest and Eggs.*" It says "This nest was placed on a large Ber-tree in a patch of preserved jungle at a height of about 10 ft. from the ground. It was cup-shaped, placed on the upper surface of a horizontal bough at the angle formed between this and a vertical shoot to which it was attached on one side, the other three being free. It was composed entirely of bits of leaf-stalks, tiny bits of leaves, chips of bark, the dung of caterpillars, all cemented together everywhere with cobwebs, so that the whole nest was a firm but yet soft and elastic mass. It contained two young and one addled egg.

Eggs. 2 or rarely 3 in number. The egg according to Hume's "*Nests and Eggs*" is a very regular oval. slightly broader at one end; the shell fine and fairly glossy; the ground-colour is pale greenish white; round the large end there is an irregular imperfect zone of blackish brown specks and tiny spots and round about these is more or less of a brown nimbus, and over the rest of the egg a very few specks and spots of a blackish dusky and pale brown, all scattered. It measures 0·68″ × 0·53″.

Family TURDIDÆ.

"Plumage of nestling mottled or squamated to a greater or less extent; nostrils not covered by any hairs; one moult in year but frequently supplemented by a seasonal change of plumage caused by the casting off of the margins of the feathers in Spring. Rectrices usually twelve, very seldom fourteen "—(*Fauna of British India*).

Sub-family BRACHYPTERYGINÆ.

"Sexes usually dissimilar; solitary; tarsus usually very long and smooth; wing usually rounded and short; habits strictly terrestrial; colour of the egg usually spotted "—(*Fauna of British India*).

The young, as shown by Cardew, are spotted.

Genus **BRACHYPTERYX** Horsf. 1821.

"Bill about half the length of the head, strong and broad at base; nostrils long ovals and overhung by greatly lengthened shafts of frontal feathers; rictal bristles long; wing short and rounded; tarsus smooth and of considerable length; tail short and square or nearly so. Sexes alike "—(*Fauna of British India*).

(45) Brachypteryx major major (Jerdon).

THE RUFOUS-BELLIED SHORTWING.

(*Fauna of British India*, 2nd edition, No. 481.)
(*Fauna of British India*, 1st edition, No. 194.)

Description—Male. Length 6·37″; wing 3″; tail 2·5″; tarsus 1·1″; bill from gape ·8″; Bill black; legs pale reddish ashy; irides yellow brown.

The whole upper plumage, throat, neck and breast slaty blue, more ashy on the breast; lores black; rump white tipped pale rusty; tail black edged blue: wings blackish brown edged blue; lower breast and vent white; flanks, abdomen end under tail-coverts pale rufous, tinged ashy on flanks.

Female. Similar to male, but more dingy in colour.

Locality, habits, etc. Fairly common on the tops of the hills; found only in dense sholas; very shy and retiring, therefore not often noticed.

"An enthusiastic collector-friend of mine, for years a resident in Ootacamund would not believe that I had obtained specimens of this bird in the vicinity of that town, until I took him to a particular shola that I knew it frequented, where after a long and tedious wait hidden amongst bushes, I was able to show him a pair. We noticed that the birds could be attracted by imitating their feeble, piping whistle" —(*H.R.B.*)

Breeding season. March to June.

Nest. Of moss lined with fine roots and fibres, placed in hollows of trees in banks or in the vertical fork of a bush. It is remarkable that a bird so shy by nature should so often select a conspicuous place as a nesting-site; its nest, according to my experience, generally being easily found. On the 25th May 1922, I found a newly-completed but empty nest answering the above description in the upright fork of a Barberry bush close to a cart-track through a shola. The bush was on a 2-foot bank at the edge of the shola and not more than 2 feet from the road, and the nest was about 4 feet from the ground, but although in such a conspicuous position could easily have been mistaken for a clump of moss growing in the fork. Four days later I again visited the nest which I found them contained 2 eggs, and while I was in hiding to watch for and identify the owner (which turned out to be a Rufous-bellied Shortwing) two boys passed along the track driving a herd of cattle, and there were also natives close at hand felling and sawing trees. As above stated, it is curious that so shy a bird, which is seldom seen unless specially looked for, should choose a nesting-site so close to a road which is in daily use—(*H.R.B.*).

Eggs. 2; olive-coloured, peppered all over but chiefly in a cap at the large end with minute red spots. Average measurement ·91″ × ·66.″

(46) Brachypteryx major albiventris (Fairbank).

THE WHITE-BELLIED SHORTWING.

(*Fauna of British India*, 2nd edition, No. 482.)
(*Fauna of British India*, 1st edition, No. 193.)

Description—Male. Length 6·5″; wing 3·2″; tail 2·6″; tarsus 1·15″; bill from gape ·9″. Bill black; feet leaden black; irides buff.

"Lores and a narrow frontal band velvety black ; above these a band of bluish white ; remainder of plumage as in the last bird but the chestnut replaced with slaty-blue on the lower plumage"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. A permanent resident in the forests on the Palni Hills, but being a very shy bird it is not often seen. Mr. H. S. Ferguson states that it is found throughout the whole of the Travancore Hills at an elevation of over 3,000 feet.

Breeding season. May and June.

Nest. "Of moss, placed in a hole in a tree"—(*Fauna of British India*).

Eggs. "2 ; cannot be distinguished from those of the last bird." Average measurement ·93″ and ·63″.—(*Fauna of British India*).

Genus **LARVIVORA** Hodgson 1837.

Bill slender, about half the length of head and the nostrils are long ovals ; wing somewhat pointed ; the first primary of comparatively small size ; tarsus slender and long, and tail much shorter than wing ; the sexes differ in colour "—(*Fauna of British India*).

(47) Larvivora brunnea Hodgs.

THE INDIAN BLUECHAT.

(*Fauna of British India*, 2nd edition, No. 484.)
(*Fauna of British India*, 1st edition, No. 191.)

Description—Male. Length 6″, wing 3″ ; tail 2″ ; tarsus 1·1″ ; bill from gape ·7″.

Bill blackish, legs pale brown ; irides brown.

Lores, cheeks, ear-coverts and sides of neck black ; a white supercilium from forehead to beyond the eyes ; plumage above dull blue, below bright rufous, white towards the vent and under tail-coverts.

Female. Whole upper plumage and lesser upper wing-coverts olive-brown, tinged with russet on upper tail-coverts ; greater coverts and quills brown suffused with rufous on outer webs ; the former also distinctly tipped with rufous ; tail brown suffused with russet ; forehead, lores and sides of head rufous mottled with brown ; sides of chin and throat and whole breast pale fulvous, deeper and margined with brown on breast and middle of chin ; abdomen and under tail-coverts white ; sides of body plain fulvous "—(*Fauna of British India*).

Locality, habits, etc. "A not uncommon visitor to the slopes of the hills during the cold months "—(*A. G. Cardew*).

"Somewhat rare on the Nelliampathy Hills "—(*A. P. Kinloch*).

Breeding season, etc. Breeds in the Himalayas.

Sub-family SAXICOLINÆ.

"They have an autumn moult and a further seasonal spring change in colouration caused by the abrasion of the fringes of the feathers. The sexes are almost invariably dissimilar "—(*Fauna of British India*).

Genus **SAXICOLA** Bechst. 1802.

"Bill rather less than half the length of head, broad at base and well notched ; rictal bristles very strong : tail shorter than wing, outer feathers reaching nearly to tip ; wing rather sharp, first primary varies from one-half to one-third length of second ; sexes dissimilar "—(*Fauna of British India*).

(48) Saxicola caprata atrata (Kelaart).

THE SOUTHERN INDIAN STONE-CHAT.

(*Fauna of British India*, 2nd edition, No. 493.)
(*Fauna of British India*, 1st edition, No. 609.)

Description—Male. Length 6″ ; wing 3·12″ ; tail 2·5″ ; tarsus ·9″ ; bill from gape ·75″.

Bill and legs black, irides dark brown.

Plumage above black ; rump white tipped pale reddish ; a band on wings and shoulders, white ; plumage beneath blackish brown ; under tail-coverts white.

The young male does not get the white wing band till his second year.

Female. Length 5·5″ ; wing 3″ ; tail 2·37″.

Bill and legs horny black ; irides dark brown. Above dusky brown, the feathers pale edged ; wing-coverts edged pale rufous, a white wing-stripe ; rump and upper tail-coverts pale rufous ; beneath reddish brown, the feathers centred dark brown ; vent and under tail-coverts pale reddish.

Nestling—like the female but with the lower plumage paler and spotted darker.

Locality, habits, etc. A very common permanent resident on the hills from about 4,000 feet upwards, frequenting gardens, open glades, etc., where it delights to perch upon the topmost twig of a bush or on a post every now and then flying down to the ground to pick up an insect and returning again to its perch. On the Nilgiris it is usually known as the Nilgiri Robin from its habit of flicking up its tail like the English Robin.

Breeding season. February to May.

Nest. Of moss, grasses, fibres, roots, etc., placed in holes of banks or walls.

Eggs. 3 or 4 ; pale bluish, spotted all over but chiefly at the large end with rusty brown. Average measurement ·75″ × ·58″.

(49) Saxicola torquata indica (Blyth).

THE INDIAN BUSH-CHAT.

(*Fauna of British India*, 2nd edition, No. 495).
(*Fauna of British India*, 1st edition, No. 610).

Description—Male. Length 5″ to 5·25″ ; wing 2·75″ ; tail 1·9″ to 2·12″ ; ratsus ·8″ ; bill from gape ·65″.

Bill and legs black ; irides brown.

Lores, cheeks and ear-coverts black ; rump and upper tail-coverts white tipped rusty ; rest of upper plumage black tipped light rufous ; tail blackish brown edged and tipped rufescent white : chin, throat and neck black, narrowly tipped pale rufous ; a large patch on each side on neck white tipped rusty ; remainder of plumage below rusty-coloured fading to almost white on the abdomen and vent.

Female. Upper plumage like the male but brown replaces the black ; rump and upper tail-coverts rufous ; lores and ear-coverts dusky ; no white patch on sides of neck and chin, and the throat-patch fulvous instead of black ; lower plumage duller and paler than in the male.

Locality, habits, etc. I can find no record of its having been observed in this Presidency but include it as I am convinced it must visit us during the cold weather and has been overlooked. Barnes records it as a common winter visitor to all parts of Bombay, so that it is very likely it also visits at any rate the northern borders of the Presidency. As its name implies it frequents open country dotted with bushes, and is usually seen perched upon the top of some low bush or stalk of grass from which it darts off after its insect food, returning generally to the the perch it left to devour its victim, after the manner of Flycatchers—(*H.R.B.*). "In winter to the hills in the North of Mysore and Travancore"—(*Stuart Baker*).

Breeding season, etc. Breeds in Kashmir.

Sub-family PHŒNICURINÆ.

"Tarsus smooth with hardly an exception ; rictal bristles present ; habits terrestrial ; the insect food captured on the ground"—(*Fauna of British India.*)

Genus **PHŒNICURUS** Forster 1817.

"Tail nearly square considerably larger than twice tarsus ; sexes different ; lice short, slender and black, and rictal bristles moderate or short ; wing sharply pointed ; first primary less than half the second ; tarsus of moderate length"—(*Fauna of British India*).

(50) Phœnicurus ochrurus phœnicuroides Moore.

THE KASHMIR REDSTART.

(*Fauna of British India*, 2nd edition, No. 531).
(*Fauna of British India*, 1st edition, No. 644 (part)).

Description—Male. Length 6" ; wing 3·62" ; tail 2·75".

Bill and legs black ; irides dark brown.

Crown slaty ; lores, cheeks, chin, throat and breast, the back and wing-coverts black with pale grey edges to the feathers of the breast ; wings black edged pale rufous ; rump, upper tail-coverts and lower plumage bright rufous ; the two central tail-feathers brown with rufous shafts, the remainder rufous.

Female. General plumage dusky brown, more rufous on the breast ; the rump, tail and under tail-coverts as in the male.

Locality, habits, etc. A fairly common winter visitor to the plains where it is met with in gardens and groves. It is a very tame and confiding bird, not fearing to enter one's verandah in search of food. Flies and insects seem to form its staple food which it secures usually upon the ground, darting down upon them from some tree-twig and returning to its perch with its victim after the manner of Flycatchers.

Breeding season. Breeds in the Himalayas, Baluchistan, etc.

Genus **CYANOSYLVIA** Brehm. 1828.

"Tail very short only twice the length of tarsus and chestnut at base. The males moreover have the chin and throat a brilliant blue. The females are of a dull colour, but have the tail chestnut as in the male"—(*Fauna of British India*).

(51) Cyanosylvia suecica pallidogularis (Sarud.).

THE EASTERN RED-SPOTTED BLUE-THROAT.

(*Fauna of British India*, 2nd edition, No. 537.)
(*Fauna of British India*, 1st edition, No. 647 (part).)

Description—Male. Length 6″; wing 3″; tail 2·3″; tarsus 1·1″; bill from gape ·75″.

Bill and irides dark brown; legs dusky fleshy.

Upper plumage brown; the feathers of the head with dark centres; supercilium fulvous; chin and throat glistening blue, then a large chestnut spot and below this a broad band of glistening blue; below this again is a black band and below this one of chestnut; remainder of lower plumage buffish white; lores black; tail brown, all except the median feathers with chestnut at base.

Female. Upper plumage and tail like the male; lower plumage buffy white with a gorget of brown feathers across the breast.

Locality, habits, etc. This bird has a wide distribution passing, according to Seebohm, through Central and Southern Europe and Palestine and visiting India, Ceylon and Burma during the cold weather. It keeps greatly to undergrowth and crops like sugarcane.

Breeding season. Breeds outside Indian limits, etc.

Genus **SAXICOLOIDES** Lesson 1831.

"Tarsus well developed but scutellated; bill slender and curved downwards; rictal bristles very small; wing long and pointed"—(*Fauna of British India*).

(52) Saxicoloides fulicata fulicata (Linn.).

THE BLACK-BACKED INDIAN ROBIN.

(*Fauna of British India*, 2nd edition, No. 556.)
(*Fauna of British India*, 1st edition, No. 662.)

Description—Male. Length 6·5″; wing 3″; tail 2·75″; tarsus 1″; bill from gape ·75″.

THE RED-VENTED BULBUL
(Molpastes cafer cafer).
Three-quarters Nat Size

THE INDIAN MAGPIE-ROBIN
(Copsychus saularis saularis).
One-half Nat. Size.

Bill, legs and feet black ; irides brown.

Whole plumage glossy bluish-black except a patch at the shoulder of the wings, across the lesser and part of the median coverts white, and the undertail-coverts and vent, which are chestnut ; wings brown.

Female. Lores, forehead and chin ashy tinged rufous ; ear-coverts pale rufous ; upper plumage mouse-brown tinged rufous, the wing-coverts edged paler ; wings dark-brown edged paler ; lower plumage ashy ; middle of abdomen and the under tail-coverts pale chestnut ; tail almost black.

Locality, habits, etc. A common permanent resident on the plains and on the hills to about 3,000 feet. It is a tame and confiding little bird, chiefly frequenting gardens and the vicinity of houses ; a pair used regularly to visit my verandah and would fearlessly hop into the house in search of crumbs that had fallen underneath the dining table.

Breeding season. March to July.

Nest. Of fibres, grasses, hair, etc., placed in a hole in a wall or tree.

Eggs. 2 to 4 ; bluish white speckled and spotted with rusty brown. Average measurement ·75 × ·57″.

Genus **COPSYCHUS** Wagler 1827.

"Tail about equal to wing in length, considerably graduated and coloured black and white. Sexes different, although both present the same pattern of colour"—(*Fauna of British India*).

(53) Copsychus saularis saularis (Linn.).

THE INDIAN MAGPIE ROBIN.

Plate V.

(*Fauna of British India*, 2nd edition, No. 558).
(*Fauna of British India*, 1st edition, No. 663 (part).).

Description—Male. Length 8·75″ ; wing 4″ ; tail 3·75″ ; tarsus 1·1″ ; bill from gape 1″.

Bill and legs black ; irides dark-brown.

Whole upper plumage glossy black with blue reflections ; shoulders and wing-coverts pure white ; tail with the two central pairs of feathers black, the next white on the outer web and tib ; the remainder all white ; throat, neck and breast glossy black, the rest of the lower plumage pure white.

Female. Similar to male except that the glossy black in the male is replaced by dull ashy black.

Locality, habits, etc. This fine songster is a permanent resident of the plains and on the hills to an elevation of 5,000 feet, but is nowhere common. It is not found in extreme south-west Travancore. Like most of the Robin tribe, it is tame and confiding, and prefers to haunt gardens, orchards, etc. I have occasionally seen it caged, but do not

know whether it sings in confinement ; I rather fancy that the natives keep them for fighting, the cock-birds being very pugnacious—(*H.R.B.*)

Breeding season. February and March in the South, but in the Northern part of their area they breed from end of March to end of July.

Nest. Of roots, grass and fibres, placed in a hole or hollow of a tree.

Eggs. 3 or 4 ; pale greenish or bluish green, spotted all over but chiefly at the large end with pale-red. "I have had two clutches of pale blue eggs without any markings brought to me, curious to say both brought at practically the same time ; each time the bird was got on the nest" (*C.M.I.*) average length 0·94″ ; average breadth 0·69″.

(54) Copsychus saularis ceylonensis (Selater).

THE CEYLON MAGPIE ROBIN.

(*Fauna of British India*, 2nd edition, No. 560.)
(*Fauna of British India*, 1st edition, No. 663 (part).)

Description—Male. "Only differs from the male of the Indian Magpie Robin in having much more black on the third and fourth outer pairs of tail-feathers and in having a shorter more slender bill.

Female. Much darker above and below than the Indian bird and has the black and white patterns on the tail-feathers the same as in the male."—(*Fauna of British India*).

Young bird. "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 greyish-brown mottled with rufous."—(*W. E. Wait.*)

Locality, habits, etc. According to Mr. Stewart it occurs in South Travancore. Writing of this bird in "The Passerine Birds of Ceylon, Spolia Zeylonica, February 1922," Mr. W. E. Wait says :—"It is equally abundant in town gardens, village compounds, cultivated lands.

Breeding season. "Scrub-jungle and open forests....., the breeding season is generally from March to August, but at times in the early part of the north-east monsoon.

Nest. "The nest is rather a rough structure of grass, root-fibres, etc., 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-grey. The markings tend to coalesce at the layer end but very considerably in distribution, average size ·92″ by ·69″."

Genus **KITTACINCLA** Gould 1836.

"Tail much longer than wing"—(*Fauna of British India*).

(55) Kittacincla macroura indica S. Baker.

THE INDIAN SHAMA.

Plate VI.

(*Fauna of British India*, 2nd edition, No. 563.)
(*Fauna of British India*, 1st edition, No. 664 (part).)

Description—Male. Length about 11″; wing 3·75″; tail 6·25″ to 6·5″; tarsus 1·1″; bill from gape 1″. Bill black; legs fleshy; irides dark brown.

Whole head, neck, upper breast, back and wing coverts glossy black; rump and upper tail-coverts pure white; wings and tail dull black; the outer tail-feathers broadly tipped white; breast, abdomen and under tail-coverts deep chestnut.

Female. Length about 8·5″; wing 3·37″; tail 4·5″.

Similar to male, but the black is not glossy and there is some white on the abdomen.

Locality, habits, etc. This splendid songster, or I should say, "whistler" is essentially a forest bird, frequenting deep and shady, though not too thick forests at the foot of the hills to an elevation of perhaps 1,500 feet. Being an exceedingly shy bird it is not often seen, though its whistle is heard at all times of the day in the particular patch of forest frequented by it. The surest way to obtain a glimpse of it is to go to its haunts, and when it whistles, to imitate it, when the Shama (the cock-bird) will gradually approach the hiding place of the rival whistler, no doubt with the object of fighting and driving away what it imagines to be another cock-bird of its own species—(*H.R.B.*)

Observed by Mr. W. A. Hasted in the Chamala Reserve, Chittoor District.

Breeding season. April to June.

Nest. Of leaves and grass, placed in a hole in a tree, usually low down.

Eggs. 3 to 5; very similar to those of "*Copsychus saularis*," but if anything darker. Average measurement ·81″ × ·6″.

Sub-family TURDINAE.

"Tarsus smooth; rictal bristles present; habits terrestrial and arboreal, the species being both insectivorous and frugivorous.

Genus **TURDUS** Linn. 1752.

"Bill about half length of head; rictal bristles moderate; wing long and sharp; first primary small; tail rather ample and tarsus long; underside of wing no pattern."

(56) Turdus merula simillimus (Jerdon).

THE NILGIRI BLACKBIRD.

(*Fauna of British India*, 2nd edition, No. 556.)
(*Fauna of British India*, 1st edition, No. 667.)

Description—Male. Length 10″ to 10·5″; wing 5″ to 5·5″; tail 4″; tarsus 1·25″; bill from gape 1·2″. Bill orange; legs yellow; irides dark brown.

"Forehead, crown and nape black ; whole upper plumage and exposed wings and tail dark ashy brown ; the lower plumage, axillaries and under wing-coverts dark brown, the feathers obsoletely edged paler"—(*Fauna of British India*).

Female. "Above bark ashy brown, below brownish grey, the chin and throat paler and streaked with dark brown ; in some specimens there are obsolete pale shaft-stripes on the feathers of the breast and abdomen"—(*Fauna of British India*).

Locality, habits, etc. This splendid songster is a permanent resident on the Nilgiris, where its beautiful rich notes, reminding one of the English Black-bird, may be heard at all hours of the day in gardens and sholas, at any rate during the breeding season, but unfortunately it is, like its English congener, passionately fond of fruit, more especially of strawberries, and numbers of the birds are ruthlessly slaughtered annually by garden owners who seem to forget or do not pause to realize the great amount of good these birds otherwise do by preying upon grubs, slugs and other pests. What a pity it is that fruit-growers at Home and abroad do not study the habits, food, etc., of the feathered visitors to their gardens and orchards.

Although on occasions when frightened it utters a "chuck, chuck, chuck," I do not remember ever hearing it give vent to the shrill squeaking cry when scared out of a thicket or hedge-row as does the English bird"—(*H.R.B.*).

Breeding season. From February to June or later ; and I am inclined to believe that two broods are usually reared in the year—(*H.R.B.*).

Nest. A substantial structure of twigs, moss, roots and grass, roughly built outside. The sites chosen for the nests are varied, but usually in some open spot, such as the fork of a tree, in the bank of a nala, a bush in a garden, or hole in a bank or rock.

Eggs. 4 ; the ground-colour varies from light blue to greeny-blue, mottled and blotched with reddish brown, and with a few underlying purple spots. Average measurement 1·12″ × ·8″.

(57) Turdus merula bourdilloni (Seebohm).

BOURDILLON'S BLACKBIRD.

(*Fauna of British India*, 2nd edition. No. 568.)
(*Fauna of British India*, 1st edition, No 669.)

Description—Male. Length 9·5″; wing 4·6″ to 5″; tail 3·6″ to 4″; tarsus 1·25″; from gape 1·2″. Bill, legs, feet and claws bright orange-red ; irides dark brown."

"Whole upper plumage deep black ; tail black ; wings black ; whole lower plumage blackish brown"—(*Fauna of British India*).

Female. "Upper plumage dark brown tinged with olivaceous ; chin and throat whity brown, and lower plumage fulvous ashy"—(*Fauna of British India*).

Locality, habits, etc. A permanent resident on the hills of South Travancore and on the Palnis. "Fairly common on the High Range and above 3,500 feet in the South (Travancore). It may be found feeding on the jungle roads in the twilight, both morning and evening. It is a shy and silent bird"—(*Ferguson and Bourdillon*).

Breeding season. "Breeds April to June"—(*Ferguson and Bourdillon*).

Nest. "Of moss, soots and small twigs lined with grass and roots"—(*Ferguson and Bourdillon*).

Eggs. "Probably 4; colour pale green spotted and blotched with reddish brown of two shades; the markings having a tendency to collect at the large end; length 1·12″ to 1·18″ × 0·88″ to 0·9″"—(*Ferguson and Bourdillon.*)

(58) Turdus merula nigropileus (Lafres).

THE BLACK-CAPPED BLACKBIRD.

(*Fauna of British India*, 2nd edition, No. 569.)
(*Fauna of British India*, 1st edition No. 671.)

Description—Male. "Length 10·5″; wing 5·1″; tail 4″; tarsus 1·2″; bill from gape 1·2." Bill dull pale orange; legs dull pale yellow; irides dark brownish red.

"Forehead to nape and sides of head black; hind neck, interscapulars, sides of neck and whole lower plumage, brownish grey, more rusty on the breast and more grey on the flanks, and the centre of the abdomen albescent; remainder of upper parts, wings and tail dark ashy, the tail darker and browner than the back.

Female. "Whole upper plumage ashy brown, the cap slightly darker and browner, the rump greyer; ear-coverts pale-shafted; chin and throat grey, streaked with brown"—(*Fauna of British India*).

Locality, habits, etc. A permanent resident on the Nilgiris and in Mysore, but is rather rare.

Mr. A. P. Kinloch writing from the Nelliampathy Hills says:—

"Very common. Generally terrestrial in habits and occurring in pairs but I have seen large flocks in *lantana*."

Breeding season. May to July.

Nest. Of twigs and grass mixed with earth and moss.

Eggs. 3 or 4; greenish white, blotched, spotted and speckled with brownish red and pale purple, slightly denser at the end. Average measurement 1·1″ × ·8."

Genus **GEOCICHLA** Kuhl. 1836.

"Sexes different; under wing-coverts and axillaries each of two colours, the position of the two colours on the under wing-coverts being transposed on the axillaries"—(*Fauna of British India*).

(59) Geocichla wardi (Jerdon).

THE PIED GROUND-THRUSH.

(*Fauna of British India*, 2nd edition, No. 584.)
(*Fauna of British India*, 1st edition, No. 683.)

Description—Male. Length 8·5″; wing 4·5″; tail 3·3″; tarsus 1″; bill from gape 1·15″.

Bill ochre yellow, tip of upper mandible black ; legs and feet ochre ; irides brown.

Whole head, neck, breast, upper plumage, wings and tail black ; lesser and median wing-coverts very broadly tipped with white ; greater wing-coverts and quills tipped with white, except the earlier primaries which with the primary-coverts are partially margined with white ; the rump and upper tail-coverts with crescentic white tips ; tail with a considerable amount of white increasing in extent from middle feathers to outer ; white supercilium to nape ; abdomen, vent and under tail-coverts white ; sides of body and axillaries white, each feather with a sub-terminal black bar ; under wing-coverts black tipped white "—(*Fauna of British India*).

Female. "Upper plumage and wings olive-brown ; all the wing-coverts and tertiaries with buff tips ; the outer webs of the quills suffused with russet ; the longer feathers of the rump and upper tail-coverts tipped with dull white ; tail olive-brown, the portion next the shafts darker ; the 4 outer pairs of feathers tipped white ; a broad buff supercilium to nape ; sides of head and throat mixed buff and black ; chin nearly plain white ; middle of throat and upper breast pale buffish white, each feather margined with dark brown ; lower breast, upper abdomen and sides of body barred with olivaceous and suffused with ochraceous ; middle of abdomen, vent and under tail-coverts white " —(*Fauna of British India*).

Locality, habits, etc. A rare winter visitor ascending the hills to about 3,000 feet. Brooks says this species has a strange song of two notes and quite unmusical.

Mr. A. P. Kinloch writing from the Nelliampathy Hills on 22nd March says :—" Sometime ago I noticed a Pied Ground-Thrush up here. This is the first time I have seen this bird on these Hills and I do not think I would have passed over such a conspicuous species had it been of regular occurrence. I therefore believe that this bird merely breaks its journey here on its imigration from more southerly latitudes in the same manner as does the Woodcock (*Scolopax rusticola*).

Breeding season, etc. Breeds in the Himalayas.

(60) Geocichla citrina citrina (Lath.).

THE ORANGE-HEADED GROUND-THRUSH.

(*Fauna of British India*, 2nd edition, No. 587.)
(*Fauna of British India*, 1st edition, No. 686.)

Description—Male. Length 8·7″; wing 4·65″; tail 3·25″; tarsus 1·3″; bill from gape 1·1″.

Bill deep horny, base of lower mandible pale bluish; legs purplish fleshy; irides deep brown; eyelids plumbeous.

Head, neck and lower plumage (except the vent) brownish orange ; head darker ; chin and abdomen paler ; vent and under tail-coverts and thighs white ; remainder of upper plumage bluish slaty, centre of feathers darker ; median wing-coverts with broad white tips forming a spot ; greater coverts slightly tipped white ; quills brown ; outer webs bluish slaty ; middle tail-feathers like the back, remainder brown cross-rayed and tipped with dull white ; a white patch on the underside of the quills.

Female. Generally, but not invariably, of a paler shade of orange; feathers of back and scapulars with greenish yellow margins; wings brown with outer webs greenish yellow and tail suffused with the same colour.

Locality, habits, etc. A very rare visitor; Sir. A. G. Cardew procured one from Madras.

Breeding season, etc. Breeds in the Himalayas and Assam.

(61) Geocichla citrina cyanotis (Jard. and Selby).

THE WHITE-THROATED GROUND-THRUSH.

(*Fauna of British India*, 2nd edition, No. 588.)
(*Fauna of British India*, 1st edition, No. 685.)

Description—Male. "Length 8·5"; wing 4·1"; tail 3"; tarsus 1·2"; bill from gape 1·1".

"Bill black; feet fleshy; irides dark brown."

"Forehead, crown, nape, hind neck and sides of neck, head, abdomen and sides of body golden rufous; crown tinged with greenish; vent and under tail-coverts white; back, rump, upper tail-coverts, scapulars and wing-coverts slaty blue; median wing-courts broadly tipped white; quills dark brown margined on the outer web with pale slaty; tail slaty blue outer feathers tipped pale; lores, cheeks, chin and throat white; an oblique brown band from the eye downwards, succeeded by a band of white behind it running down the neck and by another brown band running through the middle of the ear-coverts; followed again by a narrow patch of white; axillaries white with ashy rufous; under wing-coverts slaty blue, tipped with white; a large patch of white on the underside of the quills"—(*Fauna of British India*).

Female. "Differs from the male in having the back, scapulars, the outer webs of the secondaries and many of the wing-coverts suffused with olive-green"—(*Fauna of British India*).

Locality, habits, etc. Very common on all the Western Ghats and is probably resident wherever found, though it may move vertically with the seasons. According to Ferguson and Bourdillon it is a cold weather visitor to Travancore.

It frequents heavy forest between 2,000 and 4,000 feet, but in "the coffee districts it is most abundant in the coffee, under the thick cover of which it hops about in the mulch of the dead leaves scattering them with its bill while searching for insects. When alarmed it will sometimes fly up on to the branch of a shade-tree, a habit common to other birds that are ground-feeders." It has a peculiarly sweet though plaintive song, seldom uttered and then usually at sunset and at dawn" —(*A. P. Kinloch*).

Breeding season. June to September.

Nest. Of grass, roots and mud, placed in a bush.

Mr. A. P. Kinloch found a nest on the Nelliampathy Hills on the 22nd September and writes:—The nest was in a coffee tree some 6 feet up from the ground and was only a few yards from a cooly line; it was thick and composed of moss and dead leaves lined copiously with fine twigs—it had no mud worked into it, as Gerdon mentions is the rule.

It contained 3 hard set eggs which were salmony white in colour marked with reddish brown.

Eggs. 3 or 4 ; white spotted, speckled and blotched with reddish brown ; at the large end the markings are confluent and form a cap ; there are also some purplish grey spots. Average measurement 1″×·76″.

Genus **OREOCINCLA** Gould 1837.

"Sexes alike in colouration : axillaries and under wing-coverts of two colours ; arrangement of colours in axillaries transposed in under wing-coverts ; lower plumage distinctly barred or spotted ; rictal bristles few and confined to the gape "—(*Fauna of British India*).

(62) Oreocincla dauma nilgiriensis (Blyth).

THE NILGIRI THRUSH.

(*Fauna of British India*, 2nd edition, No. 596.)
(*Fauna of British India*, 1st edition, No 699.)

Description—Male. Length 9·5″ ; wing 5″ ; tail 3·5″ ; tarsus 1·2″ ; bill from gape 1·5″.

Bill blackish horny, fleshy near chin ; gape yellow ; legs fleshy ; irides brown ; eyelids orange.

Top of head and neck dark brown tipped blackish and with medial spots of pale rufous ; upper plumage deep olive-brown, more rufous on lower back and upper tail-coverts, each feather having two terminal bars, the first of light rufous, the second blackish ; tail light reddish brown ; wings olive-brown on the outer webs, blackish on the inner, tertiaries rufous on the outer webs and tipped pale reddish fawn secondaries deep reddish with a terminal broad blackish bar forming a wing-band ; shoulders white, ditto a broad bar on the inside of the wings ; beneath white, the feathers broadly tipped deep brown, closer and slightly tinged rufous on breast and flanks ; abdomen almost white, vent entirely so ; under tail-coverts with a few faint dusky spots or bars ; sides of head and neck rufous brown tipped light reddish.

Female. Similar to male.

Locality, habits, etc. This handsome Thrush is a permanent resident on the summit of the Nilgiris. Mr. H. S. Ferguson writes that it occurs, though rare, on the hills of Travancore (Bo. N.H.S. Journal, Vol. XV-3). It is an extremely shy and retiring bird, frequenting quiet shady corners of gardens and dark silent parts of the forests where, however, there is little or no undergrowth. There appears to be a difference of opinion among observers as to whether this Thrush does or does not sing ; some say it has a rich, melodious voice, others that it is a beautiful songster ; others again—and amongst them my friend Sir A. G. Cardew, I.C.S.—maintain that it has no song. I can, however, personally vouch for the fact that it does sing, for I have often heard it and seen it while singing in the sholas around Ootacamund. Its song is not continuous like that of the English Thrush or Blackbird, but is a loud, mellow whistle consisting of two or three notes repeated once or twice with an interval in between and followed by other notes

similarly repeated, or it may be by a trill or two as a variation, much like a school boy learning to play the flute or penny whistle. The best time to hear the birds is at dawn or at sunset, and during the spring and summer months; they do not sing during the day nor are they often heard during the cold months. A pair has for a long time frequented my garden at Ootacamund and I have constantly seen them searching for insects amongst the dead leaves under the bushes; they are not, however, confiding like their English cousin, but usually make off as soon as they see or hear one—(*H.R.B.*).

Breeding season. The monsoon months.

Nest. A large neatly made structure of moss and twigs, lined with roots and placed, usually, on the horizontal fork of a tree in deep shady forest.

Eggs. 2 or 3; bluish thickly peppered with faint red specks. Average measurement 1·24″×·9″.

Genus **MONTICOLA** Boie 1822.

"Axillaries and under wing-coverts in males of one colour, in females more or less barred with two colours; lower plumage of males wholly blue or chestnut combined with blue or black, in females squamated; tail very much longer than half wing"—(*Fauna of British India*).

(63) Monticola cinclorhyncha (Vigors).

THE BLUE-HEADED ROCK-THRUSH.

(*Fauna of British India*, 2nd edition, No. 606.)
(*Fauna of British India*, 1st edition, No. 691.)

Description—Male. Length 7·5″; wing 4·12″; tail 3″; tarsus 1″; bill from gape 1·1″.

Bill horny black; legs and irides brown.

Head, nape and shoulders blue, the feathers of the two former tipped pale brown; Lores, ear-coverts, back and wings black tipped pale brown; rump and upper tail-coverts rusty orange; a white wing-spot; tail blank edged blue; chin and throat pale blue; neck, breast and under tail-coverts rusty orange.

Female. Upper plumage buffy olive, yellower on the rump and upper tail-coverts which have dull black bars; sides of head mixed buffy white and brown; eyelids buffy; chin and throat fulvous white; lower plumage white; breast and sides of body orange-buff with dark brown crescentic bars, except on the abdomen; wings brown; the outer webs dull buffy rufous.

Locality, habits, etc. A somewhat rare winter visitor to most of the hills, but Mr. A. P. Kinlock writing from the Nelliampathy Hills says:—"Common; arrives early in October and leaves about the first week in March."

Breeding season, etc. Breeds in the Himalayas.

(64) Monticola solitaria pandoo (Sykes).

THE INDIAN BLUE ROCK-THRUSH.

(*Fauna of British India*, 2nd edition, No. 608.)
(*Fauna of British India*, 1st edition, No. 693.)

Description—Male. Length 9″ ; wing 4·75″ ; tail 3·5″ ; tarsus 1·2″ ; bill from gape 1·2″.

Bill and legs black, irides brown.

Plumage throughout dull indigo ; the head, nape, neck, breast and back marked with brown and the abdomen with white ; the under tail-coverts tipped white and with a narrow sub-terminal dusky bar.

Female. After the autumn moult—the upper plumage together with the wings and tail resembles the same parts in the male, but are of a very dull blue ; the lower plumage is pale buffy white, each feather sub-terminally margined with black ; the under wing-coverts, axillaries and under tail-coverts barred with black.

Locality, habits, etc. A common winter visitor to the hills and plains. It is a solitary though by no means shy bird and frequents open rocky places, also villages, cantonments, graveyards, etc., where it delights to perch upon the roofs and walls. If undisturbed it will become quite tame. "Last cold season one took up its residence in my compound and used to hop about the verandah and into the house quite fearlessly, and even if frightened away would come back again after a few minutes. I used to watch it day after day to see if I could spot it feeding, but in vain."—(*C.M.I.*).

They eat all kinds of insects, worms, termites and even tiny lizards and frogs.

Breeding season, etc. Breeds in the Himalayas.

Genus **MYIOPHONEUS** Temminck 1823.

"Bill very stout, but somewhat shorter than the head, compressed laterally and hooked at the tip. The nostrils are round and broad ovals. The wing is rounded. The legs and feet are remarkably strong.

The young birds are very similar to the adults, but for the first few weeks or perhaps months the brilliant glossy spots of the adults are absent. The adults of both sexes resemble each other"—(*Fauna of British India*).

(65) Myiophoneus horsfieldii Vigors.

THE MALABAR WHISTLING-THRUSH.

(*Fauna of British India*, 2nd edition, No. 613.)
(*Fauna of British India*, 1st edition, No. 189.)

Description—Male. Length 12″ ; wing 6·2″ ; tail 4·5″ ; tarsus 1·9″ ; bill from gape 1·6″.

Bill and legs black ; irides deep brown.

"Lores and forehead deep velvety black ; anterior crown bright cobalt blue ; whole head, neck and mantle black, shading into deep blue on upper back, tail-coverts and tail ; lesser wing-coverts bright cobalt blue ; wing feathers black edged with blue except on the terminal

(64) Monticola solitaria pandoo (Sykes).

THE INDIAN BLUE ROCK-THRUSH.

(*Fauna of British India*, 2nd edition, No. 608.)
(*Fauna of British India*, 1st edition, No. 693.)

Description—Male. Length 9″ ; wing 4·75″ ; tail 3·5″ ; tarsus 1·2″ ; bill from gape 1·2″.

Bill and legs black, irides brown.

Plumage throughout dull indigo ; the head, nape, neck, breast and back marked with brown and the abdomen with white ; the under tail-coverts tipped white and with a narrow sub-terminal dusky bar.

Female. After the autumn moult—the upper plumage together with the wings and tail resembles the same parts in the male, but are of a very dull blue ; the lower plumage is pale buffy white, each feather sub-terminally margined with black ; the under wing-coverts, axillaries and under tail-coverts barred with black.

Locality, habits, etc. A common winter visitor to the hills and plains. It is a solitary though by no means shy bird and frequents open rocky places, also villages, cantonments, graveyards, etc., where it delights to perch upon the roofs and walls. If undisturbed it will become quite tame. "Last cold season one took up its residence in my compound and used to hop about the verandah and into the house quite fearlessly, and even if frightened away would come back again after a few minutes. I used to watch it day after day to see if I could spot it feeding, but in vain."—(*C.M.I.*).

They eat all kinds of insects, worms, termites and even tiny lizards and frogs.

Breeding season, etc. Breeds in the Himalayas.

Genus **MYIOPHONEUS** Temminck 1823.

"Bill very stout, but somewhat shorter than the head, compressed laterally and hooked at the tip. The nostrils are round and broad ovals. The wing is rounded. The legs and feet are remarkably strong.

The young birds are very similar to the adults, but for the first few weeks or perhaps months the brilliant glossy spots of the adults are absent. The adults of both sexes resemble each other"—(*Fauna of British India*).

(65) Myiophoneus horsfieldii Vigors.

THE MALABAR WHISTLING-THRUSH.

(*Fauna of British India*, 2nd edition, No. 613.)
(*Fauna of British India*, 1st edition, No. 189.)

Description—Male. Length 12″ ; wing 6·2″ ; tail 4·5″ ; tarsus 1·9″ ; bill from gape 1·6″.

Bill and legs black ; irides deep brown.

"Lores and forehead deep velvety black ; anterior crown bright cobalt blue ; whole head, neck and mantle black, shading into deep blue on upper back, tail-coverts and tail ; lesser wing-coverts bright cobalt blue ; wing feathers black edged with blue except on the terminal

halves of the outer primaries ; chin, throat, fore-neck and breast black ; lower breast, flanks and abdomen black with deep glistening blue ; under tail-coverts black "—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. A permanent resident on the hills up to about 6,000 feet ; the beautiful notes of this Thrush, which have gained it the name of the "Whistling school boy" may be heard in most well-wooded places in the vicinity of running water, usually at dawn and at sunset.

Breeding season. March to July.

Nest. Large, cup-shaped, of leaves, roots and coarse fibres, placed either on a rock in a stream or in a hole in a tree.

Eggs. 2 or 3 ; pinkish white, finely speckled and blotched with light brownish pink, confluent at the large end and forming an ill-formed cap. "The colour is a very pale greenish white with light green and red spots sprinkled all over it, especially at the larger end where they generally run together and form a cap"—(*T. F. Bourdillon*).

Average measurement 1·3″ × ·95″.

Family MUSCICAPIDÆ.

"Plumage of nestling mottled or squamated ; nostrils covered more or less by long curly hairs ; rectrices twelve ; tarsi short ; an autumn moult"—(*Fauna of British India*).

Genus **SIPHIA** Hodgs. 1837.

"Sexes differently coloured ; base of tail in both sexes white, upper tail-coverts black and the back brown or rufous. Bill small and rictal bristles moderate ; wing of moderate length, sharply pointed ; first primary shorter than half second ; tail square"—(*Fauna of British India*).

(66) Siphia parva parva (Bechst).

THE EUROPEAN RED-BREASTED FLYCATCHER.

(*Fauna of British India*, 2nd edition, No. 638.)
(*Fauna of British India*, 1st edition, No. 561.)

Description—Male. Length 5·2″ ; wing 2·65″ ; tail 2·1″ ; tarsus ·65″ ; bill from gape ·6″. Bill above brown, below at base fleshy ; gape yellow ; legs and feet blackish brown ; irides brown.

Upper plumage fulvous brown ; crown and nape pure brown tinged ash-colour ; forehead, lores, cheeks, and ear-coverts bluish grey with small black spots, except on latter ; eye surrounded by a ring of white feathers ; wings brown edged with the same colour as the back ; upper tail-coverts and median tail-feathers black ; other rectrices with basal portion white ; lower plumage from chin to breast bright chestnut ; remainder white tinged buff at the sides.

Female. Upper plumage fulvous brown ; a ring round the eyes, and the lores white ; sides of head rufous brown ; lower plumage white, breast ashy ; remainder as in the male.

Locality, habits, etc. A cold weather visitor to the hills and plains, but nowhere common ; it is a merry little bird, continually opening out its tail.

Breeding season, etc. Breeds in Europe.

(67) Siphia parva hyperythra (Cab.).

THE INDIAN RED-BREASTED FLYCATCHER.

(*Fauna of British India*, 2nd edition, No. 640.)
(*Fauna of British India*, 1st edition, No. 563.)

Description—Adult male. "Above a much darker brown than in *S. p. albicilla* ; the chestnut of the chin and throat much deeper and richer and extending on to the whole of the breast and flanks ; abdomen pure white in the centre suffused with chestnut on the flanks and vent ; under tail-coverts pale chestnut ; a broad black line runs down either side of the chestnut throat and breast, and is often produced as a broken pectoral band.

Female and young. Both differ from those of *S. p. albicilla* only in being much darker and browner"—(*Fauna of British India*). They differ in the same way from *S. p. parva.*

Locality, habits, etc. "Winters in Ceylon, and, curiously enough, there are practically no records of its occurrence between that island and the Punjab and North-West Frontier Province. I have notes of its being observed in the Neliampathy Hills and Travancore"—(*Fauna of British India*).

Breeding season, etc. Breeds in Kashmir.

Genus **CYORNIS** Blyth 1843.

"Bill about half length of head, depressed, and rather broad at base ; rictal bristles moderate ; wing in most species sharply pointed and first primary generally small ; tail square or nearly so. Males with upper plumage blue or black ; females brown or rufescent"—(*Fauna of British India*).

(68) Cyornis pallipes pallipes (Jerdon).

THE WHITE-BELLIED BLUE FLYCATCHER.

(*Fauna of British India*, 2nd edition, No. 653.)
(*Fauna of British India*, 1st edition, No. 573.)

Description—Male. "Length 6·5″ ; wing 3″ ; tail 2·6″ ; tarsus ·75″ ; bill from gape ·75″.

"Bill black ; legs and feet fleshy, tinged purple ; irides dark wood-brown."

Forehead and a supercilium ultramarine-blue ; lores and space in front of the eye, black ; further round the eye bluish black ; whole upper plumage, sides of neck, head, chin, throat, breast and the margins of the wings and tail indigo-blue ; lesser wing-coverts brighter ; abdomen, vent and under wing-coverts white"—(*Fauna of British India*).

Female. Upper plumage olive-fulvous ; lores and chin white ; indistinct supercilium grey ; ear-coverts grey-brown ; wings brown edged with rufous ; tail brown, outer webs rufous ; lower plumage white except the throat, breast and flanks which are reddish fulvous.

Locality, habits, etc. Ferguson states that he has not met with it in Travancore ; but Cardew procured it on the Nilgiris at about 4,000 feet elevation. "Permanent resident on Western Ghats from Belgaum to extreme south of Travancore "—(*Fauna of British India*).

Breeding season. March to July.

Nest. The nests have been taken by Stewart, Davidson and T. R. Bell and were formed of moss lined with fine roots and fern-stems.

Eggs. 3 or 4. These are very unlike *Cyornis* eggs and lead from them into the red spotted eggs of *Terpsiphone*, etc. In ground-colour they are white and they are profusely spotted with reddish-brown and dull red all over their surface. In shape they are short blunt ovals ; in texture rather coarse and fragile. They measure ·78 × ·60".

(69) Cyornis rubeculoides rubeculoide, (Vigors.).

THE BLUE-THROATED FLYCATCHER.

(*Fauna of British India*, 2nd edition, No. 657.)
(*Fauna of British India*, 1st edition, No. 575.)

Description—Male. Length about 5·5" ; wing 2·75" ; tail 2·25" ; tarsus ·7" ; bill from gape ·7".

Bill black ; legs blackish-brown ; irides brown.

Whole upper plumage blue ; lores black ; forehead and shoulders bright pale blue ; throat dark blue ; neck and breast rusty-red ; abdomen white ; wings dusky edged blue.

Female. Above olive-brown ; breast rufous ; abdomen white.

Locality, habits, etc. I believe it to be a very rare winter visitor, the only specimen which I have observed being a male which I shot at St. Thomas' Mount. Sir A. Cardew also obtained it on the Malabar Coast —(*H.R.B.*).

Breeding season. Breed in the Himalayas.

(70) Cyornis tickelliæ tickelliæ (Blyth).

TICKELL'S BLUE FLYCATCHER.

(*Fauna of British India*, 2nd edition, No 660.)
(*Fauna of British India*, 1st edition, No. 576.)

Description—Male. Length 6" ; wing 2·87" ; tail 2·5" ; tarsus ·7" ; bill from gape ·75".

Bill black ; legs brownish ; irides dark brown.

Whole upper plumage dark blue ; forehead, a stripe over the eyes and the shoulders pale blue ; chin, throat and breast ferrugineous ; flanks pale fawn ; abdomen, vent and under tail-coverts pure white.

Female. Similar to the male but duller and paler ; the supercilium very pale ; lores and round the eye grey and white ; whole chin very

pale rufous and breast paler than in the male"—(*Fauna of British India*).

Locality, habits, etc. A fairly common permanent resident on the hills, frequenting gardens and places where the trees are large and shady but without thick undergrowth. It is a shy and retiring bird, rarely seen unless specially sought for.

Breeding season. March to May.

Nest. Of leaves, grass, or moss, lined with roots, in a hole in a bank or tree.

Eggs. 3 or 4; similar to those of *C. rubeculoides* in colouration; average measurement ·78 × ·57".

Genus **STOPAROLA** Blyth 1847.

"Both sexes with the entire plumage suffused with blue or green; bill small and depressed forming, when viewed from above an equilateral triangle"—(*Fauna of British India*).

(71) Stoparala melanops melanops (Vigors).

THE VERDITER FLYCATCHER.

Plate I.

(*Fauna of British India*, 2nd edition, No. 665.)
(*Fauna of British India*, 1st edition, No. 579.)

Description—Male. Length 6"; wing ·3"; tail 2·62": tarsus ·65"; bill from gape ·7".

Bill and legs black; irides dark brown.

Lores black; rest of plumage verditer blue, brightest on the wings, paler on the abdomen; vent white; under tail-coverts greenish-blue barred white.

Female. Similar to male but much duller, the black on the lores being replaced by brown; the chin and throat are mottled with white.

Locality, habits, etc. A winter visitor to the hills to an elevation of about 3,000 feet, frequenting thin forests and clearings.

Mr. A. P. Kinloch reports it as being extremely common on the Nelliampathy hills until March at comparatively low heights. I myself obtained it on the Nilgiris near Ootacamund—(*H.R.B.*).

Breeding season. April to July, in the Himalayas. It may also breed in the hills of South India.

Nest. Of moss, usually in a hole in a bank or tree, but I once found one in the rafters of the bungalow I was staying at in Darjeeling —(*C.M.I.*).

Eggs. 4; they vary from the palest cream faintly speckled with pale red all over, or merely in a ring or cap at the layer end, to a pale salmon-pink comparatively well marked with light red; average measurement, ·76 × ·58".

(72) Stoparola albicaudata (Jerdon).

THE NILGIRI BLUE FLYCATCHER.

(*Fauna of British India*, 2nd edition, No. 665.)
(*Fauna of British India*, 1st edition, No. 581.)

Description—Male. Length 6″ ; wing 3″ ; tail 2·37″ ; tarsus ·75″ bill from gape ·7″.

Bill and legs black ; irides dark brown.

Upper plumage dark blue, lightest on forehead ; tail black, edged with blue externally ; the base of the four outer pairs of feathers white ; chin, throat and breast dark blue ; lower breast bluish-grey ; vent grey ; under tail-coverts barred white and dark grey.

Female. Slightly smaller than the male.

Above dull bluish-green or olive, tinged blue on the upper tail-coverts ; tail dark brown, the outer feathers with their bases white ; wings brown, edged paler ; beneath dull bluish passing into grey or white on the abdomen and under tail-coverts.

Locality, habits, etc. A very common permanent resident on the Nilgiri and the Palni hills, and according to Mr. Ferguson, on the Travancore hills also. It has a pleasant cheerful song which is frequently heard in gardens and sholas where the bird is met with chiefly amongst the thick undergrowth. Mr. A. P. Kinloch considers this the commonest flycatcher on the Nelliampathy Hills.

Breeding season. April and May.

Nest. Of moss, placed in a hole in a bank or a hollow of a tree.

Eggs. 2 or 3 ; creamy-white, peppered light red chiefly at the large end. Some eggs in the collection of Mr. Stuart Baker are quite boldly marked with reddish-brown. In a very large collection of these eggs he has, however, only seen two clutches of this type ; average measurement, ·73 × ·57″.

I recently obtained a pair of these eggs which were almost spherical and were practically pure white, a few faint reddish specks being visible only with the aid of a magnifying glass—(*H.R.B.*).

Genus **ALSEONAX** Cabanis 1850.

" Sexes alike ; plumage brown or rufous ; first primary very small, much less than half second "—(*Fauna of British India*).

(73) Alseonax latirostris (Sykes).

THE INDIAN BROWN FLYCATCHER.

(*Fauna of British India*, 2nd edition, No. 675.)
(*Fauna of British India*, 1st edition, No. 588.)

Description—Male. Length 4·75″ ; wing 2·62″ ; tail 1·87″ ; tarsus ·5″ ; bill from gape ·7″.

Bill horny black above, fleshy at base below ; legs brownish-black ; irides brown.

Lores, eyelids and a small patch round the eyes, white ; above mouse-brown, the feathers of the head centred darker ; tail darker

brown; wings brown, the secondaries and tertiaries margined white; the coverts tinged rufous; sides of neck ashy-brown; breast and sides ashy; remainder of lower plumage white mixed with ashy on chin and throat.

Female. Similar to male.

Locality, habits, etc. Probably resident on the plains and hills, which latter it ascends to about 3,000 feet; is met with in gardens and open forests, but is nowhere common.

Breeding season. May to June.

Nest. A neat cup of moss, fern-roots and bents, sometimes made of green moss, at other times much covered with lichen. It is generally placed on an ever-green tree some 6 to 25 feet from the ground, sometimes up against the trunk itself.

Eggs. 3; pale olive or brownish stone-colour; average measurement ·7 × ·55″.

(74) Alseonax ruficaudus (Swains.).

THE RUFOUS-TAILED FLYCATCHER.

(*Fauna of British India*, 2nd edition, No. 676.)
(*Fauna of British India*, 1st edition, No. 589.)

Description—Male. "Length 5·5″ to ·6″; wing 3·7″; tail 2·3″; tarsus ·6″; bill from gape ·7″.

"Upper mandible pale brown, lower fleshy; legs and feet purplish brown; irides dark brown.

"Upper plumage and sides of neck dull olive brown; upper tail-coverts and tail chestnut; coverts and quills of wings brown edged with olive brown; lores and round the eye greyish white; ear-coverts fulvous brown with pale shafts; whole lower plumage pale earthy brown"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. A rare winter visitor. Has been got in South Travancore.

Breeding season, etc. Breeds in Kashmir and Afghanistan.

(75) Alseonax muttui (Layard).

LAYARD'S FLYCATCHER.

(*Fauna of British India*, 2nd edition, No. 677.)
(*Fauna of British India*, 1st edition, No. 590.)

Description—Male. "Length 5·5″; wing 2·8″; tail 2·1″; tarsus ·55″; bill from gape ·65″.

"Upper mandible blackish brown, yellowish at tip; lower mandible dull horny yellow; legs pale wax-yellow; irides brown.

"Forehead, crown and nape olive-brown with indistinct brown shafts and streaks; remainder of upper plumage ruddy brown, changing to bright ferrugineous on the upper tail-coverts; wings brown, the outer webs of the coverts and quills broadly edged with ferrugineous; tail brown suffused with ferrugineous on the outer webs; lores and

conspicuous ring round the eyes, white ; chin and throat white ; ear-coverts olive-brown ; cheeks, sides of neck, the whole breast and the sides of the body yellowish brown ; middle of the abdomen, vent and under tail-coverts pale yellowish white "—(*Fauna of British India*).

Locality, habits, etc. A rare winter visitor ; breeds in the Eastern Himalayas.

Genus **OCHROMELA** Blyth 1847.

"Rictal bristles very long and numerous ; tail much rounded ; first primary much longer than half second ; bill blunt and thick ; sexes slightly dissimilar, but both preserve the characteristic orange and black plumage "—(*Fauna of British India*).

(76) Ochromela nigrorufa Jerdon.

THE BLACK AND ORANGE FLYCATCHER.

(*Fauna of British India*, 2nd edition, No. 678.)
(*Fauna of British India*, 1st edition, No. 591.)

Description.—Male. Length 4·75″ ; wing 2·25″ ; tail 2″ ; tarsus ·8″ ; bill from gape ·6″. Bill black ; legs fleshy or brownish ; irides brown ; head, neck and wings black ; back, tail, chin, throat and breast reddish-orange ; lower breast, vent and under tail-coverts pale yellowish tinged reddish-orange.

Female. Similar to male, but of duller colouring.

Young birds are blackish streaked with buffy-yellow above ; tail orange ; below speckled brown and yellow, abdomen and vent white ; legs and feet fleshy.

Locality, habits, etc. A common permanent resident on the hills from about 3,500 feet to the summit. It is not a very shy bird, but is only met within the gloomy depths of the forests and is therefore not often seen unless sought for in such localities. In the breeding season I have seen a male spreading out its tail like a fan and waving it up and down while he danced about on a small branch uttering a feeble "tweet," very like a Fantail Flycatcher ; perhaps this was a seasonal display as I have not noticed it at other times—(*H.R.B.*)

Breeding season. March to June.

Nest. Large, globular, with hole at side ; loosely and untidily made of dry grass, straw, bamboo leaves, etc., and usually placed low down in a small bush, sometimes on the ground at the foot of a tree amongst the young shoots ; the nest is generally easy to find, as the bird never wanders far from it, and one has only to watch it and it will soon act as a sort of unconscious guide.

Eggs. 2 ; whitish peppered with rusty-brown chiefly in a ring round the large end ; average measurement ·72 × ·51″.

Genus **CULICICAPA** Swinhoe 1871.

"Tail square ; first primary short ; bill very much depressed and viewed from above forms an equilateral triangle ; rictal bristles extremely numerous and long ; sexes alike ; plumage grey and yellow "—(*Fauna of British India*).

(77) Culicicapa ceylonensis ceylonensis (Swainson).

THE GREY-HEADED FLYCATCHER.

(*Fauna of British India*, 2nd edition, No. 679.)
(*Fauna of British India*, 1st edition, No. 295.)

Description—Male. Length 4·5″ to 5″; wing 2·5″; tail 2·25″; tarsus 0·55″; bill from gape 0·55″.

Bill horny black above, whitish below; legs brownish-yellow; irides dark brown.

Head and neck dark ashy; back olive-green, tinged yellow on rump and upper tail-coverts; tail brownish edged greenish-yellow externally; chin throat and breast pale grey; lower breast, vent and under tail-coverts canary-yellow.

Female. Similar to male.

Locality, habits, etc. A very common permanent resident on the hills, where it frequents gardens, open glades in the forests and such-like places in small parties. It has a pleasant little twittering song which it utters while it flits about here and there, generally returning to the same twig with its victim in its bill.

Breeding season. March to May.

Nest. Of moss, attached by cobwebs to the trunk of a tree or to a rock; said to be sometimes placed in the fork of a tree.

Eggs. 4; creamy white with brownish grey and yellow spots; average measurement 0·63 × 0·5″.

Genus **TERPSIPHONE** Gloger 1827.

"Tail as long as or longer than wing; bill extremely large depressed and swollen, rictal bristles very numerous, coarse and long; head crested. The sexes are alike, or closely so during the first two years, and the prevailing colour of the plumage is chestnut. The female never drops her chestnut garb, but the male after the second autumn, or even later, assumes a white plumage. It thus happens that a pair may be found breeding both being in chestnut plumage, or a female in chestnut plumage may be found mated with a white male"—(*Fauna of British India*).

(78) Terpsiphone paradisi paradisi (Linn.).

THE INDIAN PARADISE FLYCATCHER.

Plate I.

(*Fauna of British India*, 2nd edition, No. 688.)
(*Fauna of British India*, 1st edition, No. 598.)

Description—Male. Length 18 to 21″; wing 3·7″; tail 13·5″ to 17″; tarsus 0·65″; bill from gape 1·1″.

Bill and eyelids cobalt; tip of bill and anterior margin of upper mandible black; legs plumbeous; irides dark brown.

Adult after the 4th autumnal moult—, the whole plumage is white except the head and neck which are glossy bluish-black; wings black broadly margined with white; coverts, scapulars and tail white with

black shafts, and the tail with the exception of the median feathers margined on the outer webs with black ; the black shafts on the back and rump are very fine.

Young birds have the head and sides of neck bluish-black and the remainder of the upper plumage chestnut ; from chin to breast ashy, paler on the breast which blends with the white of the abdomen and vent ; after the second autumnal moult, the head changes to deep glossy black ; and after the third moult, the long median chestnut tail-feathers appear and the chestnut plumage becomes white.

Female. Length 8·5″ ; tail 4″ ; like the young male before moulting without the long median tail-feathers.

Locality, habits, etc. A common permanent resident on the plains, less often met with on the hills. Mr. Antram has observed it on his estate at Somerdale, Nilgiris, and Mr. Van Ingen has procured it at Ootacamund. It frequents gardens and open forests ; and it is a beautiful sight to see these birds flitting about the trees, their long tail-feathers streaming behind them.

Breeding season. May to July.

Nest. Cup-shaped, of grass and fibres covered with cobwebs and spiders' cocoons and fixed in the fork of a tree or sometimes on a branch.

Eggs. 3 or 4 ; warm cream-coloured, spotted and with a zone round the large end, dark-red, and pale purple ; average measurement 0·79 × 0·56″.

Genus **HYPOTHYMIS** Boie 1826.

"Bill like that of *Terpsiphone* but smaller and covered at the base with dense plumules ; rictal bristles numerous and long ; tail slightly rounded but without lengthened central rectrices. Sexes dissimilar"—(*Fauna of British India*).

(79) **Hypothymis azurea sykesii** S. Baker.

THE MADRAS BLACK-NAPED FLYCATCHER.

(*Fauna of British India*, 2nd edition, No. 692.)
(*Fauna of British India*, 1st edition, No. 601 (part 1)).

Description—Male. Length 6 to 6·5″ ; wing 2·75″ ; tail 3″ ; tarsus 0·7″ ; bill from gape 0·75″.

Bill dark slaty-blue, tip and edges black ; legs blue ; irides dark brown ; eyelids light blue.

Above pale blue, brighter on head and neck ; forehead and a large black patch at back of head formed of short erectile feathers ; a narrow black stripe down the neck ; . . . throat, neck and breast pale blue ; abdomen, vent and under tail-coverts bluish-white.

Female. Length 5·5″ ; wing 2·75″ ; tail 2·5″.

Similar to male but of duller colouring and also lacks the black crest and jugular stripe.

Locality, habits, etc. Found on hills and plains, but nowhere common.

Breeding season. June and July ; in the Himalayas April and May.

Nest. Of fibres and fine grass, coated with cobwebs and attached by them to the twigs of a bush; deep cup-shaped and very small, the exterior diameter being only 1½ inches.

Eggs. The eggs are miniatures of those of *Terpsiphone* but are longer in shape and, perhaps, on the whole, less boldly marked; average measurement 0·75 × 0·52″.

Genus **RHIPIDURA** Vigors and Horsf. 1826.

"Tail considerably longer than wing; bill large, about twice as long as broad and the rictal bristles are very numerous and long. Sexes alike or nearly so"—(*Fauna of British India*).

(80) Rhipidura aureola aureola (Less.).

THE WHITE-BROWED FANTAIL FLYCATCHER.

(*Fauna of British India*, 2nd edition, No. 700.)
(*Fauna of British India*, 1st edition, No. 604 (part).)

Description—Male. Length 6·5 to 7·5″; wing 3·12″; tail 3·5″; tarsus 0·8″; bill from gape 0·7″.

Bill and legs black; irides dark brown.

Top of head, and neck black; a white stripe from the nostrils over the eyes to the nape; upper plumage ashy-brown; tail brownish, all but the central feathers tipped and edged white; throat black, spotted white; lower plumage white.

Female. Similar to male but of duskier colouring.

Locality, habits, etc. A common permanent resident on the plains, ascending the hills to about 3,500 feet, but not found in South Travancore. It frequents gardens, hedgerows, open forest and such-like places, and may easily be recognized by its habit of dancing about the branches of the trees or on the road with its tail spread out widely in the shape of a fan. They have rather a sweet note.

Breeding season. February to May.

Nest. Of fibres and fine grass, covered with cobwebs, bits of dead leaves, bark and lichens, placed on the horizontal branch of a tree where it resembles a knot and is very hard to find; many nests would, in fact, go unnoticed were it not for the pugnacity of the birds which become very fussy after the eggs are laid and dart out to attack any other bird that approaches their nest.

Eggs. 2 or 3, very rarely 4; grey-white or yellowish-white spotted all over but chiefly in a ring round the large end with rusty-red and pale purple; average measurement 0·72 × 0·59″.

(81) Rhipidura aureola compressirostris (Blyth).

THE CEYLON WHITE-BROWED FANTAIL FLYCATCHER.

(*Fauna of British India*, 2nd edition, No. 702.)
(*Fauna of British India*, 1st edition, No. 604 (part).)

Description—Male. "Differs from *R. a. aureola* in being much darker and in having the two central pairs of tail-feathers not tipped with white. The black on the sides of the breast is better defined and

THE INDIAN SHAMA
(*Kittacincla malabarica indica*).
One-half Nat. Size.

THE WHITE-SPOTTED FANTAIL FLYCATCHER
(*Leucocerca pectoralis*).
Two-thirds Nat. Size.

is sometimes produced to form a broken band across the breast. The bill is often more compressed"—(*Fauna of British India*).

Locality, habits, etc. "Occurs in S. Travancore. Habits those of the genus. Legge refers to the male during the breeding season displaying both on the ground and on branches of trees, making little runs as it puffs itself out and flirts its widely spread tail. It haunts open country, cultivation, gardens and village surroundings but is also sometimes to be seen in more open parts"—(*Fauna of British India*).

Breeding season, etc. "Does not differ from that of the other races" —(*Fauna of British India*).

(82) Rhipidura pectoralis (Jerdon).

THE WHITE-SPOTTED FANTAIL FLYCATCHER.

Plate VI.

(*Fauna of British India*, 2nd edition, No. 705.)
(*Fauna of British India*, 1st edition, No. 607.)

Description—Male. Length 7″; wing 3″; tail 3·5″; tarsus 7″; bill from gape ·6″.

Bill and legs black; irides dark brown.

Head black with a narrow white eye-stripe; rest of upper plumage dusky brown; throat and abdomen white, the latter tinged pale rufous; neck and breast black, the latter with large white spots.

Female. Similar to male.

Locality, habits, etc. A common permanent resident on the slopes of the hills, occasionally ascending to the summit, found in much the same localities as the preceding species, i.e., gardens, clearings, roadside, hedges, etc.; and has the same habit of dancing about the tree or on the ground with tail outspread. It has no song, but utters a feeble "twit-twit" as it flits about in search of food.

Breeding season. May to July.

Nest. Deeply cup-shaped inside, tailing off to a point at the bottom outside; very small, inside diameter 1¾ inches, outside diameter 2¼ inches, made of fibres and fine grass, coated all over with cobwebs so that the nest looks white, and attached by cobweb to the twigs of a tree or bush a nest found at Kalhutty on the Sigur Ghat at about 5,000 feet elevation was attached to and rested upon the pendant twig of a bush which grew out of a steep bank and overhung the main road, and was in such a position that men and cattle must have passed close underneath it frequently during the day; I myself passed by it on the first occasion without noticing it and it was only the dancing and prancing about of the birds that attracted my attention to it on my return journey—(*H.R.B.*).

Eggs. 3; yellowish spotted with yellowish-brown and grey, chiefly in a ring round the large end; average length 0·65″; average breadth 0·48″.

Family LANIIDÆ.

"Nostrils clear of the line of forehead, lower edge of the nostril nearer to the commissure than the upper edge is to the culmen, plumage of nestling cross-barred, rectrices twelve, nostrils more or less overhung by bristles and hairs; an autumn moult only".—(*Fauna of British India*).

Genus **LANIUS** Linn. 1766.

"Shafts of rump-feathers soft; tail strongly graduated; bill deep and laterally compressed; margin of upper mandible near tip strongly notched and toothed.

"Sexes alike in colour"—(*Fauna of British India*).

(83) **Lanius vittatus** Valenc.

THE BAY-BACKED SHRIKE.

Plate VII.

(*Fauna of British India*, 2nd edition, No. 710.)
(*Fauna of British India*, 1st edition, No. 473.)

Description—Male. Length 7·5″; wing 3·25″; tail 3·5″; tarsus ·85″; bill from gape ·7″. Bill and legs black; irides brown.

Top of head white; forehead and eyestripe black; neck grey; back greyish-white, middle of back and scapulars bay or chestnut; wings and tail black; a white wing-spot; the two outer tail-feathers on each side white, the rest, except the two central pairs, tipped white; beneath fulvescent-white: abdomen white: flanks dark ferrugineous.

Female. Similar to male. The young are somewhat like the female, but have the breast faintly barred with grey.

Locality, habits, etc. Common in gardens and scrub jungle on the plains; ascends the hills to about 3,000 feet. It is generally to be seen perched on the topmost twig of a bush, from which point of vantage it keeps an eye upon the surrounding ground ever ready to pounce upon any passing insect or beetle which it usually seizes upon the ground, returning to its perch to devour it.

Breeding season. April and May. Sir A. G. Cardew found them breeding on the slopes of the Nilgiris at about 3,000 feet. Were they permanent residents or had they migrated there to breed? I ask, because in the Aurangabad District of the Deccan, Bay-backed Shrikes are very common during the cold months; but they undoubtedly migrate as the breeding season approaches, not returning again till the following cold weather. Whither do they migrate?—(*H.R.B.*).

As a reply to this question Mr. Stuart Baker says: "*L. vittatus* breeds very freely in many parts of the Deccan and over a very wide area in India. They probably migrate locally when the food supply runs short."

Nest. Of twigs and moss lined hair, placed in a thorny bush, usually a babool.

Eggs. 3 or 4; white pale fawn or pale greenish speckled and spotted chiefly at the large end with slaty-grey; average measurement ·81×·65″.

(84) Lanius schach caniceps (Blyth).

THE SOUTHERN RUFOUS-BACKED SHRIKE.

(*Fauna of British India*, 2nd edition, No. 715.)
(*Fauna of British India*, 1st edition, No. 476.)

Description—Male. Length 9″ ; wing 3·5″ ; tail 4·5″ ; tarsus 1·1″ ; bill from gape ·9″. Bill black ; legs horny black ; irides dark brown.

Head, neck and back slaty-grey ; rump and upper tail-coverts rufous and scapulars tinged with rufous. A broad black stripe from the nostrils through the eyes to the ear-coverts ; the tail has the four central feathers black, the rest light ashy at the base, black in the centre and tipped light brown ; chin, throat and neck white ; breast and abdomen white tinged rufous ; flanks, vent and under tail-coverts rufous.

Female. Similar to male but of paler colouring.

Locality, habits, etc. I have not met with it myself on the plains, but that it is occasionally found there, is evident from the fact that Mr. Dewar reports it as " not common about Madras " ; again Mr. Ferguson writes that " this Shrike is not uncommon on the plains." On the Nilgiris I have found it exceedingly common, frequenting gardens, hedgerows and open places. Mr. A. P. Kinloch also found it common on the Nelliampathy Hills—(*H.R.B.*).

Breeding season. March to May in the hills.

Nest. Of twigs and moss lined hair, deep cupshaped, placed in any convenient thick bush, a thorny one for preference.

Eggs. 4 or 5 ; rarely six : white often tinged with grey or greenish and more rarely with grey ; speckled and spotted with dusky grey and brown ; average measurement ·91 × ·72″.

(85) Lanius tephronotus (Vigors).

THE GREY-BACKED SHRIKE.

(*Fauna of British India*, 2nd edition, No. 716.)
(*Fauna of British India*, 1st edition, No. 477.)

Description—Male. Length 9·5 to 10″ ; wing 4·25″ ; tail 4·5″ ; tarsus 1·1″ ; bill from gape 1″. Bill and legs black ; irides brown.

Head, nape, back and scapulars ashy ; rump and upper tail-coverts rufous ; wings and tail blackish, the former margined pale rufous ; a black stripe from nostrils through the eyes down the sides of the neck ; below white, tinged rufous on the sides breast and vent.

Female. Slightly smaller than the male.

Locality, habits, etc. A rare winter visitor to the plains.

Breeding season, etc. Breeds in the Himalayas.

Genus **HEMIPUS** Hodgs., 1845.

" Sexes differ in colour ; bill about half the length of the head, very much depressed and rather wide ; nostrils nearly hidden by hairs ; wing fairly long and pointed, and tail-feathers graduated " (*Fauna of British India*).

(86) Hemipus picatus picatus (Sykes).

THE BLACK-BACKED PIED SHRIKE.

(*Fauna of British India*, 2nd edition, No. 724.)
(*Fauna of British India*, 1st edition, No. 484.)

Description—Male. Length 5·5 to 5·75″; wing 2·5″; tail 2·5″; tarsus ·45″; bill from gape ·7″.

Bill black; legs horny; irides yellow-brown.

Head, neck and back black with a green gloss; rump feathers tipped with white; wings black with a white stripe; tail blackish-brown tipped white, but more so on the outer feathers; the outermost pair of feathers also edged externally with white; chin and a collar which does not quite meet at the back of the neck, and the rump, white; lower plumage pale vinaceous, whiter on the abdomen.

Female. Slightly smaller than the male; upper plumage blackish-brown; rump white; tail and collar as in the male; wings sooty-brown with a white stripe; lower plumage white tinged pale vinaceous on the breast.

Locality, habits, etc. Fairly common on the summit of the Nilgiris where it may be seen flitting about the tops of the trees in small parties. Mr. A. P. Kinloch found it common on the Nelliampathy Hills.

Breeding season. We cannot do better than quote, *in extenso*, the remarks on its nidification by Sir A. G. Cardew contained in his notes to the *Bo. Nat. Hist. Soc. Journal*, dated 20th June, 1895. He writes, "*Hemipus picatus* (*Sykes*) is, as stated by Mr. Davison, fairly common on these hills (Nilgiris), but the record of its nidification seems to be confined to that of the single nest taken by Davison and mentioned in "*Nests and Eggs*," i. 328; I have found three nests, but have only once succeeded in securing the eggs. The nests which answer closely to Mr. Davison's description are beautiful structures, completely coated on the outside with pieces of greenish white lichen and lined with the finest fibre; they are very minute, the egg cavity measuring 1·5″ across and but little more than half an inch in depth inside which shows that Captain Terry's nest, also mentioned in "*Stray feathers*" *l. c.* was that of some other bird. The nests I found were, in each case, placed high up on the bare branch of a blue gum at Ootacamund and were most difficult to see; one nest taken on the 24th March, contained three eggs which measured ·6″×·45″ each; another nest which was found on the 21st May 1895, also contained eggs, but it was full 50 feet from the ground at the far end of a branch, and the eggs were broken. In this case, after the female was shot, the male took her place on the nest and his tail could be seen from below, though the nest itself was hardly visible."

Eggs. 3 or 4; greenish-white with a few rusty spots; average measurement (of 3) ·6×·45″.

Genus **TEPHRODORNIS** Swainson 1831.

"Bill very strong, about three-quarters the length of the head, strongly hooked and notched; nasal bristles very numerous, and

entirely conceal the nostrils ; wing blunt ; tail short and square ; feet feeble. Feathers of the rump exceedingly ample ; shafts soft "—(*Fauna of British India*).

(87) Tephrodornis pelvica sylvicola Jerdon.

THE MALABAR WOOD-SHRIKE.

(*Fauna of British India*, 2nd edition, No. 728.)
(*Fauna of British India*, 1st edition, No. 487.)

Description—Male. " Length 8·5" ; wing 4·4" ; tail 3·3" ; tarsus ·75" ; bill from gape 1·2".

Bill and claws black, legs and feet dark plumbeous ; irides oil or greenish-yellow.

Nasal plumes, lores and a broad band round the eyes to the ear-coverts, black ; forehead, crown, nape, hind neck and back, bluish-ashy ; rump, scapulars and lesser wing-coverts brown tinged with ashy ; a band of white on lower rump ; upper tail-coverts dark brown ; wing, tail, median and greater wing-coverts, brown ; lower plumage pale vinaceous turning to pure white on lower abdomen, flanks and under tail-coverts "—(*Fauna of British India*).

Female. " Differs from the male in having hardly any tinge of ashy on the upper plumage and in having the eye-band brown "—(*Fauna of British India*).

Locality, habits, etc. A permanent resident on the plains of the West Coast and ascends the hills to about 5,000 feet. It is arboreal in habits and associates in fair-sized flocks, frequenting thick jungle. Its method of hunting for food is somewhat similar to that of Minivets. Its note is a melancholy whistle. Mr. A. P. Kinloch says it is very common on the Nelliampathy Hills.

Breeding season. " April, in Mysore "—(*Fauna of British India*).

Nest. " Of roots and fibres woven into a shallow cup and covered with cobwebs and lichens and placed in a tree "—(*Fauna of British India*).

Eggs. 2 ; white marked with blackish-brown and inky-purple ; average measurement ·98 × ·73".

(88) Tephrodornis pondiceriana pondiceriana (Gmel.).

THE INDIAN COMMON WOOD-SHRIKE.

(*Fauna of British India*, 2nd edition, No. 729.)
(*Fauna of British India*, 1st edition, No. 488.)

Description—Male. Length 6·25" to 7" ; wing 3·12" to 3·75" ; tail 2·5" to 2·75" ; tarsus ·75" ; bill from gape ·88". Bill horny ; legs slaty-brown ; irides greenish yellow.

Plumage above ashy-brown ; rump white ; upper tail-coverts deep brown ; a white eye-stripe ; wings light brown ; the tail has the two outer pairs of feathers tipped white for ¾ of their length and with a light brown spot or patch at the end ; the next two pairs dark brown ; the central feathers light brown ; chin, throat, abdomen and under tail-coverts white ; breast ashy.

Female. Similar to male.

Locality, habits, etc. A common permanent resident on the plains; also ascends the hills to about 5,000 feet. It frequents gardens, orchards and open spaces, where its plaintive cry at once proclaims its presence.

Breeding season. February to July.

Nest. Of roots and grass, lined with fibres and covered over with cobwebs and bits of bark; placed on a branch of a tree.

Eggs. 3; dull yellow-white, blotched and spotted with yellowish-brown and dull purple, denser and forming a zone at the thick end; average measurement ·7 × ·6".

Family PERICROCOTIDÆ.

"Characteristics those of the *Laniidæ* but the feathers of the rump have stiffened spiny shafts. As a whole, also, the wings are proportionately longer and more pointed and the legs and feet are comparatively weaker"—(*Fauna of British India*).

Genus **PERICROCOTUS** Boie 1826.

"Bill about half length of head, strong, hooked and notched; nostrils concealed by plumes; wing long and pointed; tail long and much graduated; feet weak"—(*Fauna of British India*).

(89) Pericrocotus speciosus flammeus (Forst.).

THE ORANGE MINIVET.

Plate VII.

(*Fauna of British India*, 2nd edition, No. 737.)
(*Fauna of British India*, 1st edition, No. 494.)

Description—Male. Length 8·25"; wing 3·75"; tail 3·75"; tarsus ·6"; bill from gape ·8". Bill and legs black; irides dark brown.

Whole head and neck, upper back and wings glossy black; wings with a broad orange-red band; a few of the primaries also edged red externally; the two central tail-feathers black, the rest tipped and edged orange-red for nearly the terminal half, the bases being black; lower plumage brilliant orange-red, somewhat paler on the abdomen.

Female. Slightly smaller than the male: head, neck, upper back and wing-coverts ashy; lower back greenish-yellow, passing into yellow on the upper tail-coverts; a yellow stripe on the forehead; wings glossy black with a bright yellow stripe on the primaries; central tail-feathers black; the rest black broadly tipped and edged with bright yellow; chin, throat and all lower parts bright yellow.

The bird figured is the Indian Scarlet Minivet. Our bird differs in having the lower plumage orange-red instead of scarlet.

Locality, habits, etc. A permanent resident on the hills to about 6,000 feet, where it associates in flocks, keeping to the tops of the trees.

Breeding season. June to September.

THE RUFOUS-BACKED SHRIKE
(*Lanius schach erythronotus*).
One-half Nat. Size.

THE INDIAN SCARLET MINIVET
(*Pericrocotus flammeus speciosus*).
Male.
Female.
One-half Nat. Size.

Nest. A shallow cup of fine roots and tiny soft twigs covered with lichens and placed on the branch of a tree, usually high up.

Eggs. 2; pale sea-green or greyish-green marked with pale and dark yellowish-brown; average measurement ·9 × ·67″.

(90) Pericrocotus roseus roseus (Vieill.).

THE ROSY MINIVET.

(*Fauna of British India*, 2nd edition, No. 744.)
(*Fauna of British India*, 1st edition, No. 499.)

Description—Male. Length 7″; wing 3·4″; tail 3·5″; tarsus ·6″; bill from gape ·75″. Bill and legs black; irides brown.

Upper plumage ashy-brown; feathers of rump tipped with rose; wings and wing-coverts dark brown; greater coverts tipped deep rose, almost scarlet, and a band across the wings of the same colour; median tail-feathers brownish black, next pair with inner webs dark brown and outer scarlet, others deep blackish-brown at base and remainder scarlet; chin and throat whitish slightly tinged rosy; remainder of lower plumage rosy.

Female. "Dull brown above and the rump olive-yellow margined with yellow and without a trace of red; the portions which are red in the male are in the female everywhere replaced by pale yellow; chin and throat dull yellowish white"—(*Fauna of British India*).

Locality, habits, etc. This bird appears to be very rare, and has been recorded only from South Travancore.

Breeding season. From the end of April to the end of June.

Nest. A very shallow saucer-shaped affair of the finest twigs, roots and a little grass matted together with cobwebs and covered externally with lichen, placed on the upper surface of a branch of a tree or in the fork of a branch of a high bush.

Eggs. The eggs vary in number from 2 to 4 and are white richly marked with brown and purple. They average about ·8 × ·6″.

(91) Pericrocotus peregrinus malabaricus (Gmel.).

THE MALABAR SMALL MINIVET.

(*Fauna of British India*, 2nd edition, No. 747.)
(*Fauna of British India*, 1st edition, No. 500 (part).)

Description—Male. Length 6·25″; wing 2·75″; tail 3″; tarsus ·6″; bill from gape ·6″. Bill and legs black; irides brown.

Head, neck and back ashy; wings dusky blackish-brown, with a wing-band formed by bar of yellow on all the primaries except the first five and a band of orange on the outer webs, yellow on the inner webs of some of the secondaries; lining of wings yellow; tail blackish-brown, the four outer pairs of feathers graduated and broadly tipped orange-red; lores, ears, cheeks and throat black; breast, flanks, rump and upper tail-coverts rich vermilion or orange-red, fading into yellow on the abdomen and white on the vent.

Female. Upper plumage light ashy ; lower plumage and sides of head white tinged with yellow ; wing-band duller and more yellow than the male ; also the red on the outer tail-feathers is duller and more yellow than in the male.

Locality, habits, etc. A permanent resident, fairly common on the plains, more frequently met with on the slopes of the hills up to about 4,000 feet. It associates in small flocks and frequents gardens, orchards, roadside trees and open jungle ; flitting from tree to tree in search of insects. Mr. A. P. Kinloch found it rare on the Nelliampathy Hills.

Breeding season. June to September.

Nest. Of fine roots, bits of dead leaves, lichens, feathers and cobwebs placed high up as a rule, in the fork of a tree ; it is generally very difficult to find as the nest resembles the bark of the tree on which it is built.

Eggs. 2 or 3 ; greenish-white speckled with rusty-red ; also a variety with a whitish ground blotched all over with rusty-red and with some underlying purple spots and blotches ; another variety has a white ground spotted and blotched with red-brown and purple ; the eggs vary very greatly and it is difficult to find two clutches closely alike ; average measurement ·63 × ·53″.

(92) Pericrocotus erythropygius (Jerdon).

THE WHITE-BELLIED MINIVET.

(*Fauna of British India*, 2nd edition, No. 749.)
(*Fauna of British India*, 1st edition, No. 501.)

Description—Male. Length 5·75″ to 6″ ; wing 2·6″ ; tail 2·6″ to 3″ ; tarsus ·55″ ; bill from gape ·5″.

Bill and legs black ; irides brown ; "brownish yellow"—(*Fauna of British India*).

Whole upper plumage except rump, glossy blue-black ; wings brown ; a broad white bar across the centre of the inner primaries, and a longitudinal white wing-stripe formed by the tips of the greater coverts and the outer webs of the scapulars ; central tail-feathers blue-black ; the rest with their terminal portions white, the white increasing towards the outer feathers ; cheeks and chin dull black ; breast and rump rich orange-vermilion, the rest of the lower plumage white.

Female. "The upper plumage, lores and ear-coverts smoky brown ; the rump orange-red ; tail as in the male ; wing as in the male but the black replaced by dark brown ; forehead and whole lower plumage white"—(*Fauna of British India*).

Locality, habits, etc. Has been obtained on the slopes of the Nilgiris at 3,000 feet by Sir A. G. Cardew. Jerdon and Davison record it from the Sigur Ghat. Very common in parts of North Travancore, Malabar and Bombay.

Breeding season. July and August.

Nest. The same as that of other *Pericrocoti*.

Eggs. 2 ; greensih white finely and densely speckled with yellow-brown and pale purple ; the markings differ from those of most of the *Pericrocoti* in being denser and generally longitudinal in character ; average measurement ·7 × ·58″.

Genus **LALAGE** Boie 1826.

"Tail graduated; bill comparatively weak, tip being but slightly bent down and notched; nostrils nearly concealed by plumes; wing rather pointed"—(*Fauna of British India*).

(93) Lalage sykesii (Strickland).

THE BLACK-HEADED CUCKOO-SHRIKE.

(*Fauna of British India*, 2nd edition, No. 756.)
(*Fauna of British India*, 1st edition, No. 508.)

Description—Male. "Length 7·7"; wing 3·9"; tail 3·2"; tarsus ·8"; culmen ·8""—(*H. J. Walton*). Bill, legs and feet black; irides brown-red. Whole of head, chin, throat and breast black; remainder of upper plumage and lower breast darkish grey; remainder of lower plumage white; median wing-coverts black tipped and edged on outer margins with white; primary coverts and quills black, the latter with a patch of white on inner webs and margined with white; median tail-feathers grey with a black patch towards the tip; the other rectrices black, broadly tipped with white.

Female. "The upper plumage, including the head, grey, becoming lighter on the rump and upper tail-coverts, which are cross-barred with dusky; cheeks, sides of neck and whole lower plumage whitish, closely and narrowly barred with black, the bars becoming obsolete on the abdomen; vent and under tail-coverts pure white; wing coverts and quills dark brown, each feather margined with greyish white and the inner web of each with a white patch as in the male; ear-coverts greyish mottled with brown and the shafts white; the middle pair of tail-feathers grey narrowly tipped with white, the others blackish brown broadly tipped with white"—(*Fauna of British India*).

Locality, habits, etc. A permanent resident on the plains and on the hills up to about 3,000 feet. Observed by Mr. W. A. Hasted in the Chittoor District.

Breeding season. May to July.

Nest. "Shallow, saucer-like, of fine twigs bound together with cobwebs, in the fork of a tree"—(*Fauna of British India*).

Eggs. 2 or 3; yellow-stone, densely blotched so as to cover nearly the whole of the ground-colour, with brown and grey; average measurement ·83 × ·65".

Genus **GRAUCALUS** Cuvier 1817.

"Differs from *Lalage* in having a very long pointed wing and a relatively more massive bill"—(*Fauna of British India*).

(94) Graucalus macei macei (Less.).

THE LARGE INDIAN CUCKOO-SHRIKE.

(*Fauna of British India*, 2nd edition, No. 758.)
(*Fauna of British India*, 1st edition, No. 510 (part).)

Description—Male. Length 12"; wing 6·2"; tail 5·3"; tarsus 1"; bill from gape 1·4".

Bill black ; legs and feet brownish-black ; irides hazel-brown.

Whole upper plumage grey, lighter on rump and upper tail-coverts ; in front of nostrils, lores and feathers near gape, black ; ear-coverts darker than upper plumage ; wings brownish-black ; primaries narrowly margined and secondaries more broadly margined with white ; tertiaries with the outer webs grey, inner brownish-black ; median tail-feathers grey ; remainder brownish-black broadly tipped with white ; lower plumage pale grey ; abdomen white.

Female. All the black portions of the male are lighter in the female and the ear-coverts differ very slightly from the colour of the back ; lower plumage from the breast downwards generally obsoletely cross-barred.

Locality, habits, etc. A not uncommon permanent resident on the plains ; ascends the hills to about 1,500 feet, frequenting thin jungle. They have a loud call which they utter whilst on the wing. The flight is light and undulating and they are wholly insectivorous. Observed by Mr. W. A. Hasted in South Kanara.

Breeding season. May to October.

Nest. Shallow, of slender twigs placed in a lofty branch of a tree.

Eggs. In Hume's " *Nests and Eggs* " it says :—" The eggs are typically of a somewhat elongated oval, a good deal pointed towards one end, but some are broader and more of a typical Shrike shape. . . . . . The shell is compact and fine and faintly glossy. The ground-colour is a palish green stone-colour, greener in some and somewhat creamy in others. The markings are very Shrike-like, and consist of brown blotches, streaks and spots with numerous clouds and blotches of pale inky-purple which appear to underlie the brown markings. The markings in some eggs are all very faint and as it were half washed out, while in others they are very bright and clear. In some these are comparatively sparse and few, in others close-set and numerous especially in a broad zone near the large end ; but the zone is by no means invariably present, in fact not above one in five eggs exhibit it.

The average measurement 1·26 × 9″ nearly."

Family ARTAMIDÆ.

" Principal characteristics are their very long powerful wings and their very short tarsi. The wings have the first primary very small and the second and third sub-equal and longest. Tail short and square. Sexes alike in plumage "—(*Fauna of British India*).

Genus **ARTAMUS** Vieill. 1816.

" Characters those of the family "—(*Fauna of British India*).

(95) Artamus fuscus Vieill.

THE ASHY SWALLOW-SHRIKE.

(*Fauna of British India*, 2nd edition, No. 763.)
(*Fauna of British India*, 1st edition, No. 512.)

Description—Male. Length 7″ ; wing 5″ ; tail 2·25″ ; tarsus ·65″ ; bill from gape ·95″.

Bill pale bluish ; dusky at tip ; legs slaty ; irides dark brown.

Lores black; head, neck and upper plumage ashy; upper tail-coverts white; breast and abdomen vinous-ashy passing into greyish-white on the vent and under tail-coverts which latter are faintly barred with ashy; wings slightly longer than the tail.

Female. Similar to male.

Locality, habits, etc. A common permanent resident on the plains in certain parts of the Presidency, chiefly where cocoanut and other palm trees abound. We have also shot it on the slopes of the Nilgiris up to about 5,000 feet elevation. Their flight is very Swallow-like and they like congregating together side by side on a branch of a dead tree.

Breeding season. March to July.

Nest. Of grass, placed in a hole in a tree on the tops of palms, on large horizontal branches, or on the top of a stump.

Eggs. 3; pinkish-white, sparsely speckled, except towards the thick end, with rusty-yellow and with underlying very pale purple spots; average measurement ·94 × ·68″.

Family DICRURIDÆ.

"Rectrices ten; rictal bristles present; nostrils overhung by hairs or plumelets; sexes absolutely alike"—(*Fauna of British India*).

Genus **DICRURUS** Vieill. 1816.

"Bill stout, sharply carinated and covered at the base by thickest feathers, which partially conceal the nostrils. There is no crest or tuft on the head. The tail is well forked, the outermost feather exceeding the middle pair by a distance of from once to over twice the length of the tarsus; the outer tail-feathers have a slight curl upwards"—(*Fauna of British India*).

(96) Dicrurus macrocercus macrocercus (Vieill.).

THE BLACK DRONGO.

(*Fauna of British India*, 2nd edition, No. 766.)
(*Fauna of British India*, 1st edition, No. 327 (part).)

Description—Male. Length about 11·5″; wing 5·5″; tail 6·5″; tarsus ·85″; bill from gape 1·15″. Bill and legs black; irides orange-red; rictal bristles strong and numerous.

Whole plumage glossy black with steel-blue reflections; tail deeply forked, the outer feathers elongated and curved outwards; a small white spot at angle of gape.

Female. Similar to male.

Locality, habits, etc. The "King Crow" is an exceedingly common resident on the plains and occasionally ascends the hills. Its pugnacity during the breeding season is well-known, the male taking up a prominent position on the topmost branch of the tree in which the nest is built and vigorously attacking and driving off with much screaming, aided occasionally by his mate, any Kite, Crow or other bird that ventures to approach too near.

Breeding season. April to July or later.

Nest. Of roots and twigs, suspended from the fork of a branch generally placed high up in a mango tree or bamboo clump.

Eggs. 4; of two general types; one pure white, the other white or pale salmon, spotted with dark brown; average measurement 1 × 0·7″.

(97) Dicrurus macrocercus minor (Layard).

THE CEYLON KING CROW.

(*Fauna of British India*, 2nd edition, No. 768.)
(*Fauna of British India*, 1st edition, No. 327 (part).)

Description. A much smaller bird than the preceding with a smaller weaker bill but with an equally long tail. The wing averages 133 mm. as compared with 140·4 mm. in the Black Drongo—(*Fauna of British India*).

Locality, habits, etc. "So far recorded from Ceylon only. If a sufficient number of breeding birds only could be examined, it is probable that the South Travancore birds would be found to be of this race and, on the other hand, a few individuals which have occurred there of exceptionally large size and with heavy bills would possibly prove to be non-breeding visitors"—(*Fauna of British India*).

Breeding season, etc. "Similar to other races of this species but at present not much is known as to its breeding habits and as to how high it is found at this season"—(*Fauna of British India*).

(98) Dicrurus leucophæus longicaudatus A. Hay.

THE INDIAN GREY DRONGO.

(*Fauna of British India*, 2nd edition, No. 775.)
(*Fauna of British India*, 1st edition, No. 328 (part).)

Description—Male. Length 12″; wing 5·3″; tail 6·5″; tarsus ·7″; bill from gape 1·1″. Bill and legs black; irides crimson. Upper plumage black glossed with blue; frontal feathers and lores dull black; lower plumage dark grey.

Female. Similar to male.

Locality, habits, etc. More a forest bird than the last.
"Extremely common on the Nelliampathy Hills"—(*A. P. Kinloch*).

Breeding season. May and June.

Nest. Like that of *D. m. macrocercus*.

Eggs. 3 or 4; like the spotted ones of "*D. m. macrocercus*"; average measurement ·95 × ·74″.

(99) Dicrurus leucophæus minimus Stuart Baker.

THE CEYLON DRONGO.

(*Fauna of British India*, 2nd edition, No. 776.)
(*Fauna of British India*, 1st edition, No. 328 (part).)

Description. "A small, rather dark bird with a comparatively short tail"—(*Fauna of British India*).

Locality, habits, etc. "South Travancore. Habits those of the species but it is more of a forest bird than any of the Northern forms" —(*Fauna of British India*).

Breeding season, etc. "Not recorded"—(*Fauna of British India*).

(100) Dicrurus cœrulescens cœrulescens (Linn.).

THE WHITE-BELLIED DRONGO.

(*Fauna of British India*, 2nd edition, No. 777.)
(*Fauna of British India*, 1st edition, No. 330.)

Description—Male. Length 9·5″; wing 4·75″; tail 4·5″; tarsus ·75″; bill from gape 1·05″. Bill and legs black; irides lake-red. Upper plumage wings and tail black with blue reflections; grey on the upper tail-coverts; chin, throat and breast grey; abdomen and under tail-coverts white.

Female. Similar to male.

Locality, habits, etc. Found sparingly on hills and plains in open jungle; we have often seen this bird singly and not in pairs like *D. m. macrocercus*.

Observed by Mr. W. A. Hasted in the Chamala Reserve, Chittoor District.

Breeding season. May and June.

Nest. Similar to that of *D. m. macrocercus*, "placed usually in the fork of a leafless tree about 15 feet from the ground"—(*Davidson*).

Eggs. 2 or 3; pale salmon sparingly spotted with a deeper shade of the same colour and with underlying purple blotches; the spots denser towards the thick end; average measurement 0·9 × 0·65″.

Genus **CHAPTIA** Hodgson 1837.

"Bill flattened and depressed; feathers of crown and hind neck pointed; plumage very glossy; tail much forked, the middle pair of feathers reaching very little beyond the middle of the tail."—(*Fauna of British India*).

(101) Chaptia ænea malayensis (A. Hay).

THE SOUTHERN BRONZED DRONGO.

(*Fauna of British India*, 2nd edition, No. 781.)
(*Fauna of British India*, 1st edition, No. 334 (part).)

Description—Male. Length 9 to 9·5″; wing 4·75″; tail 4·5″; tarsus ·65″; bill from gape 1″.

Bill and legs black; irides dark brown.

Plumage above rich blue-black with a bronze gloss; wings, tail and plumage below black with only a faint gloss.

Female. Similar to male.

Locality, habits, etc. Found on the hills in forests at about 3,000 feet elevation. Ferguson says "common in the low country and on the hills (Travancore), at all elevations, where commonly several pairs of this bird may be seen in proximity of each other."

"Not uncommon on the Nelliampathy Hills"—(*A. P. Kinloch*).

Breeding season. March to June.

Nest. Of grass and fibres covered with cobwebs, placed in the fork of a tree.

Eggs. 3 or 4 ; reddish-brown with slightly darker markings at the large end ; average measurement ·82 × ·61".

Mr. Stuart Baker says he thinks the Southern bird lays 2 eggs only very seldom four, whereas the Northern bird lays four often.

Genus **CHIBIA** Hodgson 1837.

"Bill long, pointed and curved downwards. Plumage very glossy and feathers of sides of neck greatly lengthened and lanceolate. About half-a-dozen long hairs spring from the posterior crown lying over the neck and back ; tail nearly square and tips of outer-most feathers curved upwards"—(*Fauna of British India*).

We consider the long hairs spring from the *anterior* crown—(*C.M.I.*).

(102) Chibia hottentotta hottentotta (Linn.).

THE INDIAN HAIR-CRESTED DRONGO.

(*Fauna of British India*, 2nd edition, No. 782.)
(*Fauna of British India*, 1st edition, No. 335.)

Description. "Whole plumage black ; the head, neck, wings, tail and breast with metallic-blue gloss, inclining to bronze on the wings and tail in certain lights. Iris red-brown to dark brown ; bill, legs and feet black.

Young birds are browner with less gloss and the axillaries and under wing-coverts tipped with white ; the neck hackles, which in the adult run up to as much as 30 mm. are short and the long hairs which spring from the head not more than 50 mm. as against nearly 100 mm. in the adult"—(*Fauna of British India*).

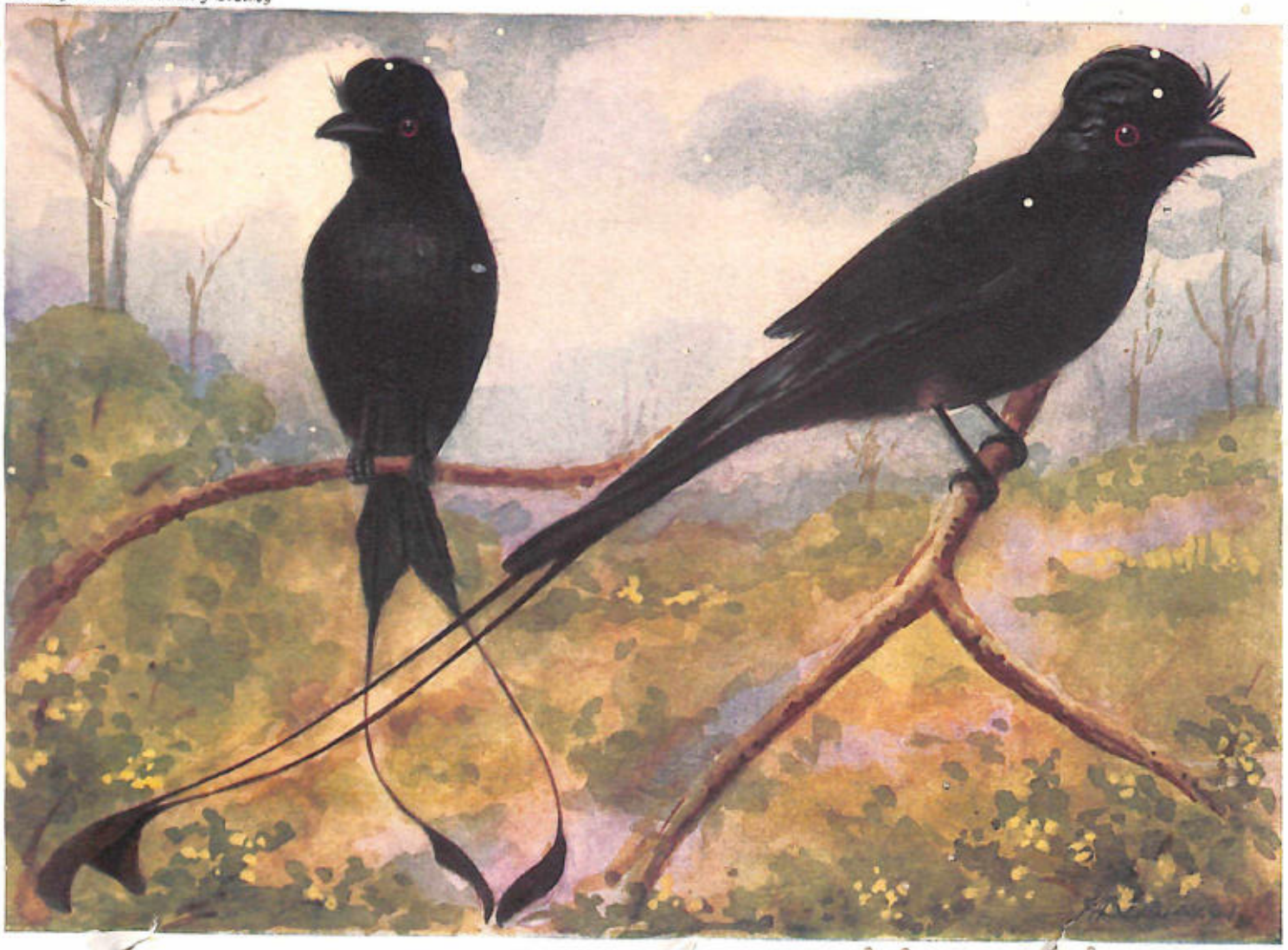
Locality, habits, etc. "Travancore and Malabar. Essentially a forest-bird and frequents broken ground, low hills and bigger mountains up to some 3,000 feet. It is not gregarious and does not as a rule assemble in flocks. They feed largely by searching flowers and leaves for insects but also catch these on the wing. Their ordinary flight is more powerful and less dipping than that of most Drongos, whilst their calls are *even louder*"—(*Fauna of British India*).

Many may however be seen together when Simul trees are in flower—(*C.M.I.*).

Breeding season. "February to March and June"—(*Fauna of British India*).

Nest. "Merely a large edition of the common Drongo's nest but is nearly always placed high up in a tree standing in forest"—(*Fauna of British India*).

Eggs. "3 or 4, rarely 5 or equally seldom 2 only. They are longer and more pointed than other Drongo's eggs, in ground colour varying from pure white to deep salmon, pale creamy eggs being the most common. The markings consist of rather pale reddish blotches, somewhat longitudinal in character and fairly profuse everywhere ; average measurement 29·2 × 21·2 mm."—(*Fauna of British India*).



THE RACKET-TAILED DRONGO
(*Dissemurus paradisus grandis*).
Two-thirds Nat. Size.

Genus **DISSEMURULUS** Oates 1889.

"Characterised by the possession of a tuft of ordinary feathers on the forehead measuring about half an inch in length. The tail is deeply forked but the outer tail-feathers are not prolonged"—(*Fauna of British India*).

(103) Dissemurulus lophorhinus (Vicill.).

THE CEYLON BLACK DRONGO.

(*Fauna of British India*, 2nd edition, No. 785.)
(*Fauna of British India*, 1st edition, No. 338.)

Description. "The whole plumage black, highly glossed with blue and green on the tips and margins of the feathers except on the abdomen and flanks; under wing-coverts and axillaries tipped with white"—(*Fauna of British India*).

"Iris dull brownish-red or dark-yellowish red; bill, legs and feet black"—(*Fauna of British India*).

"Length about 14"; tail about 8"; wing 6"; tarsus 1·1"; bill from gape 1·4"; depth of fork of tail 2·5"—(*Fauna of British India*).

Locality, habits, breeding season, etc. Mr. Stewart has obtained this bird and found it breeding in the extreme south of Travancore in March and April.

Nest. Mr. Stuart Baker says that the nest does not vary much from that of *D. paradiseus* though it is smaller and neater.

Eggs. He has eggs in his collection from Mr. Stewart from Travancore and others from Ceylon. They are pink in ground-colour of a not very bright tinge, and are boldly marked with a reddish-brown and secondary marks, of lavender and grey. These form blotches, wide streaks and spots and are more numerous at the larger end. The eggs average 1·02 × ·77".

Genus **DISSEMURUS** Gloger 1842.

The feathers of the forehead are prolonged into a handsome crest curling back over the crown, while the rackets of the long outer tail-feathers are webbed broadly on the outer side but only very narrowly on the inner"—(*Fauna of British India*).

(104) Dissemurus paradiseus malabaricus (Lath.).

THE MALABAR LARGE RACKET-TAILED DRONGO.

Plate VIII.

(*Fauna of British India*, 2nd edition, No. 792.)
(*Fauna of British India*, 1st edition, No. 340 (part).)

Description—Male. Length 26"; wing 6"; tail 20"; tarsus 1·1"; bill from gape 1·7".

Bill and feet black, irides red.

Whole plumage black glossed with metallic blue, except on throat, abdomen, vent and inner webs of quills.

Female. Similar to male.

Locality, habits, etc. Common in the forests of Travancore and Malabar and the Nellore Ghats, to an elevation of about 3,000 feet. This bird is a fine songster and does well in captivity, providing it is given plenty of room. Often seen in the company of a lot of small birds.

Mr. A. P. Kinloch found it very common on the Nelliampathy Hills and "heard it imitate, among many others, the calls of the Great Malabar Black Wood-pecker and the Malabar Grey Hornbill."

Breeding season. April to June.

Nest. A shallow cup of twigs well covered with cobwebs placed high up in a tree.

Eggs. 2 or 3; pale pink speckled and blotched with red and pale purple, denser towards the thick end; others are more deeply marked; average measurement 1 × ·75".

Family SYLVIIDÆ.

"Nostrils always clear of line of forehead, the space between the nostril and edge of the mandible less than space between nostril and culmen; plumage of nestling like that of adult female but brighter; rectrices ten or twelve; sexes generally alike; a partial or complete spring moult in addition to the complete autumn moult"—(*Fauna of British India*).

Genus **ACROCEPHALUS** Naum. 1811.

"Bill rather slender and generally nearly as long as the head; forehead smooth and there are three well-developed, strong, rictal bristles on each side of the head. First primary small and second varies considerably in comparative length. Tail long and well-graduated, the feathers rather narrow and pointed"—(*Fauna of British India*).

(105) Acrocephalus stentoreus brunnescens (Jerdon).

THE INDIAN GREAT REED-WARBLER.

(*Fauna of British India*, 2nd edition, No. 795.)
(*Fauna of British India*, 1st edition, No. 363.)

Description—Male. Length 7·75"; wing 3·25"; tail 3"; tarsus 1·15"; bill from gape 1". Bill dark brown above, fleshy below; legs plumbeous; irides yellowish brown.

Above olive-brown tinged fulvous; wings and tail brown; a buff superc'lium; lores brown; lower plumage pale fulvous, lighter on throat and abdomen.

Female. Similar to male.

Locality, habits, etc. A cold weather visitor to the plains.

Breeding season, etc. Breeds in the Himalayas.

(106) Acrocephalus dumetorum Blyth.

BLYTH'S REED-WARBLER.

(*Fauna of British India*, 2nd edition, No. 799.)
(*Fauna of British India*, 1st edition, No. 366.)

Description—Male. Length 5·75 to 6″; wing 2·5 to 2·75″; tail 2·25″; tarsus ·9″; bill from gape ·7″.

Bill dark brown above; fleshy below; legs red-plumbeous; irides yellow-brown.

Above olive-brown; lores dustly with a faint pale streak above them; wings and tail brown; chin and throat albescent; remainder of lower plumage pale buff.

Female. Similar to male.

Locality, habits, etc. A common winter visitor to the hills and plains, but is not often seen as it is very shy and frequents the densest undergrowth and hedges.

Breeding season, etc. Breeds in the Himalayas.

(107) Acrocephalus agricolus (Jerdon).

THE PADDY-FIELD WARBLER.

(*Fauna of British India*, 2nd edition, No. 800.)
(*Fauna of British India*, 1st edition, No. 367.)

Description—Male. "Length 5·3″; wing 2·2″; tail 2·4″; tarsus ·9″; bill from gape ·7″; upper mandible dark brown; lower mandible fleshy yellow; legs pinkish-brown; irides pale yellow; eyelids plumbeous; mouth orange-yellow.

"Whole upper plumage russet brown, brighter on the rump and upper tail-coverts; tail of same colour and margined brighter on the outer webs; lores dusky; an indistinct supercilium from the bill to above the eye and not extending much beyond the latter; ear-coverts and sides of neck like the upper plumage; lower plumage pale buff, less bright on the abdomen and becoming almost white on the chin and throat"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. A winter visitor to the plains. Recorded from Nellore. Breeds in Kashmir.

Genus **LOCUSTELLA** Kaup. 1829.

"Bill slender, about half as long as the head; rictal bristles very weak and hardly noticeable; forehead very smooth and free from all hairs; plumage soft but not fluffy; first primary very small; second long, reaching almost to tip of wing; tail considerably graduated, the feathers being slightly pointed; under tail-coverts very long"—(*Fauna of British India*).

(108) Locustella nævia straminea (Seebohm).

THE EASTERN GRASS-HOPPER WARBLER.

(*Fauna of British India*, 2nd edition, No. 807.)
(*Fauna of British India*, 1st edition, No. 362.)

Description—Male. "Length 5·5"; wing 2·3"; tail 2"; bill from gape ·6"."

"Upper mandible dark brown; lower mandible, legs and feet fleshy; irides light brown."

"The whole upper plumage olive-brown, each feather with a central dark brown or black spot; wings brown edged with olive-brown; tail brown, faintly edged with olive-brown and tipped paler, obsoletely cross-rayed; lores and an indistinct supercilium buffy white; ear-coverts brownish; chin, throat and middle of abdomen whitish; remainder of lower plumage ochraceous; inside tail-coverts streaked with brown"—(*Fauna of British India*).

Locality, habits, etc. A rare winter visitor: has been recorded from Coimbatore, and Mr. Ferguson writing to the *Bo. Nat. Hist. Soc. Journal*, Vol. XV, p. 3, says:—"This Warbler is said to be a winter visitor to the plains of India; I have only one specimen and that was shot in a swamp at 4,000 feet elevation in April, 1901. There were more of them, but they were very difficult to get, as once flushed, they would not rise again, so that they have to be shot on the wing directly they rise, and there is not much to shoot at."

Genus **ORTHOTOMUS** Horsfield 1821.

"Bill as long as head, broad and rather flat; there are a few rictal bristles but no supplementary hairs, and forehead very smooth and flat; wing short and rounded; first primary large and fourth and fifth longest and sub-equal; tail of twelve feathers and much graduated; tarsus long"—(*Fauna of British India*).

(109) Orthotomus sutorius sutorius (Forst.).

THE INDIAN TAILOR-BIRD.

Plate IX.

(*Fauna of British India*, 2nd edition, No 813.)
(*Fauna of British India*, 1st edition, No. 374 (part).)

Description—Male. Length 5"; wing 2"; tail 2"; tarsus ·8"; bill from gape ·6".

Bill, upper mandible horny, lower pale fleshy; legs fleshy; irides reddish-yellow.

Forehead and anterior portion of crown rusty red; remainder of crown and nape ashy; sides of face pale rufous with white shafts; remainder of upper plumage yellow-green; wings brown, the coverts edged with yellow-green; tail with the median feathers yellow-green, the others greenish-brown tipped white and with a sub-terminal brown patch; a few hairs spring from the nape; lower plumage yellow-white; sides grey and thighs rufous.

Female. Similar to male.

Locality, habits, etc. An exceedingly common resident on the plains; scarcer on the hills which it ascends to about 6,500 feet. It is chiefly found in gardens where its "tweet—tweet" can be heard at all hours of the day as it climbs amongst the pots and plants in search of food which consists of spiders, insects and flies. It is a most confiding little bird and shows not the least fear of man, building its nest frequently among the plants in one's verandah where nothing short of removing the plant altogether on which it has built will scare it away. I remember some years back that a Tailor-bird chose as its roosting-place a shrub standing in a pot inside my verandah close up against the door where people constantly passed in and out of the house; this latter fact, however, did not disturb the bird in the least for every evening it would herald its approach with loud "tweets" and without hesitation would perch on its favourite twig and go off to sleep; and it only changed its roosting-place when after several weeks the mali, against orders, removed the pot—(*H.R.B.*).

Breeding season. March to September.

Nest. If of one leaf, the opposite edges are sewn together with cotton, cobwebs, etc.; if of two or more leaves, they are sewn together in the shape of a bag, the inside being lined with vegetable down and a few hairs. The nest is not often built more than a few feet off the ground, and the choice of a site appears to depend chiefly upon the presence of suitable broad-leaved shrubs such as crotons, cannas, melon plants, etc.

Eggs. 4; the ground-colour varies between pale greenish-blue, white, and reddish-white, spotted with reddish-brown, generally in a cap at the large end; average measurement ·64 × ·45″.

Genus **CISTICOLA** Kaup. 1829.

"A seasonal length of tail; first primary very small, bill slender and pointed. These Warblers have a moderate tail, almost short in summer, evenly rounded, and proving a perfect fan, hence the English name; two short rictal bristles, no supplementary hairs, smooth forehead"—(*Fauna of British India*).

(110) Cisticola exilis erythrocephala (Blyth).

THE RED-HEADED FANTAIL WARBLER.

(*Fauna of British India*, 2nd edition, No. 322.)
(*Fauna of British India*, 1st edition, No. 378.)

Description—Male. Length 4 to 4·5″; wing 1·9″; tail 1·5 to 2″; tarsus ·75″; bill from gape ·55″.

"Upper mandible pale brown, lower mandible and legs fleshy; irides burnt sienna."

"In summer, the forehead, crown, and nape are chestnut, shading off into dull rufous which forms a collar on the hind neck and sides of neck, back rufous streaked with black; rump and upper tail-coverts rufous brown; tail black with white tips; wings and coverts dark brown edged with rich fulvous; sides of head and whole lower plumage bright ferrugineous"—(*Fauna of British India*).

Female. In summer resembles the male ; but the forehead, crown and upper tail-coverts are black, each feather edged with rufous ; the tail broadly edged with olive-brown and tipped with dull rufous white and subterminally black ; these marks being very clear when viewed from below "—(*Fauna of British India*).

The male and female in winter are like the female in summer.

Locality, habits, etc. "Karkur Pass leading from the Wynaad into Lower Malabar and on the Palni Hills at Mount Nebo, Kukal, and Kodaikanal, where this is a resident species. It frequents grass like the other species of this genus "—(*Fauna of British India*).

Breeding season, etc. Nothing recorded.

(111) Cisticola juncidis cursitans (Frankl.).

THE STREAKED FANTAIL WARBLER.

(*Fauna of British India*, 2nd edition, No. 825.)
(*Fauna of British India*, 1st edition, No. 381.)

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

Bill, culmen brown, remainder fleshy ; legs pinkish ; irides yellow-brown.

Upper plumage blackish brown deeply margined rufous-fulvous ; rump rufous ; wings brown edged rufous-fulvous ; ear-coverts brownish ; lores buffy white ; supercilium and lower plumage (except chin and throat which are nearly pure white) fulvous ; tail rufous brown with darker brown centres to the feathers and all except the median pair broadly tipped white and sub-terminally black ; the median pair slightly tipped white and more brown down the centre of the feathers than in the others.

Female. Similar to male.

Locality, habits, etc. A common permanent resident on the plains and hills up to 3,600 feet where it frequents paddy-fields and marshy places overgrown with rank grass as well as patches of grass in the open which are perfectly dry.

Breeding season. April to October.

Nest. Deep cup-shaped, of fine grass with cobwebs and vegetable down, placed in grass.

Eggs. 3, 4 or 5 ; white, thickly speckled with brownish-red ; average measurement ·59 × ·46″.

Genus **FRANKLINIA** Blyth 1863.

"Bill slender and about two-thirds the length of head, longer and blunter than in *Cisticola*. Rictal bristles strong and two in number ; wing rounded and feeble, the first primary more than half the length of the second, and the fifth is slightly the longest ; tail even in summer very ample and well graduated ; tarsus strong "—(*Fauna of British India*).

(112) Franklinia gracilis Frankl.

FRANKLIN'S WREN-WARBLER.

(*Fauna of British India*, 2nd edition, No. 827.)
(*Fauna of British India*, 1st edition, No. 382.)

Description—Male. Length 4·5 to 4·7″; wing 1·8″; tail 2 to 2·4″; tarsus ·7″; bill from gape ·55″.

Bill brownish black; legs orange; irides red-brown.

Summer plumage. Whole upper plumage ashy-grey; wings margined with rufous and tail tipped with white and with a subterminal broadish patch of dark brown; ear-coverts white anteriorly, greyish posteriorly; whole lower plumage except the breast white, the latter being ashy-grey.

Winter plumage. There is a white line over the eye, and the remainder of the upper plumage is rufous-brown; wings brown broadly edged with rufous; lower plumage tinged with fulvous; tail and breast as in summer.

Female. Similar to male.

Locality, habits, etc. A common permanent resident on the plains and hills frequenting grassy patches.

According to Mr. T. F. Bourdillon, it does not however breed in the hills preferring elevations of about 300 to 1,000 feet above sea-level.

Breeding season. May to July.

Nest. "The nest of this bird is a neat structure of fine grass resting on a leaf as a foundation which is stitched to the nest after the fashion of Tailor-birds' nests"—(*T. F. Bourdillon*).

Eggs. 4 of four varieties—(*a*) pure white, (*b*) pale blue, (*c*) white speckled with red, denser at the thick end, and (*d*) pale bluish-green speckled with red, also denser at the thick end; average measurement ·58×·42″.

(113) Franklinia rufescens rufescens (Blyth).

BEAVAN'S WREN-WARBLER.

(*Fauna of British India*, 2nd edition, No. 828.)
(*Fauna of British India*, 1st edition, No. 323 (part).)

Description—Summer. "A line from the nostrils over the eye white; lores brown; forehead, crown and nape ashy-brown; remainder of upper plumage rufous-brown, brighter and more rufous on tail and wing feathers; tail-feathers tipped with pale rufescent or white and sub-tipped with a blackish patch; lower plumage white faintly washed with fulvous, more pronounced on the vent, flanks and under tail coverts. Bill paler than in *F. gracilis*.

Winter. The forehead and crown are practically unicolorous with the back and the underparts are generally more suffused with rufous. The rufous of the upper plumage is also brighter in winter than in summer"—(*Fauna of British India*).

Locality, habits, etc. "South India to the foot of the Himalayas. Its habits are the same as those of F. gracilis"—(*Fauna of British India*).

Breeding season, etc. "Similar to *F. gracilis*. The eggs, as a whole are rather more boldly blotched"—(*Fauna of British India*).

(114) Franklinia buchanani Blyth.

THE RUFOUS-FRONTED WREN-WARBLER.

(*Fauna of British India*, 2nd edition, No. 831.)
(*Fauna of British India*, 1st edition, No. 384.)

Description—Male. "Length 5 to 5·5"; wing 2·1"; tail 2·3 to 2·7"; tarsus ·7"; bill from gape ·6".

Upper mandible dusky, lower pale fleshy; legs pale fleshy brown; irides light brown to orange-red.

Upper plumage and sides of neck reddish brown, brightest on forehead and crown; wings and coverts with broad edges of the same; tail brown faintly cross-barred; all feathers except the middle pair broadly tipped white and subterminally darker; lores and supercilium white; ear-coverts and under the eyes whitish; lower plumage white; flanks, vent and under tail-coverts tinged with fulvous; thighs ferrugineous"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. A permanent resident on the table lands of South India, "rare around Madras"—(*Dewar*).

Breeding season. May to September.

Nest. "Either cup-shaped, globular, or like a purse; of vegetable fibres and grass, built in a low bush"—(*Fauna of British India*).

Eggs. 4 or 5; greeny white speckled with purplish-red; average measurement ·62 × ·48".

Genus **SCHOENICOLA** Blyth 1844.

"Bill short, only half as long as head; rictal bristles strong, numbering two. Wing fairly developed; third primary reaching up to tip of wing, the first two being of large size; tail at both seasons very ample and well graduated. Tarsus remarkably long"—(*Fauna of British India*).

(115) Schœnicola platyura (Jerdon).

THE BROAD-TAILED GRASS-WARBLER.

(*Fauna of British India*, 2nd edition, No. 837.)
(*Fauna of British India*, 1st edition, No. 390.)

Description—Male. Length 7"; wing 2·7"; tail 2·5 to 2·7"; tarsus ·85"; bill from gape ·65".

Bill black above, below pale horny-blue; irides olive-brown.

Legs and feet brown in front, pale whitish flesh-colour behind and on the soles.

Plumage, April to June. "Lores and small indistinct supercilium pale grey; the whole upper plumage rich brown tinged with rufous, rather brighter on the wings; back, rump and tail faintly cross-rayed and the tail a darker brown, pale-tipped; chin, throat and centre of

breast and abdomen white ; remainder of lower plumage, cheeks, ear-coverts and sides of neck rich ochraceous, this colour often meeting across the throat. Birds obtained in August-September are much paler throughout ; the upper parts are fulvous-brown and the lower parts are pale ochraceous-white "—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. A permanent resident in the hills and in the plains, frequenting bushy grassy lands and reeds ; it sings whilst soaring in the air.

Breeding season. September.

Nest. " A ball of grass with side entrance situated in a clump of grass near the ground "—(*Fauna of British India*).

Eggs. 4 ? white spotted with brownish red ; and measure 0·73 × 0·6"—(*Fauna of British India*).

Genus **CHAETORNIS** G. R. Gray 1848.

" Rictal bristles five in number, arranged vertically in front of eye ; lores tail naked ; not changed in Spring ; rectrices twelve "—(*Fauna of British India*).

(116) Chætornis locustelloides (Blyth).

THE BRISTLED GRASS-WARBLER.

(*Fauna of British India*, 2nd edition, No. 838.)
(*Fauna of British India*, 1st edition, No. 392.)

Description—Male. Length 8·5" ; wing 3·2" ; tail 3·4" ; tarsus 1·15" ; bill from gape ·75".

From April to September, the bill and palate black ; legs fleshy-brown ; irides light brown ; at other times, the bill brownish-horny. Whole upper plumage fulvous-brown, broadly streaked with black ; lores and a supercilium and rim round eyelids, white ; wings brown, edged rusty fulvous ; tail brown barred black and tipped dull white ; lower plumage white ; breast tinged with fulvous and sides of breast fulvous-brown.

Female. Similar to male.

Locality, habits, etc. Apparently rare ; has been procured by Jerdon at Nellore and on the Nilgiris ; frequents grass-land.

Breeding season. May to September.

Nest. Globular, with side entrance, placed in grass or in a bush, sometimes on the ground.

Eggs. " White speckled with brown and inky-purple, and measure ·8 × ·6" "—(*Fauna of British India*).

Genus **PHRAGMATICOLA** Jerdon 1845.

" Feathers of forehead disintegrated, soft and with shafts somewhat produced, third primary reaches tip of wing. Tail very much graduated and feathers narrow ; bill short and rather wide ; rictal bristles three, strong and placed diagonally "—(*Fauna of British India*).

(117) Phragmaticola ædon (Pall.).

THE THICK-BILLED WARBLER.

(*Fauna of British India*, 2nd edition, No. 859.)
(*Fauna of British India*, 1st edition, No. 393.)

Description—Male. Length 7·7″; wing 3·1″; tail 3·2″; tarsus 1·1″; bill from gape ·88″.

Bill horny brown above, yellow-fleshy below; legs plumbeous; irides brown.

Upper plumage fulvous-brown tinged with olive; rump purer fulvous; lores whitish, and rim round eyelids fulvous; lower plumage fulvous-white, darker on breast and sides of body; wings and tail brown edged with fulvous-brown.

Locality, habits, etc. A very rare winter visitor. A specimen has been procured at Bangalore and Mr. Ferguson reports having shot one at the foot of the hills in Travancore.

Breeding season, etc. Breeds outside India.

Genus **HIPPOLAIS** Brehm. 1828.

"Bill from gape to tip longer than middle toe and claw; rictal bristles thinner, weak; first primary small but not minute; third reaches to tip of wing; tail slightly rounded; colour of plumage very dull, without a single bright spot or line to relieve it"—(*Fauna of British India*).

(118) Hippolais rama (Ayres).

SYKE'S TREE-WARBLER.

(*Fauna of British India*, 2nd edition, No. 840.)
(*Fauna of British India*, 1st edition, No. 394.)

Description—Male. Length 5·5″; wing 2·5″; tail 2·2″; tarsus ·8″; bill from gape ·6″. "Bill brown above, fleshy below; legs and feet grey; irides brown.

After autumn moult, the upper plumage and margin of wings and tail olive-brown tinged fulvous; outer tail-feathers edged with whitish; lores dusky; a pale whitey-buff supercilium from nostrils to just past the eyes; whole lower plumage very pale buff; throat and middle of abdomen nearly white"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. "A very common winter visitor to the plains especially around Madras"—(*Dewar*). It is also found on the hills, but according to Ferguson it is decidedly rare in the extreme South of India.

Breeding season, etc. Breeds in Sind, the Punjab and the North-West Provinces, etc.

(119) Hippolais scita (Eversm.).

THE BOOTED TREE-WARBLER.

(*Fauna of British India*, 2nd edition, No. 842.)
(*Fauna of British India*, 1st edition, No. 396.)

Description. "Similar to *H. rama*, but smaller and with a different wing-formula, the second primary being always shorter than the 7th, or even the 8th, whereas in *H. rama* it is always longer than the 7th"—(*Fauna of British India*).

Locality, habits, etc. "A winter visitor to India and Ceylon. Its habits are those of the genus. A shy skulking little bird haunting bushes, reeds and cover in the vicinity of water"—(*Fauna of British India*).

Breeding season, etc. Breeds outside India.

Genus **SYLVIA** Scop. 1769.

"Bill from gape to tip shorter than middle toe and claw. Rictal bristles three, weak; feathers of forehead decomposed, rough. First primary small, second about equal to sixth; tail slightly graduated; tarsus stout and short"—(*Fauna of British India*).

(120) Sylvia hortensis crassirostris (Cretz.).

THE EASTERN ORPHEAN WARBLER.

(*Fauna of British India*, 2nd edition, No. 846.)
(*Fauna of British India*, 1st edition, No. 399.)

Description—Male. "Length 7″; wing 3·2″; tail 2·9″; tarsus ·9″; bill from gape ·85″. Bill blackish brown, slaty at base of lower mandible; legs and feet slaty grey; irides pale straw or dirty white.

"Forehead, crown, lores, nape and sides of the head black; upper plumage slaty grey; tail black, outermost feathers with the outer webs white, and the inner with the terminal third white; the next two pairs white at the tip of the inner web; cheeks and lower plumage white tinged with very pale buff, especially on sides of body; under tail-coverts slaty grey, broadly tipped with white"—(*Fauna of British India*).

Female. Crown to nape dark brown, blacker on ear-coverts; otherwise similar to male.

Locality, habits, etc. A somewhat rare winter visitor and has been found as far south as Trichinopoly. It frequents bushes and trees and is restless and shy.

Breeding season. Breeds on North-West Frontier of India, etc.

(121) Sylvia althæa (Hume).

HUME'S LESSER WHITE-THROAT.

(*Fauna of British India*, 2nd edition, No. 848.)
(*Fauna of British India*, 1st edition, No. 401.)

Description. "Upper plumage greyish brown, purer and darker grey on the crown; tail brown, the central feathers tipped and narrowly

edged white ; the white on the others increasing in extent until the outermost are almost wholly white ; wing dark brown, the feathers edged paler and the innermost secondaries like the back ; lores, round the eye and ear-coverts a darker brown than the head ; the whole lower plumage pale buffy-grey, almost white on chin, throat and abdomen, darker and ashy on flanks.

Iris dark brown ; bill black, paler on the base of the lower mandible ; legs and feet dark plumbeous to almost black "—(*Fauna of British India*).

Locality, habits, etc. "A winter visitor as far south as the Carnatic and Ceylon"—(*Fauna of British India*).

Breeding season, etc. Breeds in Kashmir, etc.

(122) Sylvia curruca affinis (Blyth).

THE INDIAN LESSER WHITE-THROAT.

(*Fauna of British India*, 2nd edition, No. 849.)
(*Fauna of British India*, 1st edition, No. 402.)

Description—Male. Length 5·15″ ; wing 2·6″ ; tail 2·4″ ; tarsus ·75″ ; colmen ·55″.

"Bill dusky horny ; base of lower mandible greyish ; legs and feet bluish plumbeous : irides brownish white" – (*H. J. Walton*).

"Similar to *S. althæa* but with the upper plumage earthy-brown, the forehead and crown rather more grey"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. A fairly common visitor throughout the Presidency.

Breeding season, etc. Breeds in Kashmir.

Genus **PHYLLOSCOPUS** Boie 1826.

"Supplementary bristles in front of rictal bristles vary in strength ; rictal bristles fairly strong ; first primary small and the length of the second varies in different species and subspecies ; tail either square or slightly forked : bill narrow and small ; supplementary hairs stop short at the lower edge of the nostrils and do not overhang them"—(*Fauna of British India*).

(123) Phylloscopus affinis (Tickell).

TICKELL'S WILLOW-WARBLER.

(*Fauna of British India*, 2nd edition, No. 852.)
(*Fauna of British India*, 1st edition, No. 405.)

Description—Male. Length 4·5″ ; wing 2·5″ ; tail ·2″ ; tarsus ·8″ ; bill from gape ·5″. Bill horny above, pale amber below ; legs pale brown tinged with yellow.

Above dull olive-green ; a narrow supercilium and the whole plumage below deep yellow, brightest on the middle of the abdomen ; tinged dull olive-green on sides of neck and breast ; under wing-coverts and axillaries yellow.

Female. Similar to male.

Locality, habits, etc. A somewhat rare cold weather visitor to the summit of the hills. Like all Willow-Warblers, they may be seen hunting in the leaves of trees or bushes for insects. They are restless little birds and keep continually on the move. All of them are migratory.

Breeding season, etc. Breeds in Kashmir and Tibet.

(124) Phylloscopus tytleri (Brooks).

TYTLER'S WILLOW-WARBLER.

(*Fauna of British India*, 2nd edition, No. 853.)
(*Fauna of British India*, 1st edition, No. 406.)

Description—Male. Length 5″; wing 2·4″: tail 1·8″; tarsus ·7″; bill from gape ·55″. Bill above dark brown, below paler; legs brownish-green; irides dark brown.

A supercilium extending to nape pale yellow. Lores and a band continuing behind the eye, black; remainder of upper plumage green; wings and tail brown margined with green; under wing-coverts and axillaries sulphur colour; lower plumage pale dull yellow tinged with grey.

Female. Similar to male.

Locality, habits, etc. A very rare winter visitor; has been obtained in Ootacamund and extends as far south as the Palnis.

Breeding season, etc. "Breeds in Kashmir"—(*Fauna of British India*).

(125) Phylloscopus humii humii (Brooks).

HUME'S WILLOW-WARBLER.

(*Fauna of British India*, 2nd edition, No. 870.)
(*Fauna of British India*, 1st edition, No. 418.)

Description. "Upper plumage rather bright olive-green; a faint coronal streak greyish-green; a broad supercilium from the nostrils to the nape pale yellow; the crown above the supercilium being sometimes much darker than elsewhere; lores and a line through the eye dark brown; wing feathers dark brown edged with olive-green and with two broad wing-bars formed by the pale yellow tips to the coverts; tail dark brown edged with greenish outwardly and, in very fresh plumage, with a narrow whitish edging on the inner webs; sides of head mixed brown and yellow; lower plumage yellowish-white; often tinged with ochre and darker on the breast; axillaries and under wing-coverts yellow. Iris dark brown; upper mandible dark horny-brown, lower mandible pale yellowish-horny, tipped darker; legs and feet dark horny-brown to plumbeous-brown"—(*Fauna of British India*).

Locality, habits, etc. "A winter visitor as far South as Travancore"—(*Fauna of British India*).

Breeding season, etc. Breeds in the Himalayas, etc.

Genus **ACANTHOPNEUSTE** Blasius 1858.

"Bill proportionately larger than in *Phylloscopus*; nostrils overhung by frontal hairs growing from rictus to gape quite up to culmen; otherwise, the two genera are alike"—(*Fauna of British India*).

(126) Acanthopneuste nitidus nitidus (Blyth).

THE GREEN WILLOW-WARBLER.

(*Fauna of British India*, 2nd edition, No. 874.)
(*Fauna of British India*, 1st edition, No. 421.)

Description—Male. "Length about 5"; wing 2·4"; tail 2"; tarsus ·8"; bill from gape ·6" "—(*Fauna of British India*).

Bill brownish horny above, fleshy below; legs olive; irides dark brown.

Upper plumage yellow-green; lores and a streak behind the eye brownish-green; supercilium extending to nape yellow; wings brown edged with green; median and greater coverts tipped yellow forming wing-bars, the colour being more pronounced on the latter; tail brown narrowly margined with white: lower plumage brightish yellow.

Female. Similar to male.

Locality, habits, etc. A cold weather visitor to the hills and plains frequenting lofty trees in thick jungle.

Breeding season, etc. Breeds outside India.

(127) Acanthopneuste nitidus viridanus (Blyth).

THE GREENISH WILLOW-WARBLER.

(*Fauna of British India*, 2nd edition, No. 875.)
(*Fauna of British India*, 1st edition, No. 422.)

Description—Male. Length 4·9"; wing 2·4"; tail 1·9"; tarsus ·7"; bill from gape ·6".

Upper mandible dark brown, lower brown, yellowish at base; legs and feet greenish brown; irides brown.

"Similar to the Green Willow-Warbler but much browner above and much less yellow below; the wing-bar on the median coverts wanting and the second is often obsolete "—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. A cold weather visitor to the hills.

Breeding season, etc. Breeds in extreme Northern Kashmir, Ladak and in North and North Central Tibet as well as in N.W. Central Asia.

(128) Acanthopneuste magnirostris (Blyth).

THE LARGE-BILLED WILLOW-WARBLER.

(*Fauna of British India*, 2nd edition, No. 878.)
(*Fauna of British India*, 1st edition, No. 424.)

Description—Male. "Length 5·4"; wing 2·7"; tail 2·2": tarsus ·75"; bill from gape ·65".

Bill horny, legs carneous; irides earth-brown.

"Upper plumage very dark olive-green, darker on the head; wing-coverts and wings brown edged with olive-green; the median coverts with small and the greater coverts with large yellowish white tips, forming two wing-bars: tail brown edged with olive-green on the outer webs and tipped paler beneath; eye-streak well defined and reaching to nape, yellowish white: lores and feathers behind the eye brown;

THE INDIAN TAILOR-BIRD
(*Orthotomus sutorius sutorius*).
One-half Nat. Size.

THE ASHY WREN-WARBLER
(*Prinia socialis socialis*).
Three-quarters Nat. Size.

ear-coverts yellowish white suffused with brown ; lower plumage pale yellow suffused with grey on the breast and flanks ; axillaries and under wing-coverts greyish yellow "—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. A very rare winter visitor.

Breeding season, etc. Breeds in Kashmir.

(129) Acanthopneuste occipitalis occipitalis (Blyth).

THE LARGE CROWNED WILLOW-WARBLER.

(*Fauna of British India*, 2nd edition, No. 881.)
(*Fauna of British India*, 1st edition, No. 428.)

Description—Male. "Length about 5·3" ; wing 2·6" ; tail 2·1" ; tarsus ·7" ; bill from gape ·6" Legs and feet pale brown, yellowish on feet ; soles yellow ; upper mandible brown, lower one horny brown ; iris brown—(*Fauna of British India*).

Upper plumage olive-green ; head tinged dusky ; supercilium reaching to nape yellowish-white ; also a greyish-yellow coronal band from forehead to nape ; lores and patch behind the eye brown ; wings brown edged yellowish-green ; two yellowish wing-bars formed by the tips of the median and greater coverts ; tail olive-brown margined with yellow-green ; lower plumage pale yellow.

Female. Similar to male.

Locality, habits, etc. A cold weather visitor to the hills. "Not uncommon in the winter months at high elevations in the Travancore Hills, where it frequents trees, going about in small flocks "—(*Ferguson*).

Breeding season, etc. Breeds in Kashmir.

Genus PRINIA Horsfield 1821.

"Differs from *Franklinia* in having ten tail-feathers instead of twelve "—(*Fauna of British India*).

(130) Prinia socialis socialis (Sykes).

THE ASHY WREN-WARBLER.

Plate IX.

(*Fauna of British India*, 2nd edition, No. 935.)
(*Fauna of British India*, 1st edition, No. 464 (part).)

Description—Male. Length 5·25 to 5·5" ; wing 2" ; tail 2·25 to 2·5" ; tarsus ·75" ; bill from gape ·6".

Bill black ; legs deep fleshy yellow ; irides light orange-brown.

Head, neck and back dark ashy ; lores black ; wings dark brown with a rusty tinge ; tail the same with a dusky subterminal bar and tipped white ; tail much graduated ; three longish hairs protrude from each side of nape ; beneath rufescent, deepest on breast and

flanks, pale on chin and throat, almost white down the centre of the abdomen.

In winter the upper parts are usually more rufous.

Female. Similar to male.

Locality, habits, etc. A very common permanent resident on the hills, scarcer on the plains. It frequents open scrub jungle and I have found it most common where hill-guava bushes abound, in fact the nests taken by me were generally placed in these bushes—(*H.R.B.*).

Breeding season. The monsoon months.

Nest. Of two types, one very similar to that of *Orthotomus s. sutorius*; the other bag-shaped, with one side prolonged, of fine grass, roots, fibres and cotton, lined with fine fibres and hair, suspended from the twigs of a small bush.

Eggs. 4; glossy chestnut-red with a cap or ring of darker shade; the colouring varies greatly, some eggs being very pale, almost white average measurement ·63 × ·47″.

(131) Prinia sylvatica sylvatica (Jerdon).

THE JUNGLE WREN-WARBLER.

(*Fauna of British India*, 2nd edition, No. 937.)
(*Fauna of British India*, 1st edition, No. 465 (part).)

Description—Male. "Length 6 to 6·5″; wing 2·2 to 2·5″; tail 2·6 to 3·2″; tarsus ·8″; bill from gape ·7″.

"Bill in summer black, in winter brown; legs and feet fleshy; irides hazel.

"In summer the upper plumage is earthy brown tinged with rufous, and the head darker and suffused with ashy; the edges of the wings more rufous; middle tail-feathers brown, next pair brown, tipped with white and with a sub-terminal brown spot, the others progressively paler and whiter, the outermost pair becoming almost pure white; tail cross-rayed; lores and a short supercilium and round the eye, pale fulvous; ear-coverts grey; lower plumage very pale buff.

"In winter the upper plumage is warm rufous brown; margins of wings and tail brighter; tail cross-rayed, with light fulvous tips and dusky subterminal bars; lores and a supercilium to just past the eye, whitish; ear-coverts fulvous brown with white shafts; cheeks light fulvous barred with brown; entire lower plumage ochraceous, whitish on the middle of the abdomen"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. The type locality is Sigur, Nilgiris. Observed by Mr. W. A. Hasted in the South Arcot District.

Breeding season. June to September.

Nest. Of grass, placed in a bush or clump of grass.

Eggs. 3 to 5; dull green stone-colour sparingly freckled with very pale reddish brown which forms a ring near the large end; average measurement ·7 × ·5″.

(132) Prinia inornata inornata (Sykes).

THE INDIAN WREN-WARBLER.

(*Fauna of British India*, 2nd edition, No. 940.)
(*Fauna of British India*, 1st edition, No. 466 (part).)

Description—Male. 5·25 to 6·5″; wing 2·12″; tail 2·5 to 3·5″; tarsus ·8″; bill from gape ·6″.

Bill in summer black horny brown in winter, whitish at base beneath; legs fleshy; irides bright-yellow.

A white supercilium; upper plumage pale brown tinged with olive and with the feathers dark-centred; tail brown, slightly cross-rayed with a subterminal dusky bar; chin, throat, breast and under tail-coverts whitish tinged fulvescent; wings brown tinged rufous.

"In winter the upper plumage is more fulvous brown, the darker centres only showing on the crown"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. A common permanent resident on hills and plains frequenting scrub jungle.

Breeding season. April to July on the hills; July and August on the plains.

Nest. Purse-shaped, of fine strips of grass woven after the fashion of a Weaver-bird's nest, attached and sewn to a twig of a bush, the attached side being prolonged. On the Nilgiris, I found the nests chiefly in hill-guava bushes; on the plains (Cannanore) often in a holly-like bush that grows in swamps—(*H.R.B.*).

Eggs. 4; glossy pale blue or greenish-blue with large blotches, streaks and spots of reddish-brown, average measurement ·61 × ·46″.

(133) Prinia inornata jerdoni (Blyth).

THE CEYLON WREN-WARBLER.

(*Fauna of British India*, 2nd edition, No. 941.)
(*Fauna of British India*, 1st edition, No. 467 (part).)

Description—Male. Length 6″; wing 2·12″; tail 3″; tarsus ·8″; bill from gape ·6″.

Bill black, pale fleshy beneath; legs fleshy; irides yellow brown.

"Differs from *P. i. inornata* in being much darker and more richly coloured above; the white tips and the dark subterminal bars to the tail-feathers are better defined. In winter also the general colour is much darker than in the Indian Wren-Warbler"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. A permanent resident in scrub jungle on the plains and in the hills of South Travancore up to about 6,500 feet.

Breeding season. April to July.

Nest. Deep cup-shaped, of grass, attached to the twigs of a bush.

Eggs. 2 to 5; blue with large brown or chocolate blotches and streaks and some hairlines. Average measurement ·6 × ·45″.

Family IRENIDÆ.

Genus **IRENA** Horsfield 1821.

"Bill nearly as long as head, stout, curved and with tip notched; nostrils oval, partly concealed by the frontal plumes; rictal bristles well developed; some hairs spring from the nape. The head is not crested; wing long but rounded, under and upper tail-coverts very long; tarsus short"—(*Fauna of British India*).

(134) Irena puella puella (Latham).

THE FAIRY BLUE-BIRD.

(*Fauna of British India*, 2nd edition, No. 950.)
(*Fauna of British India*, 1st edition, No. 254 (part).)

Description—Male. Length 10·5″; wing 5·25″; tail 4·37″; tarsus ·85″; bill from gape 1·2″.

Bill and legs black; irides crimson.

The whole upper plumage and the lower tail-coverts glistening ultramarine, rest of plumage deep velvety black.

Female. Whole upper plumage dark blue, lightest on upper tail-coverts; wings blackish brown; wing-coverts blue; tail with the central feathers blue, the rest black edged blue externally; whole lower plumage blue, somewhat dusky on chin and throat.

Locality, habits, etc. A common permanent resident on the hills to about 4,500 feet, frequenting the largest forest trees in small parties and rarely coming to the ground except to bathe and drink. It feeds on fruit and insects, mainly caterpillars, and is passionately fond of the nectar of *Erythrina* trees. It has a clear, sweet, whistling note which it produces incessantly.

Mr. A. P. Kinloch says that during the torrential rains of June and July, the greater number of these birds leave the gloomy mist-enveloped Nelliampathy Hills for the lighter jungles of the low country.

Breeding season. February to April.

Nest. "Shallow, cup-shaped, sometimes of moss, sometimes of small twigs, in a sapling, etc."—(*Fauna of British India*).

Eggs. "2; greenish white marked with brown; average length 1·4″; average breadth 0·77″"—(*Fauna of British India*).

Mr. T. F. Bourdillon writes: "The normal number of eggs is two, the ground-colour is pale green, but almost covered by the very fine spots of brown and walnut; these spots run into a zone at the larger end which is present in every egg; the eggs themselves are pointed and glossy with a very fine shell; the average size is 1·0″ × 0·78″.

Family ORIOLIDÆ.

"Plumage of nestling streaked; rictal bristles present; wing with ten primaries; rectrices twelve; an autumn moult only"—(*Fauna of British India*).

Genus **ORIOLUS** Linn. 1766.

"Bill as long as the head ; culmen gently curved ; and tip notched and bent ; nostrils lengthened and exposed ; rictal bristles fairly strong ; head never crested ; wing long and pointed ; first primary longer than half of second ; tail much shorter than wing and slightly graduated"—(*Fauna of British India*).

(135) Oriolus oriolus kundoo (Sykes).

THE INDIAN ORIOLE.

Plate X.

(*Fauna of British India*, 2nd edition, No. 953.)
(*Fauna of British India*, 1st edition, No. 518.)

Description—Male. Length 9·75″ ; wing 5·5″ ; tail 3·5″ ; tarsus ·9″ bill from gape 1·4″ ; bill brownish fleshy ; legs plumbeous ; irides red.

A short black stripe from nostrils through eyes ; the whole plumage except wings and tail bright yellow ; wings black with a yellow bar formed by the primary coverts ; quills tipped and edged pale yellow ; the central tail-feathers black, tipped yellow, the remainder black with a yellow tip increasing in size towards the outer feathers which are black only at the base.

Female. Somewhat similar to male but more greenish above.

Locality, habits, etc. A permanent resident on the plains but it does not appear to ascend the hills to any height. It frequents well-wooded districts, more especially those where "neem" trees abound, the bird being extremely fond of the fruit of that tree besides almost invariably choosing those trees for mesting purposes. This Oriole has two distinctive cries by which it can easily be identified ; one is a harsh, grating cry, very like the mewing of a cat, the other a loud mellow whistle like the word "Lor-i-o", from which doubtless it gets its French name. Mr. Dewar suggests in his list of Birds found in and around Madras (*Bo. Nat. Hist. Soc. Journal*, Vol. XVI. 3) that the mellow note is uttered only during the breeding season ; I cannot agree with this suggestion as I have heard the notes repeatedly during the cold weather, though doubtless the male whistles oftener during the breeding season than at other times—(*H.R.B.*).

Mr. A. P. Kinloch says that they are migrant to the Nelliampathy Hills where they appear in September, becoming increasingly numerous till May and disappearing altogether in June.

Breeding season. February to May or June.

Nest. Cradle-like, of grass, roots, fibres, etc., bound to and suspended from the fork at the extremity of a branch, usually of a neem or a mango tree. The locality of the nest is often "given away" by the bird's pugnacity, attacking, as it does, any other bird that approaches its nesting place.

Eggs. 3 ; white spotted with purplish-black ; average measurement 1·15 × ·83″.

(136) Oriolus chinensis indicus (Jerdon).

THE BLACK-NAPED ORIOLE.

(*Fauna of British India*, 2nd edition, No. 954.)
(*Fauna of British India*, 1st edition, No. 514.)

Description—Male. Length 10″; wing 6″; tail 4″; tarsus 1′; bill from gape 1·4″.

Bill fleshy; legs blackish plumbeous; irides red.

Upper plumage bright yellow; a black stripe from the nostrils through the eyes widening at the nape forming a horse-shoe mark; wings black, the primaries and secondaries tipped yellow; the tertiaries yellow on the outer webs; a bright yellow wing-spot formed by the tips of the primary coverts; tail black, the two central feathers slightly, the others broadly tipped yellow; all under parts bright golden yellow.

Female. Similar to male but tinged more greenish.

Locality, habits, etc. A rare cold weather visitor to the plains.

Breeding season. Only a few pairs remain as far South as the Sub-Himalayas to breed; but a few everywhere breed yearly in these hills south of the Brahmaputra.

(137) Orfolus xanthornus xanthornus (Linn.).

THE INDIAN BLACK-HEADED ORIOLE.

(*Fauna of British India*, 2nd edition, No. 958.
(*Fauna of British India* 1st edition, No. 521 (part).)

Description—Male. Length 9·5″; wing 5·5″; tail 3·5″; tarsus 1″; bill from gape 1·3″. Bill deep brownish-fleshy; legs plumbeous; irides crimson.

Head, neck and upper breast black; wings black with; yellow stripe; tertiaries with their tips and outer webs yellow; secondaries broadly tipped with the same colour; tail rich yellow, the two central feathers with a broad black bar and yellow tip; on the next pair the bar is broken and is not so broad; the rest of the tail-feathers pure yellow; the rest of the plumage bright yellow.

Female. Somewhat similar to the male, but the yellow feathers are not so bright and are washed with a greenish tinge.

Locality, habits, etc. This Oriole appears to be extremely local in its distribution; we found it scarce on the Nilgiris. It is not found in the extreme South of Travancore. Dewar reports it as far from common around Madras, whereas Ferguson says "the Black-headed Oriole is by far the commonest of the three Orioles that are found in Travancore; it is a permanent resident in the low country and does not ascend the hills". Probably some of Ferguson's birds belonged to the next sub-species.

Mr. A. P. Kinloch says th atit does not occur on the Nelliampathy Hills.

Breeding season. May and June.

Nest. Similar to that of *O.o. kundoo*.

Eggs. 3; white spotted with claret and rusty brown; average measurement 1 × ·75″.

THE INDIAN BLACK-HEADED ORIOLE
(*Oriolus xanthornus xanthornus*).
One-half Nat. Size.

THE SOUTHERN GRACKLE
(*Gracula indica*).
One-half Nat. Size.

(138) Oriolus xanthornus ceylonensis (Bonaparte).

THE CEYLON BLACK-HEADED ORIOLE.

(*Fauna of British India*, 2nd edition, No. 959.)
(*Fauna of British India*, 1st edition, No. 521 (part).)

Description. "Sex for sex similar to those of the preceding race, but smaller and with less yellow on the wings, especially on the innermost secondaries"—(*Fauna of British India*).

Locality, habits, etc. "Extreme South of Travancore. Habits those of the species "—(*Fauna of British India*).

Breeding season, etc. "Similar to that of preceding birds but the eggs are much paler, generally almost pure white and they are also much smaller. There appear to be two breeding-seasons, February to May and again October to early December"—(*Fauna of British India*).

Family EULABETIDAE.

"Plumage of nestling streaked; first primary small; rictal bristles present; strictly arboreal and lay spotted eggs"—(*Fauna of British India*).

Genus **EULABES** Cuvier 1817.

"Plumage very glossy; head furnished with fleshy wattles and there are frequently some bare patches of skin on the side of the head; rictal bristles weak; feathers of crown very short and curled inwards with a sort of parting down the middle of crown; wing rather blunt; tail short and nearly square; feet strong"—(*Fauna of British India*).

(139) Eulabes religiosa (Cuvier).

THE SOUTHERN GRACKLE.

Plate X.

(*Fauna of British India*, 2nd edition, No. 962.)
(*Fauna of British India*, 1st edition, No. 523.)

Description—Male. "Length 10"; wing 5·8"; tail 2·8"; tarsus 1·2"; bill from gape 1·4"; bill orange-yellow; legs and feet citron-yellow; irides brown, outer edge white, darkly mottled. lappets and cheek-spot rich yellow, the latter tinged with blue on outer edge.

"Whole plumage glossy black; most of the primaries with a white patch at base; portions of the head bare; the coronal and auricular nude patches joined posteriorly and produced into wattles"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. These birds are fruit-eaters and arboreal, delighting to congregate on some high tree where they all hold forth in very human-like voices. They are unrivalled as pets and are therefore frequently kept caged.

Found in well-wooded districts up to an elevation of about 4,000 feet. Ferguson remarks that it is one of the commonest and noisiest

birds, and is found in the hills (Travancore) up to 3,000 feet elevation in the South and up to 5,000 feet on the High Range in the North.

Mr. A. P. Kinloch found it very common on the Nelliampathy Hills.

Breeding season. March to October.

Nest. A few leaves or grass in a hole in a high tree, generally between 20 and 50 feet from the ground and inaccessible to any one but a native.

Eggs. 2 or 3; generally 2; pale greenish-blue, sparsely spotted and speckled with red and very pale purple spots, more numerous at the thick end; average measurement 1·3 × ·88".

Family STURNIDAE.

"Plumaget of young streaked; rictal bristles absent"—(*Fauna of British India*).

Genus **PASTOR** Temm. 1815.

"Bill slender, curved and rather shorter than the head; nasal membrane covered with feathers; wing long and pointed; tail short and square; sexes differ little in plumage and both have a full long crest"—(*Fauna of British India*).

(140) Pastor roseus (Linn.).

THE ROSY PASTOR OR ROSE-COLOURED STARLING.

(*Fauna of British India*, 2nd edition, No. 972.)
(*Fauna of British India*, 1st edition, No. 528.)

Description—Male. Length 9·5"; wing about 5"; tail 3"; tarsus 1·25"; bill from gape 1·3". Bill pink, tip brown, base yellow; legs reddish fleshy; irides dark brown.

Head and crest, neck and breast glossy black with purple reflections; wings and tail black with green reflections; the rest of the plumage pale rose, more or less dashed with brown according to the age of the bird, the plumage becoming purer in colour as age increases; quite young birds are pale brown with whitish margins to the wing-coverts, white on the chin, pale brown below.

Female. Similar to male.

Locality, habits, etc. Large flocks of these birds visit the plains during the cold weather, doing a vast amount of damage to the corn fields, their favourite food being "Jowari" from which they get the local name of "Jowari birds".

Breeding season, etc. Breeds in Asia Minor.

Genus **STURNUS** Linn. 1766.

"Feathers of forehead short, lying flat and directed backwards; bill stout, as long as head, broad and bluntly tipped; covering membrane of nostril plumed only on posterior half; plumage glossy and speckled"—(*Fauna of British India*).

(141) Sturnus vulgaris poltaratzskii (Finsch).

FINSCH'S STARLING.

(*Fauna of British India*, 2nd edition, No. 976.)
(*Fauna of British India*, 1st edition, No. 532.)

Description—Male. Length 9″; wing 5″; tail 2·5″; tarsus 1·15″; bill from gape 1·3″; bill deep brown with white margins; legs and feet reddish-brown; irides brown.

Head, chin and throat metallic purplish-red; head tipped with fulvous and chin and throat with white; upper plumage and breast metallic green, the former broadly tipped with deep fulvous, paler at the extreme tip, remainder of lower plumage metallic greenish-blue and the flanks metallic purplish-red, both tipped with white; wings and tail light ashy-brown banded with deep black at the tip and margined with deep fulvous; under wing-coverts brown, broadly edged with reddish-fulvous.

Female. Similar to male.

Locality, habits, etc. A rare cold weather visitor. They are gregarious and feed on the ground.

Breeding season, etc. It breeds in great numbers in Kashmir, in May and June.

Genus **STURNIA** Lesson 1837.

"Bill slender, shorter than head, narrowing regularly to a sharp point: tail wedged and middle rectrices longer than the outermost nasal membrane plumed"—(*Fauna of British India*).

(142) Sturnia malabarica malabarica (Gmel.).

THE GREY-HEADED MYNA.

Plate XI.

(*Fauna of British India*, 2nd edition, No. 982.)
(*Fauna of British India*, 1st edition, No. 538.)

Description—Male. Length 8″; wing 4″; tail 2·5″; tarsus ·9″; bill from gape 1″. Bill blue at base greenish in the middle, yellow at tip; legs brownish-yellow; irides light blue.

Forehead and throat white; upper plumage generally grey; streaked with whitish on head, neck and shoulders; wings blackish-brown; the wing-coverts grey washed ferrugineous; tail black tipped dark chestnut; plumage below reddish-buff; the feathers of the neck all round long and silky. The colouring appears to vary a good deal according to age.

Female. Similar to male.

Locality, habits, etc. A fairly common cold weather visitor to the plains, associating in flocks. They are entirely arboreal. I have often seen them clinging to the trunk of a tree whilst hunting for insects—(*C.M.I.*).

Breeding season. May and June. 'Probably not breeding on the Malabar Coast, South of Belgaum"—(*Fauna of British India*).

Nest. In a hole in a tree.

Eggs. 4 or 5 ; pale bluish-green ; average measurement ·92 × ·7″.

(143) Sturnia malabarica blythii (Jerdon).

BLYTH'S MYNA.

(*Fauna of British India*, 2nd edition, No. 983.)
(*Fauna of British India*, 1st edition, No. 537.)

Description. Length 8·5″ ; wing 4″ ; tail 2·7″ ; tarsus ·95″ ; bill from gape 1″.

"Differs from *S. meg. malabarica* in having the whole head, neck and breast white ; the grey of the upper parts is paler and there is little or no rufous tinge to the rump ; the flanks and abdomen are paler rufous ; the axillaries and under wing-coverts are whiter and the white shoulder wing-patch is generally more conspicuous"—(*Fauna of British India*).

Locality, habits, etc. A rare and locally distributed permanent resident on the hills and plains. Jerdon says "it is entirely arboreal, living in flocks and keeping to the top of high trees, feeding on various insects and larvae, small shells and occasionally on fruit ; the usual cry is neither so loud nor so harsh as that of Mynas in general and it has a very pleasing song."

Breeding season. March to May.

Nest. In a hole in a tree.

Eggs. 3 to 5 ; blue ; average measurement 1 × ·71″.

Genus **TEMENUCHUS** Cabanis 1851.

"Very long crest ; bill about half length of head with culmen slightly curved ; nasal membrane plumed and there is no nude skin on sides of head ; wing blunt and tail slightly graduated. Sexes alike"—(*Fauna of British India*).

(144) Temenuchus pagodarum (Gmel.).

THE BLACK-HEADED MYNA.

(*Fauna of British India*, 2nd edition, No. 991.)
(*Fauna of British India*, 1st edition, No. 544.)

Description—Male. Length 8·5″ ; wing 4·4″ ; tail 3″ ; tarsus 1·15″ ; bill from gape 1″ ; bill orange at tip, greenish-yellow in centre, and blue at base ; legs bright yellow ; irides light yellow.

Head black ; margins of eyelids and a small spot at gape black ; a band round the neck, the sides of the head and the whole lower plumage reddish-buff with pale shafts ; remainder of upper plumage grey tinged with brown ; wings black ; tail with the median feathers dark brown, the remaining feathers broadly tipped white.

Female. Similar to male.

Locality, habits, etc. A very common permanent resident on the plains associating freely with the next species and frequenting gardens, avenues, etc. It feeds both on the ground and on trees.

Breeding season. June to August.

Nest. Of straw and feathers in holes of trees, walls or buildings.

Eggs. 4 or 5 ; pale blue ; average measurement 1 × ·7″.

Genus **ACRIDOTHERES** Vieill. 1816.

"Nasal and frontal plumes lengthened and erect, or slightly curled backwards; large patch of bare skin beneath and behind eye; frontal feathers elongated and pointed; bill shorter than head; culmen curved; wing very blunt; tail considerably rounded"—(*Fauna of British India*).

(145) Acridotheres tristis tristis (Linn.).

THE COMMON MYNA.

(*Fauna of British India*, 2nd edition, No. 996.)
(*Fauna of British India*, 1st edition, No. 549.)

Description—Male. Length 10″; wing 5·5 to 5·75″; tail 3·5″; tarsus 1·55″; bill from gape 1·3″; bill yellow; legs dull yellow; irides reddish-brown speckled with white; orbital skin yellow.

Head crest, neck and breast glossy black, the rest of the plumage vinous-brown, darkest on the back and wing-coverts; primaries black with a white spot at the base forming a wing-stripe; abdomen and vent dirty white; under tail-coverts white; tail blackish-brown tipped white.

Female. Similar to male.

Locality, habits, etc. This is the commonest of all Mynas in the low country and is a permanent resident everywhere, especially numerous in towns and villages. It is a confiding bird, is easily tamed and makes an engaging pet, being a good mimic and easily taught to whistle and talk.

Breeding season. February to August.

Nest. Of straw, twigs, rags, etc., in holes of trees, buildings and wells. More rarely it makes a bulky globe-shaped nest in the branches of trees.

Eggs. 4 or 5; pale blue; average measurement 1·12 × ·84″.

Genus **ÆTHIOPSAR** Sharpe. 1889.

"Differs from '*Acridotheres*' in having the sides of the head and the eyelids well feathered; instead of bare when adult"—(*Fauna of British India*).

(146) Æthiopsar fuscus fuscus (Wagl.).

THE INDIAN JUNGLE MYNA.

(*Fauna of British India*, 2nd edition, No. 999.)
(*Fauna of British India*, 1st edition, No. 552.)

Description—Male. Length 9·5″; wing 5″; tail 3″; tarsus 1·45″; bill from gape 1·25″; bill and legs orange-yellow; irides pale blue, in North India irides bright yellow.

Head with small crest, and ear-coverts glossy black; upper plumage brownish-black; primaries black with a white wing-band; tail black tipped with white; chin and throat ashy-black; breast and abdomen ashy tinged reddish, paler on vent and under tail-coverts.

Female. Similar to male.

Locality, habits, etc. A common permanent resident on the hills, at any rate the Nilgiris, though Mr. Ferguson in his notes on the Birds of Travancore states that "it is common in well-wooded parts of the low country up to the foot of the hills, which it does not ascend". It is very fond of going about with cattle picking up any insects disturbed by them, or ticks from their bodies.

Breeding season. February to May or later.

Nest. Of straw, rags, etc., in a hole of a tree, in roofs and chimneys, or in a bank or cliff.

Eggs. 4; pale blue; average measurement 1·2 × ·77".

Family PLOCEIDÆ.

"Wing with ten primaries, the first always small; nostrils pierced within, or close to, the line of forehead; nostril nearer the culmen than the commissure; bill conical and entire, the notch being absent or obsolete"—(*Fauna of British India*).

Sub-family PLOCEINÆ.

"The males have a complete Autumn and a partial spring moult when they acquire a breeding plumage. Sexes dissimilar in colour"—(*Fauna of British India*).

Genus **PLOCEUS** Cuvier 1817.

"Bill thick with culmen curved and in length considerably more than in depth at the base; wing of moderate length with first primary large, about equal in length to the tarsus; tail of twelve feathers short and slightly rounded; tarsus strong with claws of considerable length"—(*Fauna of British India*).

(147) **Ploceus philippinus** (Linn.).

THE BAYA.

Plate XI.

(*Fauna of British India*, 2nd edition, No. 1008.)
(*Fauna of British India*, 1st edition, No. 720.)

Description—Male. Length 6"; wing 3"; tail 2"; tarsus ·8"; bill from gape ·65".

Bill, in summer, horny, yellowish at base of lower mandible; in winter, it is light yellowish-horny, base of lower mandible yellow; legs fleshy; irides brown.

Breeding plumage—head to nape, and breast golden yellow; lores, ear-coverts, chin, throat and remainder of upper plumage dark brown; back and scapulars broadly edged with bright yellow; wings and tail edged with fulvous; remainder of lower plumage fulvous.

Winter plumage—upper plumage fulvous broadly streaked with dark brown; sides of head fulvous brown; supercilium and lower plumage fulvous, lighter on the chin, throat and abdomen; wings and tail brown edged with fulvous.

THE GREY-HEADED MYNA
(*Sturnia malabarica malabarica*).
Three-fifths Nat. Size.

THE BAYA
(*Ploceus philippinus*).
Male in breeding plumage.
Two-thirds Nat. Size.

Female. Similar to male in winter plumage ; the bill is always light.

Locality, habits, etc. A common permanent resident on the plains, especially in cultivated districts where it associates in large flocks and does considerable damage to ripening crops.

Breeding season. The Weaver-bird breeds in company during the rains.

Nest. Retort-shaped with a long pendant entrance funnel, beautifully woven of strips of coconut or banana fibre, or grass, suspended from the leaves of a palm or tree, often overhanging, or in the vicinity of water.

Eggs. 2 to 5 ; pure white ; average measurement ·8 × ·58″.

(148) Placeus manyar flaviceps (Less.)

THE MADRAS STREAKED WEAVER-BIRD.

(*Fauna of British India*, 2nd edition, No. 1013.)
(*Fauna of British India*, 1st edition, No. 720 (part).)

Description—Male. Length 6″ ; wing 2·7″ ; tail 1·8″ ; tarsus ·8″ ; bill from gape ·7″.

" After the autumn moult—forehead and crown yellow ; throat, cheeks, ear-coverts and sides of neck black or brownish black ; lower plumage fulvous, each feather striated with black down the centre except on the abdomen and under tail-coverts.

" Upper plumage dark brown edged with pale fulvous ; wings and tail brown edged with yellowish ; the throat is sometimes coloured a pale brown and the intensity of the fulvous on the lower parts varies much.

" After the partial spring moult the forehead, crown and nape become deep yellow ; the supercilium and the spot behind the ear-coverts disappear and the whole of the sides of the head and neck together with the cheeks, chin and throat become blackish brown.

" Bill in summer bluish black, paler at gape ; in winter yellowish horn colour ; iris brown ; legs fleshy."—(*Fauna of British India*).

Female. Similar to male in winter plumage ; bill yellowish horny.

Locality, habits, etc. A not uncommon permanent resident on the plains, frequenting the rush-covered edges of lakes and rivers.

Breeding season. The monsoon months.

Nest. Similar to that of *P. philippinus* but with either no funnel at all or a shorter one, built on reeds.

Eggs. 2 to 5 ; pure white ; average measurement ·8 × 58″. The texture of Baya-bird's eggs is very coarse and the shell strong compared with other white eggs of similar size.

Sub-family ESTRILDINÆ.

" First primary very minute, much shorter than tarsus ; no spring moult "—(*Fauna of British India*).

Genus **MUNIA** Horsf. 1836.

" Tail short and rounded, middle pair of feathers very narrow and pointed and much shorter than the wing ; sexes alike "—(*Fauna of British India*).

(149) Munia malacca malacca (Linn.).

THE BLACK-HEADED MUNIA.

(*Fauna of British India*, 2nd edition, No. 1017.)
(*Fauna of British India*, 1st edition, No. 725 (part).)

Description—Male. Length 5″; wing 2·25″; tail 1·6′; tarsus ·6″; bill from gape ·45″.

Bill pale greeny blue; legs and feet leaden; irides dark brown.

Head to nape, chin to upper breast and from middle of abdomen to under tail-coverts black; remainder of upper plumage dull chestnut, except the rump, upper tail-coverts and edge of tail which are glossy maroon; remainder of lower plumage white.

Female. Similar to male.

Locality, habits, etc. A permanent resident on the plains, especially on the Malabar coast; like others of the genus it associates in small flocks, being found chiefly in cultivated areas and on the banks of backwaters.

Breeding season. From July to October.

Nest. Large, globular, of grass, built in sugarcane or reeds.

Eggs. 5 or 6; pure white; average measurement ·64 × ·47″.

(150) Munia malacca orientalis Stuart Baker.

THE MADRAS BLACK-HEADED MUNIA.

(*Fauna of British India*, 2nd edition, No. 1018.)
(*Fauna of British India*, 1st edition, No. 725 (part).)

Description. "Similar to *M. m. malacca* but darker and richer chestnut above and generally with less black below"—(*Fauna of British India*).

Locality, habits, etc. "The whole of Southern India except Travancore in the West and the Malabar Coast"—(*Fauna of British India*).

Breeding season, etc. "Those of the preceding bird"—(*Fauna of British India*).

(150-A) Munia oryzivora (Linn.).

THE JAVA SPARROW.

(*Fauna of British India*, 1st edition, No. 726-A.)

Description—Male. Length 5·5″; wing 2·75″; tail 1·75″.

Bill—culmen and base of lower mandible varies from pink to lake-red, remainder fleshy or bluish; legs and feet fleshy; irides red, or lake-red; eyelids lake-red.

Head from immediately below the eyes to nape, the chin, throat and a line bordering the ear-coverts deep black; cheeks and ear-coverts white: upper plumage, neck and breast bluish grey; rump, upper tail-coverts and tail black; remainder of lower plumage except the under tail-coverts vinous, the latter white.

Female. Similar to male.

Locality, habits, etc. Found in a wild state in Madras, undoubtedly due to imported caged birds being let loose. This bird is omitted in the *2nd edition* and probably should not be included in this work, but we give it so that anybody can identify the bird if seen.

Breeding season. August.

Nest. Of grass, with a side entrance, placed in a bush.

Eggs. 4 or 5 ; white ; average measurement ·7 × ·55″.

Genus **UROLONCHA** Cabanis 1851.

" Differs from *Munia* in their more graduated and proportionately longer tails, the difference between wing and tail being less than the length of the tarsus ; crown of much the same colour as back ; sexes alike "—(*Fauna of British India*).

(151) Uroloncha striata striata (Linn.).

THE WHITE-BACKED MUNIA.

(*Fauna of British India*, 2nd edition, No. 1021.)
(*Fauna of British India*, 2nd edition, No. 728 (part).)

Description—Male. Length 4·7″ ; wing 2″ ; tail 1·7″ ; tarsus ·5″ ; bill from gape ·4″.

Bill—upper mandible dark slaty-brown, lower slaty-blue ; legs plumbeous ; irides red-brown.

Upper plumage dark chocolate-brown ; forehead, crown, lores, cheeks, chin to breast, vent, thighs and under tail-coverts very deep chocolate-brown, nearly black ; whole upper plumage white-shafted, forehead and crown less distinctly so ; wings brownish-black ; rump and remainder of lower plumage white ; tail black.

Female. Similar to male.

Locality, habits, etc. This bird is found on the hills to a height of about 4,800 feet ; also on the plains of the Western portion of the Presidency ; it seems rare if not altogether absent from the East Coast.

Breeding season. May to September.

Nest. Similar to that of *M. malacca* ; a favourite site, according to my experience, being the thorny branches that are often tied round the coconut trees to prevent people from climbing up—(*H.R.B.*).

Eggs. 5 or 6 ; pure white ; average measurement ·61 × ·44″.

(152) Uroloncha rufiventris Stuart Baker.

THE RUFOUS-BELLIED MUNIA.

(*Fauna of British India*, 2nd edition, No. 1028.)
(*Fauna of British India*, 1st edition, No. 732.)

Description—Male. Length 5″ ; wing 2·2″ ; tail 1·8″ ; tarsus ·5″ ; bill from gape ·45″.

" Bill, legs and feet, slaty ; irides brown.

" Upper plumage chocolate-brown with pale shafts ; the head a darker brown ; the rump blackish with broad triangular streaks of pale

buff ; upper tail-coverts glistening fulvous ; tail black ; wings dull black ; lores, cheeks, chin, throat and foreneck black ; ear-coverts buff with pale shafts ; sides of the foreneck, sides of breast, breast, sides of the body and the whole abdomen, pinkish brown ; vent and under tail-coverts blackish with pinkish brown streaks "—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. Frequents the hills only.

Breeding season. June to August.

Nest. A domed structure of fine grass lined with feathers, built in high grass or in a hole of a tree.

Eggs. 6 to 8 ; pure white ; average measurement ·6 × ·42".

(153) Uroloncha malabarica (Linn.).

THE WHITE-THROATED MUNIA.

(*Fauna of British India*, 2nd edition, No. 1030.)
(*Fauna of British India*, 1st edition, No. 734.)

Description—Male. Length 4·5 to 5" ; wing 2·12" ; tail 2·25 to 2·5" ; tarsus ·55' ; bill from gape ·4".

Bill bluish ; legs reddish fleshy ; irides dark brown.

Whole upper plumage light sandy-brown, some dark feathers on forehead and crown ; upper tail-coverts pure white, black at the sides ; wings black ; tail brownish black, edged with rusty-red ; sides of head, round the eyes and the whole lower plumage buffy-white ; sides of body and ear-coverts vinuous-buff.

Female. Similar to male.

Locality, habits, etc. The commonest Munia on the plains, at any rate on the Eastern side of the Presidency ; it is also found on the hills up to an elevation of 3,000 feet or so, but is rare on the Malabar coast though from its name one would imagine it to be a common resident there. It affects gardens, scrub jungle, etc., and is always seen in small flocks of a dozen or so individuals.

Breeding season. It breeds practically the whole year round.

Nest. Large, globular, loosely made of grass and straws lined with feathers, generally placed in a thorny bush.

Eggs. 4 to 10 or more (I once found a nest containing eleven eggs, which however may have been laid by two females) ; white ; average measurement ·62 × ·45".

(154) Uroloncha punctulata punctulata (Linn.).

THE INDIAN SPOTTED MUNIA.

(*Fauna of British India*, 2nd edition, No. 1031.)
(*Fauna of British India*, 1st edition, No. 735 (part).)

Description—Male. Length 4·5 to 5" ; wing 2·12" ; tail 1·75" ; tarsus ·6" ; bill from gape ·45".

Bill and legs plumbeous ; irides light brown.

Above ruddy brown, deepest on head and neck, shafts pale ; rump slightly speckled with white ; upper tail-coverts golden ; tail brown, shafts darker ; chin, throat, face and ear-coverts chestnut ; breast and flanks white, each feather edged with black ; abdomen centred white and under tail-coverts fulvous-white slightly centred with black.

Female. Similar to male.

Locality, habits, etc. A very common, though locally distributed, permanent resident on the plains and hills. Mr. H. S. Ferguson states that the Spotted Munia does not ascend the hills of Travancore ; it certainly does ascend the Nilgiris, for I have procured it at Ootacamund. It associates in flocks of a dozen or so, and frequents open scrub jungle, gardens and paddy-fields.

Breeding season. July to October. Mr. Ferguson says "April to July" (in Travancore).

Nest. Large, globular, of grass placed in any convenient thick bush or clump of bamboos.

Eggs. 6 to 8 or more ; glossless white ; average measurement ·64 × ·45".

Genus **AMANDAVA** Blyth 1836.

"Males red, females brown, spotted with white"—(*Fauna of British India*).

(155) Amandava amandava (Linn.).

THE INDIAN RED MUNIA.

Plate XII.

(*Fauna of British India*, 2nd edition, No. 1036.)
(*Fauna of British India*, 1st edition, No. 738.)

Description—Male. Length 4" ; wing 2" ; tail 1·5" ; tarsus ·55" ; bill from gape ·4".

Bill crimson-lake, culmen blackish ; legs fleshy ; irides orange-red.

Head crimson with some white feathers under the eyes ; neck and back crimson with brown feathers showing through ; upper tail-coverts crimson with small white spots ; tail black, the outer feathers tipped white ; wings blackish brown with numerous small white spots ; chin, throat and breast crimson ; sides of breast with small white spots ; abdomen blackish brown tinged crimson ; under tail-coverts black.

Female. Upper plumage brown tinged with fulvous ; wings and coverts brown tipped with white ; quills brown ; upper tail-coverts dull crimson, minutely tipped with white ; tail blackish-brown, all except the median feathers tipped white ; lores black ; some white feathers below the eyes ; lower plumage fulvous ; breast tinged with brown.

Locality, habits, etc. This Munia is essentially a hill bird, being very common on the tops of the Nilgiris, but not being found on the plains. They associate in larger flocks than other Munias (we have seen hundreds of them together), and are met with in scrub jungle on the hill sides, especially where the hill-guava bushes abound. This bird as

well as other kinds of Munias thrives well in confinement and is the bird most commonly seen in aviaries. They are sometimes known as Avadavats.

Recently after heavy rain some termites came out of a hole near one of my aviaries and flew through the netting into the aviary. Whilst watching them I was surprised to see some of the *Spotted Munias* sitting on the netting picking off the termites as they came in and one or two *Amandava amandava* were busy catching them on the wing and eating them whilst hovering"—(*C.M.I.*).

Breeding season. During the rains.

Nest. Similar to that of *U. punctulata.*

Eggs. 5 or 6 ; similar to those of *U. punctulata.*

Family FRINGILLIDÆ.

"Wing with nine primaries, the first and second about equal in length : secondaries reaching to a point midway between the middle of the wing and the tip ; bill conical, pointed and entire ; sexes generally dissimilar ; plumage of nestling various"—(*Fauna of British India*).

Sub-family FRINGILLINÆ.

"Upper mandible not produced behind front line of bony orbit ; cutting edge of upper and lower mandibles everywhere in contact"—(*Fauna of British India*).

Genus **CARPODACUS** Kaup. 1829.

"Wing pointed, the secondaries falling short of the tip of the wing by a distance greater than the length of tarsus ; no supercilium present" —(*Fauna of British India*).

(156) Carpodacus erythrinus roseatus (Hodgs.).

THE COMMON INDIAN OR HODGSON'S ROSE-FINCH.

(*Fauna of British India*, 2nd edition, No. 1069.)
(*Fauna of British India*, 1st edition, No. 761 (part).)

Description—Male. Length 5·75 to 6" ; wing 3·25" ; tail 2·37" ; tarsus ·8" ; bill from gape ·5".

Bill light brown ; legs and irides brown.

Head, chin, throat, neck, breast, rump and flanks rose-coloured, deepest on head and neck, paling to whitish towards the abdomen and vent ; upper plumage brown tinged rosy, more so on the upper tail-coverts ; wings brown, the coverts tipped ruddy-brown, forming two bands ; primaries brown edged pale yellow-brown ; tail brown edged, pale rose externally.

Female. Upper plumage olive-brown with dusky striæ, tinged golden on rump and upper tail-coverts ; greater and lesser wing-coverts tipped whitish ; below pale brown, whitish on chin, throat, abdomen and vent ; the neck, breast and flanks with dusky striæ.

Locality, habits, etc. A common winter visitor to all the hills of Southern India where it is met with in well-wooded districts. It has rather a pleasant song and feeds on buds and grain. Jerdon says he has, in the extreme South, chiefly found it in bamboo jungle, feeding on the seeds of bamboos on several occasions and says its Telugu name signifies "Bamboo sparrow."

Breeding season, etc. Breeds in the Himalayas.

Genus **GYMNORIS** Hodgs. 1844.

"Bill long and slender, culmen gently curved throughout; a yellow patch on throat in both sexes"—(*Fauna of British India*).

(157) Gymnoris xanthocollis xanthocollis (Burton).

THE YELLOW-THROATED SPARROW.

(*Fauna of British India*, 2nd edition, No. 1094.)
(*Fauna of British India*, 1st edition, No. 775 (part).)

Description—Male. Length 6″; wing 3·25″; tail 2″; tarsus ·6″; bill from gape ·6″.

Bill black; legs ashy brown; irides light brown.

Above ashy-brown; shoulders and lesser coverts chestnut; wings brown with two white bands; chin and under tail-coverts white; the rest of the lower plumage ashy or brownish-white, albescent on the abdomen and vent; a bright yellow spot in the centre of the throat.

Female. Similar to male except that the yellow throat-spot and the chestnut on the shoulders are not so bright.

Locality, habits, etc. A common permanent resident on the plains; ascends the hills to about 4,500 feet, frequenting open-wooded districts.

Breeding season. April to July.

Nest. Of grass and feathers, in a natural hole in a tree.

Eggs. 3 or 4; pale bluish-green thickly blotched and spotted with deep brown, denser at the thick end; others are creamy, more finely spotted and speckled with reddish-brown; average measurement ·7 × ·54″.

Genus **PASSER** Briss. 1760.

"Both sexes exhibit a double half-hour glass-shaped rufous patch on the base of the primaries; bill short and stout, and culmen slightly curved"—(*Fauna of British India*).

(158) Passer domesticus confucius (Bonaparte).

THE BURMESE HOUSE-SPARROW.

(*Fauna of British India*, 2nd edition, No. 1097.)
(*Fauna of British India*, 4th edition, No. 776 (part).)

Description—Male. Length 6·25″; wing 3″; tail 2·37″; tarsus ·75″; bill from gape ·55″.

Bill horny, yellowish beneath black in breeding season; legs light brown; irides light brown.

Head and nape, back and upper tail-coverts grey tinged brown ; upper back and wings chestnut with dark-brown stripes ; a chestnut patch over the eyes to the nape ; lores, chin, throat and breast-black ; ear-coverts and sides of neck silky white.

Female. Slightly smaller than the male ; above light brown ; back and scapulars edged pale rufous with black streaks ; a pale whitish eye-stripe ; below ashy white.

Locality, habits, etc. A common permanent resident on the hills and plains and far too well known to require any detailed description. Mr. A. P. Kinloch says he has not found it on the Nelliampathy Hills.

Breeding season. Practically all the year round.

Nest. Of straw, grass and feathers in holes of roofs, walls or trees.

Eggs. 4 or 5 ; white spotted with slaty-grey ; average measurement ·75 × ·56″.

Sub-family EMBERIZINÆ.

"Conical and sharply pointed bill, with culmen straight or nearly so ; edges of the two mandibles, unlike those of other *Fringillidæ*, are not in contact throughout their length, but show a gap about midway between the gape and the tips, upper mandible has the palate furnished with a small hard process or knob"—(*Fauna of British India*).

Genus **EMBERIZA** Briss. 1760.

"Tail slightly forked ; no crest"—(*Fauna of British India*).

(159) **Emberiza icterica** (Eversmann).

THE RED-HEADED BUNTING.

(*Fauna of British India*, 2nd edition, No. 1134.)
(*Fauna of British India*, 1st edition, No. 800.)

Description—Male. Length 6·75″ to 7″; wing 3·5″; tail 3″; tarsus ·8″; bill from gape ·6″—(*Fauna of British India*).

"Bill pale fleshy yellow ; irides brown ; legs brown"—(*Barnes*).

Forehead, lores, sides of head, and chin to breast orange-chestnut ; remainder of head brownish-orange ; back golden-olive broadly streaked with brown ; rump and from breast to under tail-coverts deep yellow ; wings dark brown margined with pale rufous ; tail dark brown margined with fulvous. After the autumn moult the feathers on the head and on the lores, sides of head, and chin to breast are tipped with ashy.

Female. "Irides dark brown ; legs and feet brown ; bill greyish brown above, darkest on the culmen and greenish horn below.

"Upper plumage ashy-brown, back and scapulars streaked with dark brown and rump tinged with olive-yellow ; tail and wings as in male ; lores pale ashy-white ; sides of head and neck dark fulvous ; abdomen washed with yellow ; under tail-coverts pure yellow"—(*Fauna of British India*).

Locality, habits, etc. A rare cold weather visitor.

Breeding season, etc. Breeds in Transcaspia Eastern Turkestan and West Afghanistan.

Family HIRUNDINIDÆ.

"Bill flat, broad and notched ; wing with nine primaries, first and second nearly equal ; longest secondaries reaching to middle of wing ; front of tarsus smooth ; sexes alike ; a spring moult only ; young very similar to adult ; rictal bristles weak "—(*Fauna of British India*).

Genus **DELICHON** Horsfield and Moore 1854.

"Tarsus and toes feathered ; the rump in all the species is white and forms a conspicuous feature of the Martins when flying ; shape of tail varies "—(*Fauna of British India*).

(160) Delichon urbica urbica (Linn.).

THE HOUSE-MARTIN.

(*Fauna of British India*, 2nd edition, No. 1141.)
(*Fauna of British India*, 1st edition, No. 804.)

Description—Male. "Length 6" ; wing 4·4" ; tail 2·5" ; tarsus ·5" ; bill from gape ·5".—(*Fauna of British India*).

Bill black ; legs fleshy ; irides dark brown.

Upper plumage glossy dark blue, almost black, except the rump and shorter upper tail-coverts which are white ; wings and tail dark brown ; some of the coverts margined with dark glossy blue ; whole lower plumage white, washed with ashy on the sides.

Female. Similar to male.

Locality, habits, etc. Has been procured, though rarely, in our Presidency. Oates writes in *Fauna of British India*. "Another quite adult but moulting, from Shimoga, Mysore, obtained in April, and four young January birds from Coimbatore."

Breeding season. Jerdon records this species from the Nilgiris in March. "Has been found breeding in Mysore in May, constructing a nest of mud pellets lined with feathers under a large rock in the bed of the river Tungabadra." The specimens mentioned are in the Hume collection.

Breeds during May in Europe, April to June in the Himalayas.

Genus **PTYONOPROGNE** Reichenbach 1850.

"A white spot on the inner web of all the tail-feathers except the middle and the outermost pair "—(*Fauna of British India*).

(161) Ptyonoprogne rupestris Scop.

THE CRAG-MARTIN.

(*Fauna of British India*, 2nd edition, No. 1149.)
(*Fauna of British India*, 1st edition, No. 810.)

Description—Male. Length 6" ; wing 5·12" ; tail 2·25", almost square ; tarsus ·45" ; bill from gape ·55".

Bill black ; legs reddish plumbeous ; irides brown.

Upper plumage earth-brown ; tail and wings with a faint metallic green gloss ; a large white spot on the inner web of all except the outer and central pairs of tail-feathers ; chin ashy-brown ; throat, neck and

breast rufescent-white ; abdomen and flanks ashy tinged rufous ; vent and under tail-coverts ashy-brown ; under wing-coverts dark brown with a faint metallic green gloss ; the wings are somewhat rounded and are ¼ inch longer than the tail.

Female. Similar to male.

Locality, habits, etc. I found it on the Sigur Ghat, Nilgiris, at about 6,000 feet, during the cold season, hawking about the rocks in company with the next species and *H. d. erythropygia*—(*H.R.B.*). "Mysore, the Nilgiri and Palni Hills and North Travancore"—(*Fauna of British India*).

Breeding season, etc. Breeds in the Himalayas.

(162) Ptyonoprogne concolor (Sykes).

THE DUSKY CRAG-MARTIN.

(*Fauna of British India*, 2nd edition, No 1150.)
(*Fauna of British India*, 1st edition, No. 811.)

Description—Male. Length 5″ ; wing 4·25″; tail 2″; tarsus ·4″; bill from gape ·5″.

"Bill dark brown to black ; legs and feet brown : irides dark brown."—(*Fauna of British India*).

Generally plumage mouse-brown, paler and slightly tinged with rufous beneath ; tail nearly square with a white spot on the inner web of all except the central and outer pairs of feathers.

Female. Similar to male.

Locality, habits, etc. A permanent resident on the hills from about 3,500 feet upwards.

Breeding season. March and April.

Nest. Of mud, lined with feathers, cup-shaped attached to the wall of a building or to the under surface of an overhanging rock.

Eggs. 3 or 4 ; white, spotted with rusty-red or brown ; average measurement ·76 × ·53″.

Genus **HIRUNDO** Linn. 1766.

"Upper plumage, or the greater portion of it, black and highly glossy"—(*Fauna of British India*).

(163) Hirundo rustica rustica (Linn.).

THE COMMON SWALLOW.

(*Fauna of British India*, 2nd edition, No. 1152.)
(*Fauna of British India*, 1st edition, No. 813.)

Description—Male. Length 4″ ; wing 5″ ; tail 4·5″; bill from gape ·6″ ; tarsus ·5″.

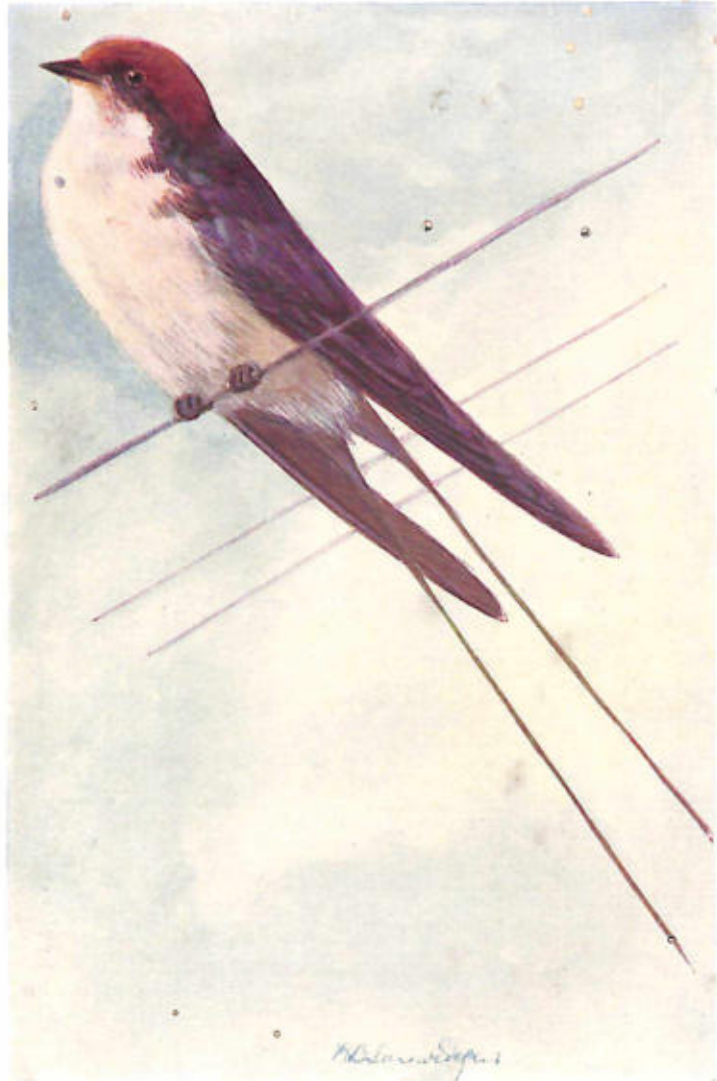
Bill and feet black ; irides brown.

Forehead, chin and throat chestnut ; remainder of upper plumage, sides of head and the pectoral band, glossy blue ; wings and tail tinged with green and the latter except the median feathers with a white spot on the inner webs ; lores black ; lower plumage very pale rufous.

3.—THE SPOTTED MUNIA
(*Uroloncha punctulata punctulata*).

4.—THE INDIAN RED MUNIA
(*Amandava amandava amandava*).
Male.

Two-thirds Nat. Size.



THE INDIAN WIRE-TAILED SWALLOW
(*Hirundo smithii filifera*).
Two-thirds Nat. Size.

Female. Similar to male.

Locality, habits, etc. A winter visitor to the hills and plains, more especially to the former.

Breeding season, etc. Breeds in the North-East Himalayas.

(164) Hirundo javanica domicola (Jerdon).

THE NILGIRI HOUSE-SWALLOW.

(*Fauna of British India*, 2nd edition, No. 1156.)
(*Fauna of British India*, 1st edition, No. 817 (part).)

Description—Male. Length 4·75″; wing 4″; tail 2″; tarsus ·4″; bill from gape ·65″.

Bill and legs black; irides dark brown.

Plumage above black with a metallic green gloss; wings dusky and reaching ½ an inch beyond the tail which latter is dusky with a green gloss; chin, throat, forehead and neck rufous; plumage below silky grey-barred dusky; whitish on the under tail-coverts.

Female. Similar to male.

Locality, habits, etc. A common permanent resident on the hills, though locally distributed; generally found in the vicinity of streams.

Breeding season. February to June.

Nest. Of mud, lined with fine grass, straw and feathers, placed under rocks, bridges, eaves of houses, etc.

Eggs. 2 or 3; white speckled with brown or blackish-brown; average measurement ·7 × ·5″.

(165) Hirundo smithii filifera (Stephens).

THE INDIAN WIRE-TAILED SWALLOW.

Plate XII.

(*Fauna of British India*, 2nd edition, No. 1157.)
(*Fauna of British India*, 1st edition, No. 818.)

Description—Male. Length 10,; wing 4·7″; tarsus ·45″; bill from gape ·55″.

Bill and legs black; irides dark brown.

Forehead to nape chestnut; whole upper plumage glistening purplish-blue; tail-feathers, with the exception of the two median pairs, with a white spot on the inner web; lower plumage white.

Female. Similar to male.

Locality, habits, etc. This Swallow is easily identified by the shafts of the outer tail-feathers which are much elongated in the form of wires and project some 5 inches beyond the rest of the tail. It is said to be a permanent resident on the Nilgiris, but I myself have not met with it anywhere in the Madras Presidency—(*H.R.B.*).

"Occurs South to Mysore and North Travancore"—(*Fauna of British India*).

Breeding season. It breeds practically all the year round in different parts of India.

Nest. Cup-shaped, of mud lined with feathers, placed usually over water under the arches or cornices of bridges, projections in the sides of wells or under ledges of rocks.

Eggs. 2, 3 or rarely 4; glossy white, handsomely spotted, blotched and speckled with brownish-red, denser at the thick end where there are also some underlying purplish-grey spots and specks; average measurement ·72 × ·53".

(166) Hirundo fluvicola Jerdon.

THE INDIAN CLIFF-SWALLOW.

(*Fauna of British India*, 2nd edition, No. 1158.)
(*Fauna of British India*, 1st edition, No. 819.)

Description—Male. "Length 4·5"; wing 3·6"; tail 1·75"; tarsus ·4"; bill from gape ·5".

"Bill black; legs and irides brown.

"Forehead, crown and nape dull chestnut with black shaft-streaks; back and scapulars glossy steel-blue; rump and upper tail-coverts dull brown with narrow pale margins; wings and tail dull brown; lores and upper part of the ear-coverts dark brown; remainder of the side of the head, chin, throat and upper breast white tinged with very pale fulvous and boldly streaked with brown; remainder of lower plumage white; the sides of the body slightly streaked with brown"—(*Fauna of British India*).

Jerdon further adds that "the tail is slightly furcate, with a small whitish spot towards the tip of the inner web of each feather."

Female. Similar to male.

Locality, habits, etc. Has been found as far south as Coimbatore.

Breeding season. "January to March and July to October"—(*Fauna of British India*).

Nest. "Of mud with a long tubular entrance attached to it; they are placed against the face of cliffs or under bridges"—(*Fauna of British India*).

Eggs. 3, white or white speckled with pale brownish-yellow; average measurement ·76 × ·53".

(167) Hirundo daurica erythropygia (Sykes).

SYKE'S STRIATED SWALLOW.

(*Fauna of British India*, 2nd edition, No. 1162.)
(*Fauna of British India*, 1st edition, No. 823.)

Description—Male. Length 7"; wing 4·5"; tail 3·12", forked 1·5"; tarsus ·5"; bill from gape ·45".

Bill and legs black; irides brown.

Above glossy blue-black; sides of head, behind the ear-coverts, and the rump ferrugineous; beneath white tinged rufous, more especially on the throat, neck and under tail-coverts, and the feathers with a narrow dark brown streak.

Female. Similar to male.

Locality, habits, etc. A common permanent resident on the plains and hills which latter it ascends to about 6,000 feet, frequenting open rocky country.

Breeding season. April to July or later.

Nest. Retort-shaped with a bulb-like chamber at the end, of mud lined feathers, placed under a ledge of rock an arch of a bridge or against the roof of a cave.

Eggs. 3 or 4 ; unspotted white ; average measurement ·75 × ·51".

Family MOTACILLIDÆ.

"Wing with nine primaries, first and second nearly equal ; longest secondaries reaching nearly, or quite, to the tip of the wing ; bill long, slender ; a complete autumn and a partial spring moult ; tail of twelve feathers ; rictal bristles fairly well developed ; tarsus slightly scutellated "—(*Fauna of British India*).

Genus **MOTACILLA** Linn. 1766.

"Upper plumage, plain ; tail and wing of nearly equal length or the tail decidedly shorter ; the Pied Wagtails are constantly undergoing a change of colour and it is hardly possible to find two birds of same date in same plumage. The yellow ones do not undergo such complete changes but their similarity to each other is so great in winter and immatura plumage that their recognition is more difficult "—(*Fauna of British India*).

(168) **Motacilla alba dukhunensis** (Sykes).

THE INDIAN WHITE WAGTAIL.

(*Fauna of British India*, 2nd edition, No. 1166.)
(*Fauna of British India*, 1st edition, No. 826.)

Description—Male. Length 7·6" ; wing 3·6" ; tail 3·8" ; tarsus ·85" ; bill from gape ·75".

Bill blackish, yellow at base of lower mandible ; legs black ; irides brown.

Winter plumage—Forehead, anterior portion of crown, sides of head, neck and lower plumage white, except a crescentic band of black on the breast ; remainder of head and nape black ; upper plumage grey ; wings deep brown broadly margined with white ; tail black except the two outer pairs of feathers which are white.

In summer the chin, throat and upper breast are black.

Female.—Similar to male, but duller. In winter "no black on head which is grey like the back "—(*Fauna of British India*).

Locality, habits, etc. A fairly common visitor to the hills and plains. It is a graceful bird, as are all Wagtails, especially when seen chasing an insect ; their tails are seldom still, continually being flirted up and down. Some birds become quite tame.

Breeding season, etc. Breeds in W. Siberia to Yenisei, Turkestan, etc.

(169) Motacilla lugubris maderaspatensis (Gmel.).

THE LARGE PIED WAGTAIL.

Plate XIII.

(*Fauna of British India*, 2nd edition, No. 1172.)
(*Fauna of British India*, 1st edition, No. 831.)

Description—Male. Length 9″; wing 4″; tail 4·25; tarsus 1″; bill from gape ·8″.

Bill and irides dark brown; legs black.

Whole upper plumage, chin, throat and breast black; a broad white supercilium and a few white feathers on the eye-lids; greater wing-coverts white; quills margined with white, broader on the secondaries; the two outer pairs of tail-feathers white with a little black on the inner web, remainder black; flanks grey; remainder of lower plumage pure white.

Female. Similar to male.

Locality, habits, etc. A common permanent resident on the plains. Sir A. G. Cardew obtained it on the slopes of the Nilgiris although Mr. Ferguson writes that it does not ascend the hills (of Travancore). It is a tame confiding bird and delights to frequent gardens and back-yards of houses where it picks up an abundance of insect food. It has a very sweet song during the breeding season.

Breeding season. March to May.

Nest. Of mud, twigs, rags, etc, built in all sorts of places—in holes, in wells, bridges and buildings, in crevices of rocks, etc.

Eggs. 3 or 4; white thickly spotted all over with slaty-grey; average measurement ·87 × ·65″.

(170) Motacilla cinerea caspica (Gmel.).

THE EASTERN GREY WAGTAIL.

Plate XIII.

(*Fauna of British India*, 2nd edition, No. 1174.)
(*Fauna of British India*, 1st edition, No. 832.)

Description—Male. Length 7·5″; wing 3·25″; tail 3·5″; tarsus ·75″; bill from gape 7″.

Bill horny; legs fleshy; irides brown.

Upper plumage grey tinged green; upper tail-coverts greenish yellow; a yellow supercilium, also a short yellow moustachial stripe; wings blackish brown with a pale yellow wing-stripe; the tail has the outer pair of feathers pure white, the next two pairs white edged blackish brown externally, the remainder blackish brown; lower plumage yellow, paler and whiter on chin, throat, neck, and flanks.

In summer the supercilium and moustachial stripe are broader and pure white.

Female. Similar to male, but the colouring is not so bright.

Locality, habits, etc. A common winter visitor to the hills where it haunts the streams and pools also commonly seen in gardens and along the roads; much less common on the plains; it arrives about September and leaves about March.

Breeding season, etc. Breeds in the Himalayas.

1.—THE EASTERN GREY WAGTAIL
(*Motacilla cinerea caspica*).
Four-fifths Nat. Size.

2.—THE LARGE PIED WAGTAIL
(*Motacilla maderaspatensis*).
Four-fifths Nat. Size.

(171) Motacilla flava beema (Sykes).

THE INDIAN BLUE-HEADED WAGTAIL.

(*Fauna of British India*, 2nd edition, No. 1175.)
(*Fauna of British India*, 1st edition, No. 835.)

Description—Male, Summer. "A broad supercilium to the nape white; forehead, crown and nape light bluish-grey; back, scapulars, lesser wing-coverts, rump and upper tail-coverts bright olive-green, the longer coverts, with black centre; tail black with narrow yellowish edges, the two outer pairs white with brown edges to inner webs; lores dark grey; upper cheeks, ear-coverts and sides of neck blue-grey; lower cheeks and ear-coverts, chin and throat white; remainder of lower plumage bright yellow with black bases, which show through here and there as the plumage gets abraded; median wing coverts brown with broad pale yellow tips and margins; greater coverts dark brown with pale yellow edges and darker yellow tips; primaries and outer secondaries brown with very narrow yellow edges to outer webs; inner secondaries with broad pale yellow edges to both webs; axillaries and under wing-coverts yellow. Iris brown; bill almost black, the base of lower mandible yellowish; legs and feet dark-brown or dark horny.

In Winter the grey of the head is obscured by greenish margins to the feathers; lower parts much duller and margins to wing-feathers pale fulvous, not yellow; breast often mottled with dull black; supercilium less distinct.

Female, Summer. Like the male but duller: head more greenish and lower surface much less bright. In winter resembles male but is duller"—(*Fauna of British India*).

Locality, habits, etc. "A winter visitor as far south as Travancore"—(*Fauna of British India*).

Breeding season, etc. "Breeds in West Siberia"—(*Fauna of British India.*)

(172) Motacilla flava thunbergi (Billberg).

THE GREY-HEADED WAGTAIL.

(*Fauna of British India*, 2nd edition, No. 1176.)
(*Fauna of British India*, 1st edition, No. 833.)

Description—Male. Length 6·5″; wing 3″; tail 3″; tarsus ·9″; bill from gape ·7.″

Bill dark brown, pale bluish at base below; legs blackish-brown; irides brown.

"Distinguishable from the preceding race at all seasons by its much darker cheeks and ear-coverts; the throat is always yellow and not white and even the chin is often yellow also; in summer the crown and nape are a much darker grey and in winter the general tint is darker in this race than it is in *M. f. beema*"—(*Fauna of British India*).

Female. "Generally distinguishable by their dark cheeks and ear-coverts"—(*Fauna of British India*).

Locality, habits, etc. Large numbers of these birds visit the plains during the cold season, but they do not appear to ascend the hills.

Most probably other race of *M. flava* occur from time to time in winter in this Presidency, but they are difficult if not impossible to determine in the field and even when killed or caught require an expert to name them correctly. (*Stuart Baker*).

Breeding season, etc. Breeds in the Himalayas (*Stuart Baker*) and in Finland.

(173) Motacilla citreola citreola (Pall.).

THE YELLOW-HEADED WAGTAIL.

(*Fauna of British India*, 2nd edition, No. 1181.)
(*Fauna of British India*, 1st edition, No. 837.)

Description—Male, Summer. "Whole head and lower plumage bright yellow, the flanks washed green; upper plumage ashy-grey more or less tinged with olive, especially rump and upper tail-coverts; hind-neck sometimes blackish but the black never extends on to the back; tail black very narrowly edged white, the two outer pairs white except for a broad patch of brown down the outer web; wings dark brown, the coverts and inner secondaries very broadly edged white; outer secondaries and primaries very narrowly edged with the same; axillaries and under wing-coverts greenish-grey. Iris dark brown; bill and feet black.

Female, Summer. Duller than male; back is less pure grey, more brownish, and there is less pure bright yellow on forehead and sides of head; it also wants the black collar.

In Winter. Both sexes have the crown grey like the back but rather greener; the forehead, a broad supercilium and the sides of the head are yellow; lores and a line through the eye dusky; ear-coverts mottled with dusky; breast more or less mottled with dusky owing to the black bases showing through. The female is generally duller than the male with less yellow on the sides of the head"—(*Fauna of British India*).

Locality, habits, etc. "A winter visitor as far south as Travancore and Madras"—(*Fauna of British India*).

Breeding season, etc. "Breeds in Northern Russia"—(*Fauna of British India*).

Genus **DENDRONANTHUS** Blyth 1844.

"Upper plumage plain; middle pair of tail-feathers abruptly shorter than the next and of a markedly different colour. Sexes alike"—(*Fauna of British India*).

(174) Dendronanthus indicus (Gmel.).

THE FOREST WAGTAIL.

(*Fauna of British India*, 2nd edition, No. 1183.)
(*Fauna of British India*, 1st edition, No. 839.)

Description—Male. Length 6·5″; wing 3″; tail 2·87″; tarsus ·85″; bill from gape ·75″.

Bill horny above, fleshy below; legs fleshy; irides brown.

Above olive-green; upper tail-coverts brown; middle tail-feathers brown, the central pair tinged with olive-green, the remainder white

with the inner margins brown, and the bases blackish ; a whitish supercilium extending to the nape ; wings blackish-brown with two yellowish-white bars ; beneath white tinged yellow on the chin, throat and breast ; flanks ashy-brown ; cheeks spotted with olive-green and yellowish ; two black bands on the breast meeting in the centre so as to form two rings.

Female. Similar to male.

Locality, habits, etc. A somewhat rare winter visitor to the plains and hills, frequenting thin open jungle ; it is shy and solitary in habits and is, therefore, not often seen, unless sought for.

Mr. A. P. Kinloch writing Nelliampathy Hills says :—" Quite a common bird. I think the most distinctive thing about the Forest Wagtail besides its marking, is its habit of swaying both body and tail from side to side instead of the usual Wagtail habit of jerking the tail up and down. It is very common on the Estates, feeding on insects which infest the thick muck of dead leaves under the coffee."

Breeding season. Breeds in Siberia and North Cachar.

Genus **ANTHUS** Bechst. 1807.

" Upper plumage streaked ; tail comparatively short "—(*Fauna of British India*).

(175) Anthus trivialis trivialis (Linn.).

THE TREE-PIPIT.

(*Fauna of British India*, 2nd edition, No. 1184.)
(*Fauna of British India*, 1st edition, No. 840 (part).)

Description—Male. " Length about 6·5″ ; wing 3·5″ ; tail 2·7″ ; tarsus ·85″ ; bill from gape ·6″ ; hind claw about ·3″.

" Bill dark brown above, pale brown below, tipped with dusky ; legs and feet flesh-colour ; irides dark brown.

" Upper plumage sandy brown with large black streaks or centres to the feathers except the rump and upper tail-coverts which are very faintly marked ; coverts and quills of wings dark brown margined with pale fulvous ; tail dark brown with narrow pale margins, the outermost feathers about half white, the white and brown meeting diagonally ; the penultimate feather with a small white tip ; a pale fulvous supercilium ; sides of the head mixed brown and fulvous ; lower plumage white tinged with fulvous ; a short black moustachial streak ; the whole breast and the sides of the throat with large, well-defined black streaks ; the sides of the body tinged with olivaceous and indistinctly streaked "—(*Fauna of British India*).

Female. Similar to male.

" The young bird after the autumn moult resembles the adult but is tinged with bright fulvous especially on the throat and breast "—(*Fauna of British India*).

Locality, habits, etc. This is evidently a rare winter visitor to our Presidency, the only record we can find of it being by Sir Alexander Cardew, who obtained specimens in Ootacamund.

Breeding season, etc. Breeds in the N.W. Frontier and Kashmir.

(176) Anthus hodgsoni hodgsoni (Richmond).

THE INDIAN TREE-PIPIT.

(*Fauna of British India*, 2nd edition, No. 1186.)
(*Fauna of British India*, 1st edition, No. 841 (part).

Description—Male. Length 6·5 to 7″; wing 3·37 to 3·5″; tail 2·75″; tarsus ·85″.

Bill horny, pale fleshy at the base below; legs pale fleshy; irides brown.

Above olive-brown, the head, neck and back with dusky brown striæ; rump and upper tail-coverts brighter and without the striæ; wings dusky-brown, edged olive; secondaries and greater coverts olive on the outer webs; lesser coverts edged pale fulvous; tail dusky-brown, the outer feathers white on the outer webs and obliquely white from the basal half of the inner webs to the tips; the penultimate feathers tipped white on the inner webs; centre feathers edged with olive externally; throat, neck and breast fulvous; abdomen white, with large dusky-brown spots or streaks, more abundant on the neck and breast, fewer and more elongated on the abdomen and flanks; vent and under tail-coverts pale fulvous; a short pale fulvous supercilium.

Female. Similar to male.

Locality, habits, etc. Winter visitor to the summits of the hills, associating in flocks and frequenting open grassy places near forests or the forests themselves if thin and with grass beneath the trees. As their name implies, on being flushed from the ground, they invariably take refuge in the trees.

Breeding season, etc. Breeds in the Himalayas.

(177) Anthus nilghiriensis Sharpe.

THE NILGIRI PIPIT.

(*Fauna of British India*, 2nd edition, No. 1189.)
(*Fauna of British India*, 1st edition, No 842.)

Description—Male. "Length 7″; wing 3·1″; tail 2·6″; tarsus 1″; bill from gape ·7″.

"Upper mandible dull black; apical half of lower mandible dark fleshy; iris deep brown; legs and feet fleshy.

"Upper plumage fulvous tinged with olivaceous, each feather broadly streaked or centred with black, except on the rump where the marks are brown and less distinct; wings blackish margined with fulvous; tail black edged with olivaceous, the two outer pairs of feathers dull white on the terminal half or third of their length; the next pair with a dull white tip; a light rufous supercilium; lores brown; sides of head mixed rufous and brown; lower plumage tawny fulvous; the sides of the neck, the whole breast and the sides of the body with short, narrow but very distinct and well-defined black streaks"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. A common permanent resident on the hills frequenting open grassy lands.

Breeding season. End of March to June.

Nest. Of grass and hair placed under a tuft of grass.

Eggs. 3 or 4 ; white, densely spotted with greyish-brown ; average measurement, ·9 × ·65 ″.

(178) Anthus sordidus similis (Jerdon).

THE RUFOUS ROCK-PIPIT.

(*Fauna of British India*, 2nd edition, No. 1190.)
(*Fauna of British India*, 1st edition, No. 843.)

Description—Male. "Length 8″ ; wing 3·7″ ; tail 3·1″ ; tarsus 1·1″ ; bill from gape ·9″ ; hind claws ·35″.

"Bill-upper mandible black, lower mandible fleshy with tip blackish ; tarsus reddish-fleshy ; gape yellow.

"Upper plumage dark brown, the feathers narrowly margined with fulvous ; wings brown broadly edged with bright fulvous, tail black margined with fulvous, the outermost feathers with the outer web and the terminal half of the inner web pale rufous ; supercilium and lower plumage fulvous or sandy buff ; a narrow black moustachial streak ; the breast with small, narrow, but very distinct triangular brown streaks"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. A resident on the Nilgiris and on the Travancore Hills, but rare on the latter ; as may be inferred, it frequents grassy land strewn with rocks and boulders.

Breeding season. March to May. "A single egg in my collection was got at Ootacamund in May ; it was collected by the Reverend Howard Campbell"—(*C.M.I.*).

Nest. "Of grass, placed under a rock"—(*Fauna of British India*).

Eggs. Creamy-white densely speckled with yellowish-brown and purplish grey ; length 0·85″ ; breadth 0·65″—(*Fauna of British India*).

(179) Anthus richardi richardi (Vieill.).

RICHARD'S PIPIT.

(*Fauna of British India*, 2nd edition, No. 1193.)
(*Fauna of British India*, 1st edition, No. 845.)

Description—Male. "Length 7·5″ ; wing 3·7″ ; tarsus 1·2″ ; bill from gape ·85″ ; hind claws ·8″.

"Bill brown, yellowish at base of lower mandible ; mouth yellow ; legs fleshy ; irides brown.

"Upper plumage fulvous brown, the feathers centred with blackish ; rump more uniform ; wings dark brown margined with fulvous ; tail dark brown with pale margins, the outermost feathers almost entirely white, the penultimate with an oblique portion on the inner web about an inch and a half in length, also white ; supercilium and lower plumage pale fulvous ; the sides of the throat and foreneck and the whole breast streaked with dark brown ; sides of the body

darker fulvous with a few indistinct streaks"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. "A common winter visitor. I found it abundant on the open maidans on the West Coast"—(*H.R.B.*).

Breeding season, etc. Breeds in Siberia and Central Asia.

(180) Anthus richardi godlewskii (Tacz.).

BLYTH'S PIPIT.

(*Fauna of British India*, 2nd edition, No. 1194.)
(*Fauna of British India*, 1st edition, No. 846.)

Description—Male. "Differs from *A. r. richardi* only in having a shorter hind claw"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. "A winter visitor to the plains where it may be found in fairly large numbers in dry paddy-fields after the corn has been cut"—(*Ferguson*).

Breeding season, etc. Breeds in the Khasia Hills.

(181) Anthus richardi rufulus (Vieill.).

THE INDIAN PIPIT.

(*Fauna of British India*, 2nd edition, No. 1195.)
(*Fauna of British India*, 1st edition, No. 847.)

Description—Male. Length 6·5″; wing 3″; tail 2·5″; tarsus 1″; bill at gape ·8″; hind claw ·5″.

"An exact miniature of *A. r. richardi*, differing only in size. It has, however, a proportionately larger bill and always a comparatively short hind claw"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. A common permanent resident on the hills and plains, frequenting, in the former case, open grassy land, and in the latter dry paddy-fields.

Breeding season. March to June.

Nest. Of grass, lined hair, placed under a tuft of grass or behind a clod of earth.

Eggs. 3 or 4; creamy or yellowish-white, spotted all over with various shades of brown and purple; average measurement ·82 × ·62″.

(182) Anthus campestris campestris (Linn.).

THE TAWNY PIPIT.

(*Fauna of British India*, 2nd edition, No. 1197.)
(*Fauna of British India*, 1st edition, No. 848 (part).)

Description. "Above brown, each feather margined with sandy-buff or ochraceous-buff, the rump and upper tail-coverts sandy-brown; tail blackish-brown, the central tail-feathers broadly edged with pale

ochraceous; outermost pair white on the outer web and with an oblique white terminal half to the inner web, penultimate pair similar but with only a white tip to the inner web; wing-feathers dark brown, edged sandy-buff; lores dusky; ear-coverts pale sandy tipped brown; a line under the ear-coverts and another on either side of throat dark brown; lower plumage sandy-fulvous, darker on breast and nearly always showing a few dark striæ. Iris dark brown; bill dark horny-brown above, paler and yellowish below; legs and feet yellowish-fleshy "—(*Fauna of British India*).

Locality, habits, etc. "A winter visitor south to the greater part of India "—(*Fauna of British India*).

Breeding season, etc. "Breeds in Europe "—(*Fauna of British India*).

Family ALAUDIDÆ.

"The hinder part of the tarsus transversely scutellated; front part of tarsus also scutellated; wing of nine or ten primaries; rectrices twelve; an autumn moult; plumage of nestling spotted; sexes alike; head usually crested; hind claw usually long."

Genus **ALAUDA** Linn. 1766.

"Ten primaries, first very small not exceeding the primary coverts; bill slender and feeble and nostrils covered by plumelets; hind claw very long and nearly straight; sexes alike "—(*Fauna of British India*).

(183) **Alauda gulgula gulgula** (Franklin).

THE SMALL INDIAN SKY-LARK.

(*Fauna of British India*, 2nd edition, No. 1215.)
(*Fauna of British India*, 1st edition, No. 861 (part).)

Description. Length 6·5″; wing 3·6″; tail 2·2″; tarsus ·9″; culmen ·48″; upper mandible dark brown; lower mandible fleshy-dusky at tip; iris brown; eyelids plumbeous; legs and feet fleshy-brown, claws paler. Upper plumage and wing-coverts dark brown edged with rufescent-fulvous; wings brown edged with rufous; tail brown edged with rufescent-fulvous, the outermost feathers, except on basal margin of inner webs, rufescent-fulvous; the penultimate feathers rufescent-fulvous on outer webs; lores and a broad supercilium rufescent-fulvous and ear-coverts of the same colour mixed with brown; lower plumage rufescent-fulvous, the breast broadly streaked with brown.

Locality, habits, etc. "South to Khandesh and roughly to a line from Hyderabad to Masulipatam "—(*Fauna of British India*).

It is found in grass land; soaring and singing but never soaring very high nor is its song very powerful. They are sometimes found in considerable numbers but not always so, we have often only found a pair in a patch of grass.

(184) Alauda gulgula australis (Brooks).

THE SMALL NILGIRI SKY-LARK.

(*Fauna of British India*, 2nd edition, No. 1216.)
(*Fauna of British India*, 1st edition, No. 861 (part).)

Description—Male. Length 6·5″ to 6·75″; wing 3·75″; tail 2·25″; tarsus ·9″; bill at gape ·75″.

"Differs from the preceding bird in its brighter more rufous upper parts and in the still more fulvous abdomen and flanks"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. A common permanent resident on the hills, frequenting open grassy land. It soars like its European congener and its song, though not so powerful as the latter, is still very sweet.

Breeding season. March to May.

Nest. Of grass, lined with hair placed under the shelter of a tuft of grass or clod of earth.

Eggs. 2 to 4; whitish with close brown spots; average measurement ·8 × ·63″. In texture ten eggs of the *gulgula* group are far more fragile and glossless than those of the *arvensis* group.

Genus **CALADRELLA** Kaup. 1829.

"Bill rather short and deep, and nostrils concealed by plumes; wing has nine primaries of which first is long, reaching to tip of wing and about same length as next two or three; inner secondaries long and reach almost to tips of primaries; hind claw a little longer than hind toe and almost straight"—(*Fauna of British India*).

(185) Calandrella brachydactyla dukhunensis (Sykes).

THE RUFOUS SHORT-TOED LARK.

(*Fauna of British India*, 2nd edition, No. 1222.)
(*Fauna of British India*, 1st edition, No. 863.)

Description—Male. "Length about 6·5″; tail 2·4″; wing 3·8 to 4·1″; tarsus ·8″; bill from gape ·6″.

"Iris brown; legs and feet brownish flesh-colour, dusky at the joints; bill dark horny brown above, pale flesh below"—(*Butler*).

Male. Upper plumage rich tawny streaked with blackish-brown. "Central tail feathers dark brown broadly edged with rufous; the next three pairs dark brown, very narrowly margined with fulvous; the penultimate dark brown, with the terminal half of the outer web nearly entirely buff and the inner web with the inner half brown, the outer half whitish; lores and a supercilium pale buff; ear-coverts hair-brown, sides and neck pale brown; lower plumage buff or fulvous buff darker on the breast and sides of body"—(Compiled from *Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. In winter as far as Madras.

Frequents cultivated country and sandy plains feeding on seeds, etc., collecting in large flocks. Its song, which is rather weak, is uttered on

the wing or on a clod or stone. Large numbers are snared and sold as "Ortolans" for food and though small are very tasty delicacies.

Breeding season. Breeds in Tibet—(*Fauna of British India*).

Genus **MIRAFRA** Horsf. 1821.

"Ten primaries, first large, considerably exceeding primary coverts; bill thick and short and nostrils not covered by plumelets but exposed to view."—(*Fauna of British India*).

(186) Mirafra cantillans cantillans (Jerdon).

THE SINGING BUSH-LARK.

(*Fauna of British India*, 2nd edition, No. 1289.)
(*Fauna of British India*, 1st edition, No. 869 (part).)

Description—Male. "Length 6″; wing 3·2″; tail 2·1″; tarsus ·75″; bill from gape ·55″.

"Upper mandible horny brown; lower mandible fleshy; legs fleshy; irides brown

"After the autumn moult the whole upper plumage is dark brown, each feather with rufous lateral margins and a whitish terminal band; wing-coverts and tertiaries brown margined with rufous; primary-coverts, primaries and secondaries with nearly the entire outer web deep rufous or chestnut; middle pair of tail-feathers brown broadly margined with rufous, the next three pairs almost entirely brown, the penultimate brown on the inner web, white on the outer, the outermost white with a blackish band on the inner margin of the inner web; lores and a supercilium very pale fulvous; sides of the head mottled with fulvous and brown; chin and throat white; remainder of lower plumage fulvous; the sides of the neck and the whole breast streaked with triangular brown marks"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. Generally rare, although Jerdon says it is abundant in some parts of Mysore. It has rather a pleasing song and often soars, though not as high as a Sky-lark.

Breeding season. March to August.

Nest. Of grass, usually placed in long grass.

Eggs. 2 to 4, yellowish-white, speckled and spotted with brownish yellow and purplish-grey; average measurement ·74 × ·6″.

(187) Mirafra assamica affinis (Jerdon).

THE MADRAS BUSH-LARK.

(*Fauna of British India*, 2nd edition, No. 1233.)
(*Fauna of British India*, 1st edition, No. 872.)

Description—Male. "Length 6″; wing 3·2 to 3·5″; tail 1·8 to 2·1″; tarsus 1″; bill from gape ·7″.

"Lower mandible and edges of upper mandible fleshy white; rest of upper mandible horny brown; iris sienna-brown.

"Upper plumage rufous brown with very broad median dark brown streaks to all the feathers; tail dark brown narrowly margined with rufous, the outer web of the outermost feathers being very broadly margined with this colour; wing-coverts and quills dark brown margined with rufous, most of the quills with a large band of rufous on the inner web; lores and supercilium pale fulvous; ear-coverts rufous mottled with brown; chin and throat very pale fulvous; remainder of lower plumage deeper fulvous, the breast streaked with large triangular patches of dark brown; under wing-coverts and axillaries rufous"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. A common permanent resident on the plains, frequenting gardens and open grassy land.

Breeding season. May and June.

Nest. Of grass lined with dry grass, domed, placed in a depression in the ground under a tuft of grass or clod of earth.

Eggs. 3 or 4; dull creamy-white, spotted, speckled and blotched with dingy yellowish-brown and underlying dull grey; average measurement ·75 × ·6".

(188) Mirafra erythroptera erythroptera (Jerdon).

THE RED-WINGED BUSH-LARK.

(*Fauna of British India*, 2nd edition, No. 1235.)
(*Fauna of British India*, 1st edition, No. 871 (part)).

Description—Male. Length 5·25 to 5·55"; wing 2·75 to 3"; tail 1·75 to 2"; tarsus ·85"; bill from gape ·65".

Bill horny on culmen, the rest whitish; legs fleshy; irides brown.

"Differs from the Madras Bush-Lark in having the chestnut of the primaries on the outer and inner webs confluent instead of divided by a band of brown; the underparts a trifle less fulvous; the bill averages smaller and the hind claw shorter"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. "This lark appears to be rare in our Presidency, but I found it and its nest (during the monsoon) at Cannanore, Malabar"—(*H.R.B.*).

Jerdon found it at the foot of the Eastern Ghats inland from Nellore.

Breeding season. March to September, probably rearing two broods during that period.

Nest. Of grass, usually domed, and placed amongst tufts of grass and weeds.

Eggs. 2 or 3; white speckled and spotted with yellowish-brown and purplish-grey; average measurement ·75 × ·56".

Genus **GALERIDA** Boie 1828.

"Ten primaries, first very small, not exceeding the primary coverts; crest consisting of a few elongate feathers springing from centre of crown; nostrils completely covered by plumelets; hind claw

about same length as hind toe and very straight ; sexes alike "—(*Fauna of British India*).

(189) Galerida deva (Sykes).

SYKES'S CRESTED LARK.

(*Fauna of British India*, 2nd edition, No. 1240.)
(*Fauna of British India*, 1st edition, No. 875.)

Description—Male. Length 6″ ; wing 3·5″ ; tail 2·5″ ; tarsus 1″ ; bill from gape ·9″. Bill horny, yellowish below ; legs fleshy ; irides brown. Whole plumage rufous with dark centres to all the feathers of the upper plumage except the tail-coverts ; tail brown edged with rufous-fulvous, the outermost feathers nearly all the latter colour and the penultimate ones wholly of it ; wings dark brown edged with rufous-fulvous ; ear-coverts rufous-fulvous streaked with brown ; the breast has also some brown streaks ; supercilium rufous-fulvous.

Female. Similar to male.

Locality, habits, etc. Found throughout South India. Jerdon obtained it on the top of the Eastern Ghats, frequenting dry grassy places.

Breeding season. June to August.

Nest. Of grass placed under a tuft of grass or clod of earth.

Eggs. 2 or 3, dull grey deeply marked all over with dark grey or brownish ; others are creamy-yellow thickly speckled with yellow-brown and purplish-grey ; average measurement ·78 × ·65″.

(190) Galerida malabarica (Scop.).

THE MALABAR CRESTED LARK.

(*Fauna of British India*, 2nd edition, No. 1241.)
(*Fauna of British India*, 1st edition, No. 876.)

Description. "Length nearly 7″ ; wing 3·8″ ; tail 2·3″ ; tarsus ·85″ ; bill from gape ·7″ ; iris dark brown ; legs and feet livid-flesh ; bill horny brown above, whitish-flesh below."

Male. "Resembles *G. deva* very closely but is considerably larger ; has the streaks on the breast very broad and coarse and the light pattern of the tail much deeper rufous"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. Ferguson writes in his *Birds of Travancore* :— "I have only seen and collected this bird on the High Range at 6,000 ft. elevation. Here it is fairly abundant, going about usually in small flocks. It has a very fine song, quite equal to *A. gulgula*. Unlike that bird, it often sings while on the ground as well as when soaring."

Davison says it is not uncommon on the plateau of the Nilgiris, frequenting the grassy hills in pairs or small parties, most usually the latter. A great proportion of the birds come across are permanent residents. Mr. A. P. Kinloch found it common on the Nelliampathy Hills especially on the grass lands above the Northern slopes.

Breeding season. Breeds in March and April and August and September.

Nest. A shallow saucer of grass lined with fine roots, placed under a tuft of grass.

Eggs. 2 or 3, dull white thickly spotted with brown so as to, in some specimens, almost cover over the whole of the ground colour ; average measurement ·87 × ·65″.

Genus **AMOMMANES** Cabanis 1850.

"Ten primaries, first considerably exceeding the primary-coverts ; nostrils quite concealed by dense pumelets ; bill thick and slightly curved ; hind claw short and not much curved "—(*Fauna of British India*).

(191) Ammomanes phœnicura phœnicura (Frankl.).

THE INDIAN RUFOUS-TAILED FINCH-LARK.

(*Fauna of British India*, 2nd edition, No. 1242.)
(*Fauna of British India*, 1st edition, No. 877.)

Description—Male. Length 6·5″ ; wing 4·25″ ; tail 2·5″ ; tarsus ·9″ ; bill at gape ·65″. Bill dusky, pale fleshy at base below ; legs pale brown ; irides brown.

Above brown with a reddish tinge ; rump, the base of the tail and of the inner webs of the wings, rufous ; wings and tip of tail dark brown ; beneath rufous, paler and more fawn on chin and throat which with the breast have dark brown streaks.

Female. Similar to male.

Locality, habits, etc. A common permanent resident on the plains, frequenting dry sandy places.

Breeding season. March to May or June.

Nest. Of straw, grass and hair, placed in cavities of the ground or in crevices in banks.

Eggs. 3 or 4, whitish, densely covered with dark brown spots and a few purple spots ; average measurement ·85 × ·64″.

Genus **PYRRHULAUDA** Smith 1839.

"Ten primaries, first very small and not exceeding primary-coverts ; hind claw short and well curved ; nostrils densely covered with plumelets "—(*Fauna of British India*).

(192) Pyrrhulauda grisea (Scop.).

THE ASHY-CROWNED FINCH-LARK.

(*Fauna of British India*, 2nd edition, No. 1245.)
(*Fauna of British India*, 1st edition, No. 879.)

Description—Male. Length 5·5″ ; wing 3″ ; tail 1·78″. Bill greyish horny on the upper mandible, fleshy on the lower ; legs brownish fleshy ; irides dark brown ; eyelids plumbeous.

Upper plumage ashy-brown, forehead nearly white and the other feathers margined with creamy-white ; wings and tail brown also margined with creamy-white ; median tail-feathers lighter coloured than the others ; ear-coverts, sides of breast, body and thighs creamy-

white ; the lores and a band continuing from these to the chin, a broad supercilium to the nape, the chin and all the lower plumage, except the sides of the body and the thighs, deep chocolate-brown.

Female. Upper plumage rufous-brown and not so broadly margined as in the male ; sides of face, with a supercilium pale rufous marked with brown (except on the supercilium), lower plumage very pale rufous, lightly striated with brown principally on the breast.

Locality, habits, etc. A very common permanent resident on the plains, where it is principally met with in dry sandy spots ; it seems averse to taking long flights, or is it that it is aware of its protective colouring and seeks to escape notice by crouching and remaining still ?, for it will frequently allow one to approach within a foot or so of it, in fact almost to stamp on it before it seems to realize that it is time to get out of the way, and even then it will fly a few yards only and almost certainly settle down again directly in one's path, repeating the process as one again comes up to it. On the other hand it is a bird of playful disposition, delighting to spring suddenly into the air to a height of 20 or 30 feet, descending with closed wings till it almost touches the ground, then up again, singing merrily the while, and repeating the performance half a dozen times or so, or until a friend or rival attempts to join in the game when it darts off after it at once and chases it away, evidently preferring to enjoy its fun by itself, this latter is probably a breeding display.

Breeding season. It is said to breed almost all the year round.

Nest. A pad of straw or grass, placed in a depression in the ground behind a clod of earth or tuft of grass.

Eggs. 2, whitish-yellow speckled and spotted all over with light brown ; average measurement ·73 × ·56".

Family ZOSTEROPIDÆ.

Characteristics those of the Genus.

Genus **ZOSTEROPS** Vigors and Horsf. 1827.

" Bill slender and small and about half the length of the head ; culmen curved throughout its length, edges of the commissure smooth and nostrils covered with a large membrane ; tarsi long and fairly stout ; tongue protractile and furnished with two brushes of curiously stiff, horny fibres ; wing long with ten primaries, the first very minute ; tail short and square "—(*Fauna of British India*).

(193) Zosterops palpebrosa palpebrosa (Temm.).

THE INDIAN WHITE-EYE.

(*Fauna of British India*, 2nd edition, No. 1247.)
(*Fauna of British India*, 1st edition, No. 226 (part).)

Description—Male. Length 4"; wing 2"; tail 1·5" ; tarsus ·6"; bill from gape ·55".

Bill brown ; legs brownish ; irides pale brown.

Above greenish-yellow ; a white circle round the eyes ; chin, throat and breast canary-yellow ; abdomen, vent and under tail-coverts bluish-white, the latter tipped pale yellow, tail blackish edged green.

Female. Similar to male.

Locality, habits, etc. One of the commonest birds on the hills, where it associates in small parties and frequents gardens and lightly wooded localities. Its food consists principally of insects, but it is also very partial to fruit, especially apples.

Breeding season. February to April.

Nest. Of moss and lichens, lined hair ; deep cup-shaped ; suspended by cobwebs from a twig of a bush or tree or from a dried bracken fern.

Eggs. 2 to 3, two being often a complete clutch, pale blue ; average measurement, ·64 × ·47″.

Family NECTARINIIDÆ.

"Tongue tubular ; bill long and cylindrical, both mandibles finely and evenly serrated on the terminal third of their edge ; nestling resembles female ; one moult ; wing of ten primaries, first small ; rectrices twelve ; tarsus scutellated ; rictal bristles short"—(*Fauna of British India*).

Sub-family NECTARINIIDÆ.

"Sexes different ; plumage of male in part metallic ; bill slender, and nest pensile"—(*Fauna of British India*).

Genus **ÆTHOPYGA** Cabanis 1850.

"Covering membrane of nostril bare ; bill slender and much curved downwards ; females green beneath"—(*Fauna of British India*).

(194) Æthopyga siparaja vigorsi (Sykes).

VIGOR'S YELLOW-BACKED SUNBIRD.

(*Fauna of British India*, 2nd edition, No. 1265.)
(*Fauna of British India*, 1st edition, No. 886.)

Description—Male. "Length nearly 6″ ; tail 2·3″; wing 2·5″; tarsus ·65″ ; bill from gape ·95″.

"Forehead and central portion of crown metallic green ; hinder part of crown and nape dull blackish ; sides of the head and neck, hind neck, back, scapulars and lesser wing-coverts deep red, the concealed black bases of the feathers showing up in places ; rump bright yellow, some of the feathers occasionally tipped crimson ; upper tail-coverts metallic green ; tail black suffused with violet, the middle pair of feathers and the outer margins of the others metallic green ; median wing-coverts black margined with crimson ; greater coverts, primary-coverts, winglet, and quills brown ; a long moustachial streak and a patch behind the ear-coverts metallic violet ; chin, throat and breast deep red finely streaked with yellow ; the red of the breast bounded by a black

band which extends more or less down the middle of the abdomen ; remainder of lower plumage ashy grey ; under wing-coverts and axillaries white"—(*Fauna of British India*).

"Iris red-brown, crimson (Fairbank) ; legs and bill dark brown or blackish"—(*Fauna of British India*).

Female. "Tail 1·7″; wing 2·2″.

"General colour dull green ; the feathers of the forehead brown margined with green : the lower plumage suffused with ashy ; the under tail-coverts broadly margined with ashy yellow ; under wing-coverts and axillaries pale yellowish"—(*Fauna of British India*).

Young. "The young resemble the adult female and the young male assumes the adult plumage at the first spring by a moult"—(*Fauna of British India*).

Locality, habits, etc. "The West coast of India from Bombay to Travancore.

"This appears to be a Sunbird both of open country and the deeper forests but there is very little on record about it"—(*Fauna of British India*).

Breeding season. "June and September"—(*Fauna of British India*).

Nest. Pear-shaped and made of moss and cotton down "Sometimes with, occasionally without, a porch over the opening"—(*Fauna of British India*).

Eggs. "A pair taken.....have a pale grey ground, are thinly speckled all over with rather darker yellowish-grey, numerous enough at the larger end to form an indefinite cap. They measure 18·3 × 12·3 and 17·8 × 12·6 mm."—(*Fauna of British India*).

Genus **LEPTOCOMA** Cabanis 1850.

"This genus has a post-breeding moult of all the body-feathers when a plumage very similar to that of the female is acquired"—(*Fauna of British India*).

(195) **Leptocoma lotenia** (Linn.).

LOTEN'S SUNBIRD.

(*Fauna of British India*, 2nd edition, No. 1277.)
(*Fauna of British India*, 1st edition, No. 894.)

Description—Male. "Length 5·5″; wing 2·3″; tail 1·6″; tarsus ·6″; bill from gape 1·2″.

"Bill and legs black ; irides dark brown.

"Whole upper plumage metallic green glossed with lilac ; the upper tail-coverts metallic blue ; lesser and median coverts lilac ; greater coverts and wings brown ; tail blue ; sides of head and neck green glossed with lilac ; cheeks, chin and upper throat metallic green ; breast rich metallic violet changing to green at the sides ; a band of maroon below the breast ; pectoral tufts rich yellow with a small intermixture of crimson ; remainder of lower plumage snuff brown"—(*Fauna of British India*).

Female. "Upper plumage, wings, sides of head and neck dull greenish brown; tail blackish brown, the outer feathers tipped white; lower plumage yellowish white. Wing 2″; tail 1·3″; bill from gape 1·2″"—(*Fauna of British India*).

Locality, habits, etc. Common on the plains, especially in and around Madras, where it frequents gardens and places where there are flowering shrubs and plants.

Breeding season. February and March.

Nest. Similar to that of *L. zeylonica* or *L. a. asiatica*, but a good deal larger.

Eggs. 2 or rarely 3, white, densely spotted with pale brown, generally in a zone round the large end; average measurement, ·73 × ·52″.

(196) Leptocoma asiatica asiatica (Lath.).

THE INDIAN PURPLE SUNBIRD.

Plate XIV.

(*Fauna of British India*, 2nd edition, No. 1278.)
(*Fauna of British India*, 1st edition, No. 895 (part).)

Description—Male. Length 4·5″; wing 2·25″; tail 1·5″; tarsus ·6″; bill from gape ·8″.

Bill and legs black; irides brown.

Upper plumage glossy metallic green-purple or violet; tail dull black; wings the same with a tuft of crimson and orange feathers under the wing; chin, throat and breast metallic purple; abdomen, vent and under tail-coverts purplish black; there is a metallic copper band below the breast.

In winter the males are green above and yellow below with a broad metallic black stripe from the chin to the abdomen.

Female. Upper plumage greenish-brown; tail black; wings brown, edged lighter; chin light fawn; lower plumage yellowish-fawn; under tail-coverts white.

Locality, habits, etc. A common permanent resident on the plains. Mr. Ferguson states that he has not found it on the Travancore Hills (*Bo. N.H.S. Journal*, Vol. XV, 3), but both Sir Alexander Cardew and myself have procured it on the Nilgiris up to an elevation of 6,000 feet. Like all Sunbirds it frequents open country and gardens where there are flowers and is often seen hovering near one of these. Their note is quite sweet and uttered very frequently during the breeding season when the male sits on a twig and opens his wings slightly, showing off the bright axillary feathers—(*H.R.B.*). The note resembles that of a canary—(*C.M.I.*).

Breeding season. Practically all the year round in some portion or other of its habitat.

Nest. Domed, pear-shaped with hole at side, provided with a canopy and made of moss, lichens, bits of straw, dead leaves, etc., covered with cobwebs and lichens and suspended by cobwebs from a twig of a bush. A favourite nesting site appears to be a bush growing out from the inside of a well.

Eggs. 2, more rarely 3; greyish-white, speckled and spotted with reddish-brown, chiefly at the large end; average measurement, ·65 × ·46".

(197) Leptocoma minima (Sykes).

THE SMALL SUNBIRD.

(*Fauna of British India*, 2nd edition, No. 1236.)
(*Fauna of British India*, 1st edition, No. 900.)

Description—Male. Length 3·5"; wing 1·87"; tail 1·25"; tarsus ·6"; bill from gape ·6". Bill and legs black; irides red-brown.

Non-breeding plumage:—Head, neck and upper back deep olive-green; a patch of deep red between the shoulders; lower back, scapulars and wing-coverts deep blood-red; the centre of the back and rump with a brilliant amethystine gloss; wings and tail black; lower plumage pale yellow; a patch of amethystine on the throat.

Breeding plumage:—The head and neck become metallic green and the whole rump has the amethystine gloss; the throat and neck become amethystine and the lower plumage bright yellow.

Female. Length 3·5"; wing 1·75"; tail 1·2".

Plumage above deep olive-green; rump and upper tail-coverts red; tail brown edged red externally; lower plumage pale yellow.

Locality, habits, etc. A common permanent resident on the hills and plains. Very fond of sipping from the fuschias, datura blossoms, etc.

Breeding season. February and March, continuing as late as July on the West coast.

Nest. Similar to that of *L. a. asiatica*, but smaller and rather more compact and neat.

Eggs. 2; greenish-white, speckled with greenish-brown generally in a ring round the large end; average measurement ·63 × ·47".

Unlike the eggs of the previous two birds which are all of the same type having the ground-colour more or less obliterated by the numerous markings, the eggs of this have the markings much more sparse and they are really more akin to the eggs of *Æthopyga*.

(198) Leptocoma zeylonica (Linn.).

THE PURPLE-RUMPED SUNBIRD.

(*Fauna of British India*, 2nd edition, No. 1287.)
(*Fauna of British India*, 1st edition, No. 901.)

Description—Male. Length 4·37"; wing 2·25"; tail 1·37"; tarsus ·65"; bill from gape ·6". Bill and legs black; irides bright red.

Head, nape and shoulders bright glossy metallic green; neck, back and wing-coverts deep chestnut-red; rump, upper tail-coverts, chin and throat brilliant amethystine-purple; tail brownish black; a band of deep chestnut-red round the neck; wings dusky edged with light reddish-brown; breast and all the lower parts yellow, brightest on the breast, paling to whitish on the vent; flanks silky white.

Female. Length 3·87"; wing ·2"; tail 1·25".

Above olive-green; wings brown with a rusty tinge; tail dusky-black, the outer feathers tipped with white; throat and neck silky white; flanks white; breast and lower parts yellow.

Locality, habits, etc. A very common permanent resident on the plains; it also ascends the Nilgiris, though Mr. Ferguson appears not to have found it on the Travancore hills.

Breeding season. January to March.

Nest. Similar to that of *L. a. asiatica*, but smaller, found in similar places; I have also found nests fixed in the mass of cobwebs so frequently seen covering cactus and other bushes—(*H.R.B.*).

Eggs. 2, rarely 3; whitish, speckled with brown, numerous everywhere but chiefly in a ring round the large end; average measurement ·63 × ·44″.

Sub-family ARACHNOTHERINÆ.

"Sexes alike; plumage non-metallic; bill large; nest cup-shaped, attached by a portion of the rim to a broad leaf"—(*Fauna of British India*).

Genus **ARACHNOTHERA** Temm. 1826.

"Bill extremely long, about twice length of head or longer, much curved, stout at base, culmen ridged between nostrils"—(*Fauna of British India*).

(199) **Arachnothera longirostra longirostra** (Lath.).

THE LITTLE SPIDER-HUNTER.

(*Fauna of British India*, 2nd edition, No. 1296.)
(*Fauna of British India*, 1st edition, No. 909.)

Description—Male. "Length 6·3″; wing 2·6″; tail 1·6″; tarsus ·65″; bill from gape 1·5″.

Bill above brown, below plumbeous; legs plumbeous; irides dark brown"—(*Fauna of British India*).

Above olive-green, greyish on the head; wings and tail brown edged with olive green and the latter tipped with dirty white; sides of head ashy; chin and throat dull white; remainder of lower plumage deep yellow; a tuft of yellow feathers on each side of the breast.

Female. Similar to male.

Locality, habits, etc. A permanent but rather rare resident on the West Coast plains and hills which latter it ascends to about 4,000 feet; it frequents gardens, forests and more especially plantain groves.

Breeding season. August and September in the South, and April to June in the more Northern parts of its range.

Nest. Of fibres, fine grass but principally of skeleton dead leaves and cobwebs; suspended below the leaf of some wide leaved plant, such as a plantain.

Eggs. 2 to 3, white with light brown or red spots, chiefly in a ring at the large end; average measurement ·68 × ·46″.

Family DICÆIDAE.

"Bill short and triangular: primaries nine or ten: both mandibles of bill finely and evenly serrated on the terminal third of their edges; nestling resembles adult female; one moult; rectrices twelve; rictal bristles short"—(*Fauna of British India*).

Genus **DICÆUM** Cuvier 1817.

"Nine primaries, first reaching to tip of wing; bill slender; the lower line of the inferior mandible almost straight; birds of very small size"—(*Fauna of British India*).

(200) Dicæum minullum concolor (Jerdon).

THE NILGIRI FLOWER-PECKER.

(*Fauna of British India*, 2nd edition, No. 1304.)
(*Fauna of British India*, 1st edition, No. 916 (part).)

Description—Male. Length 3·5″; wing ·2″; tail 1·1″; tarsus ·5″; bill from gape ·5″.

"Bill lavender-blue, dusky on the culmen; legs and feet dusky-slaty; iris dark brown.

"Lores forehead and round the eye conspicuously white; the whole upper plumage dull green; the centres of the crown-feathers darker; wings and tail dark brown edged with dull green; sides of the head and neck pale ashy-green; lower plumage pale yellowish buff. Soon after the autumnal moult the white of the face becomes dull"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. A common permanent resident on the hills from the foot to the summit, frequenting gardens and open scrub. Mr. Ferguson also records it as occasionally to be seen in the low country (Travancore).

Breeding season. January to April.

Nest. A tiny egg-shaped purse of vegetable down, lichens, etc., pendant, attached to a twig.

Eggs. 2 or 3; white; average measurement ·64 × ·43″.

(201) Dicæum minullum olivaceum (Wald.).

THE PLAIN-COLOURED FLOWER-PECKER.

(*Fauna of British India*, 2nd edition, No. 1306.)
(*Fauna of British India*, 1st edition, No. 917.)

Description—Male. "Length 3·3″; wing 1·8″; tail 1″; tarsus ·45″; bill from gape ·45″.

"Legs and feet very dark plumbeous; upper mandible and tip of lower very dark brown; rest of the bill pale plumbeous; iris deep brown.

"Similar to the Nilgiri Flower-pecker but much darker both above and below, the lower surface being a dull ashy-green with a slight buffy-yellow wash"—(*Fauna of British India*).

Female. Similar to the male.

Locality, habits, etc. This little Flower-pecker is generally found haunting the tops of lofty trees, hunting for insects, sometimes in pairs, often several pairs in company. Its habits are very restless and its flight quick and strong for so tiny a bird. Obtained by Sir Alexander Cardew in South Kanara. It is a winter visitor to our Presidency, its chief habitat being the hills of Northern India.

Breeding season, etc. Breeds in Northern India.

(202) Dicæum erythrorhynchum erythrorhynchum (Lath.).

TICKELL'S FLOWER-PECKER.

(*Fauna of British India*, 2nd edition, No. 1308.)
(*Fauna of British India*, 1st edition, No. 919.)

Description—Male. Length 3·2″; wing 1·75″; tail 1″; tarsus ·5″; bill from gape ·5″.

Bill fleshy, culmen and tip of both mandibles brownish-horny; legs plumbeous; irides brown.

Upper plumage light brownish-olive; the crown feathers dark centred; wings dark brown edged with the colour of the back; tail dark brown slightly tipped with dirty white; remainder of plumage dull buffy-white.

Female. Similar to male.

Locality, habits, etc. A permanent resident on the hills and plains. I have seen them picking at ripe guavas on the tree—(*C.M.I.*)

Breeding season. March to May.

Nests. Purse-shaped with opening at side, made of vegetable fibres and down, attached to the end of a twig and always very well concealed and difficult to find.

Eggs. 2 or 3; unspotted white; average measurement ·55 × ·4″.

Genus **PIPRISOMA** Blyth 1844.

"Nine primaries, first reaching to tip of wing; bill thick; lower mandible swollen, its lower edge being much angulate; tail square; nostrils perfectly bare of hair"—(*Fauna of British India*).

(203) Piprisoma squalidum squalidum (Burton).

THE THICK-BILLED FLOWER-PECKER.

(*Fauna of British India*, 2nd edition, No. 1311.)
(*Fauna of British India*, 1st edition, No. 921.)

Description—Male. Length 4″; wing 2·4″; tail 1·3″; tarsus ·5″; bill from gape ·45″.

Upper mandible dusky, bluish at sides and at base; lower mandible light blue; legs plumbeous; irides red.

Upper plumage ashy-green, more ashy on the head; wings and tail brown edged with brighter green, the latter tipped with white; lores, cheeks and chin white; a brown streak on each side of the throat, and the rest of the lower plumage yellowish-white streaked with brownish.

THE INDIAN PURPLE SUNBIRD
(*Leptocoma asiatica asiatica*).
Male.
Female.
Two-thirds Nat. Size.

THE INDIAN PITTA
(*Pitta brachyura*).
Two-thirds Nat. Size.

Female. Similar to male.

Locality, habits, etc. A permanent resident on the plains and ascends the hills to about 3,000 feet, frequenting open forest.

Breeding season. February to May.

Nest. A purse-like bag of the consistency of felt made from the down of flowers, suspended from the end of a fine branch, always well-concealed. The nests can be turned inside out like a glove without being damaged; some are a sort of brownish orange in colour and others greyish—(*C.M.I.*).

Eggs. 2 or 3; pinky, densely spotted and blotched with deep brownish-pink, thicker and forming a ring at the large end where there are often dull grey underlying smudges; average measurement, ·65 × ·4."

Family PITTIDÆ.

"The intrinsic muscles of the syrinx fixed at or near the middle of the bronchial semi-rings; ten primaries, first of considerable size and reaching nearly to the tip of the wing; tarsus elongated, anterior covering entire and smooth; rectrices twelve and short; feathers of crown elongated and forming a crest when erected"—(*Fauna of British India*).

Genus **PITTA** Vieill. 1816.

"Feathers at sides of nape not conspicuously lengthened; tail-feathers in some species broad and rounded, and in others narrow and pointed"—(*Fauna of British India*).

(204) Pitta brachyura (Linn.).

THE INDIAN PITTA.

Plate XIV.

(*Fauna of British India*, 2nd edition, No. 1323.)
(*Fauna of British India*, 1st edition, No. 933.)

Description—Male. Length 7"; wing 4·25"; tail 1·5 to 2"; tarsus 1·4"; bill from gape 1·1".

Bill horny-black above, fleshy below; legs fleshy; irides brown.

Head olive-brown with a black stripe from the bill to the nape where it meets another which passes from the gape through the ears; a bluish white supercilium extending to the nape; back, scapulars, wing-coverts and rump dull blue-green; upper tail-coverts and a shoulder-patch azure-blue; tail black tipped with dull blue; quills black with a white bar; chin, throat and sides of neck white; breast and sides pale chestnut or brownish-yellow; abdomen, vent and under tail-coverts scarlet.

Female. Similar to male.

Locality, habits, etc. A winter visitor to the plains and ascends the hills to about 2,500 feet (Mr. Ferguson), but my experience coincides with that of Mr. Dewar who, in his list of Birds found in and about

Madras—(*Bo. N.H.S., Journal, Vol. XVI-3*)—writes that " some birds certainly reside in Madras all the year round, for there is not a month in the year in which I have not seen Pittas. It frequents shrubberies and scrub jungle, feeding upon the insects and grubs it finds on the ground amongst the dead leaves. It is very shy and always hides in thick cover on any sign of danger "—(*H.R.B.*).

Breeding season. It is said to breed during the rains in Kanara, but I have not had the good fortune to find a nest—(*H.R.B.*).

Nest. A large globular construction of grass, bents, weeds and leaves, often placed on the ground, or on a tree or bush.

Eggs. 4 to 6 ; glossy white sparsely but boldly spotted and speckled with deep reddish-brown and underlying purplish-grey ; average measurement 1·01 × ·86".

Order CORACIIFORMES.

This order differs from the *Passeres* as follows :—

There are two carotids.

The toes are not Eleutherodactylous.

There are both *spina externa* and *spina interna* or they are fused to form a *spina communis*, whilst the proximal ends of the clavicle are not expanded.

The oblique septa are attached on each side of the sternum and the falciform ligament forms a median septum attached to the middle of the sternum.

The wing is sometimes Eutaxic and sometimes Diastataxic ; in the *Passeres* it is always the former.

The *patagialis brevis* tendon ends in the *extensor metacarpi radialis longus* and not in the extensor condyle of the radius "—(*Fauna of British India*, 2nd edition, abridged).

Sub-order **PICI.**

This suborder consists of, besides other groups, the *Picidæ* and *Capitonidæ*. In all "the *flexor longus hallucis*, after sending off a vinculum to the *flexor perforans digitorum*, is divided, one branch going to the fourth toe, the other being again divided to supply the first and second, whilst the *flexor perforans digitorum* runs to the third alone. The gall bladder is of great length and of tubular form "—(*Fauna of British India*).

Family PICIDÆ.

"Rectrices twelve, outermost pair generally short and concealed by coverts ; bill strong, modified as a cutting weapon ; end of upper mandible vertical and chisel-shaped ; nostrils basal, above them, in several genera, is a nasal ridge, running parallel to culmen and joining commissure ; tongue long, worm-like and capable of great protrusion and supplied with viscid mucus, point horny and barbed ; the hyoid cornua of enormous length, slide round skull, passing in a sheath from the side of the gullet round occiput to base of upper mandible "—(*Fauna of British India*).

Sub-family PICINÆ.

"Shafts of tail-feathers stout and rigid "—(*Fauna of British India*).

Genus **PICUS** Linn. 1758.

"Nostrils concealed by plumes ; culmen slightly curved, distinct nasal ridge, nearer to culmen than to commissure at base of bill ; four toes ; tail less than two-thirds length of wing ; outermost tail-feathers short ; upper plumage green, wholly or in part ; sexes distinguished by portions of head, generally crown, being red in males and not in females "—(*Fauna of British India*).

(205) Picus vittatus myrmecophaneus (Stresemann.)

THE LITTLE SCALY-BELLIED GREEN WOODPECKER.

(*Fauna of British India*, 2nd edition, No. 1339.)
(*Fauna of British India*, 1st edition, No. 948.)

Description—Male. Length 11″; wing 5·25″; tail 3·87″; tarsus 1″; bill from gape 1·4″.

Bill horny above, yellowish below; legs greenish; irides pinkish-red with an outer circle of white.

Head with short crest crimson; nape black; plumage above green, the feathers centred dusky; rump and upper tail-coverts bright yellow; wings green, the tertiaries dusky with two rows of whitish and greenish-white spots; tail dusky greenish with two rows of rusty spots; a white stripe ove, the eye with a black line above it; lower plumage greyish-white streaked dusky and tinged green; under tail-coverts conspicuously barred with dusky.

Female. Similar to male except that the head is black.

Locality, habits, etc. I have met with it only on the hills from about 5,000 feet upwards, but Ferguson met with it in the low country of Travancore; it is a permanent resident, frequenting sholas, gardens and avenues where there are large trees—(*H.R.B.*).

Breeding season. April and May.

Nest. A hole made in the branch or trunk of a tree.

Eggs. "5; glossy white; they measure 1·05 × ·8"—(*Fauna of British India*).

(206) Picus chlorolophus chlorogaster Jerdon.

THE SOUTHERN INDIAN SMALL YELLOW-NAPED WOODPECKER.

(*Fauna of British India*, 2nd edition, No. 1349.)
(*Fauna of British India*, 1st edition, No. 952.)

Description—Male. Length 9·75 to 10″; wing 5·25″; tail 3·5″; tarsus ·85″; bill from gape 1″.

Bill dusky, greenish-yellow at base below; legs dull green; irides red.

Head, crest and check-stripe red; nape bright yellow; ear-coverts, sides of neck, chin, throat and breast dull green, speckled with white on chin and throat; flanks, abdomen and lower tail-coverts banded and spotted with white; wings greenish with an orange-red tinge, the outer webs of most of the quills bright orange-red, the remainder dusky, all spotted with white; tail black; lining of wings greyish banded with white.

Female. "Forehead and crown dark olive, the occiput alone being crimson, and there is no malar stripe; otherwise as in the male"—(*Fauna of British India*).

Locality, habits, etc. "Not found above 5,000 feet on the Nilgiris"—(*Fauna of British India*).

It occasionally descends to the ground and has a plaintive call. According to Layard, it breaks into dried cowdung for insects, and ants were found in its stomach by Legge.

Breeding season. January to April, but principally in February and the further South one goes, the earlier the bird breeds. "A clutch in my collection was taken in Travancore in April "—(*C.M.I.*).

Nest. A hole in a tree as a rule about 6 to 10 feet from the ground. Major E. G. Phythian Adams writes: "Found nest in hole in tree 15 feet up in February 1926. One clear egg and one young bird nearly full-fledged. Nest hole was shallow and egg easily abstracted by hand. This was at *6,600 feet elevation* in the Nilgiris."

Eggs. Generally 2; rarely 1 or 3; white, hard and glossy typical Woodpecker eggs. Average measurement ·98 × ·71".

Genus **LEIOPICUS** Bonaparte 1854.

"Nasal ridge half length of bill or more and at base not nearer commissure than culmen; second primary shorter than sixth; primaries exceeding secondaries by less than length of culmen. A small occipital crest; upper plumage black, spotted not barred with white "—(*Fauna of British India*).

(207) Leiopicus mahrattensis (Lath.).

THE SOUTHERN YELLOW-FRONTED PIED WOODPECKER.

Plate XV.

(*Fauna of British India*, 2nd edition, No. 1374.)
(*Fauna of British India*, 1st edition, No. 972 (part).)

Description—Male. Length about 7·5"; wing 4"; tail 2·5"; tarsus ·8"; bill from gape 1".

Bill pale plumbeous, dark on the culmen and tip; legs plumbeous; irides deep red.

Forehead and top of head golden-brown; occiput crimson; plumage above black spotted with white; lores, ear-coverts and sides of neck silky white; a brown stripe from the nape down each side of the breast; the lower plumage white streaked with brown; centre of abdomen to vent crimson.

Female. Similar to male, except that the occiput is golden brown.

Locality, habits, etc. A permanent resident on the plains and ascends the hills to about 3,500 feet. Found in thin jungle or cultivated country. "Its call is a weak trill and the sound of its tapping is also rather weak and soft. Its food very largely ants "—(*Fauna of British India*).

Breeding season. February to April.

Nest. A hole in the branch or trunk of a tree.

Eggs. 3; glossy white; average measurement ·8 × ·62".

Genus **YUNGIPICUS** Bonaparte 1854.

"Nasal ridge half length of bill or more and at base not nearer commissure than culmen; second primary longer than sixth; colouration above black or brown, with white cross-bars; beneath brownish white with almost always longitudinal brown or black streaks "—(*Fauna of British India*).

(208) Yungipicus hardwickii hardwickii (Jerdon).

THE SOUTHERN INDIAN PIGMY WOODPECKER.

(*Fauna of British India*, 2nd edition, No. 1380.)
(*Fauna of British India*, 1st edition, No. 976 (part).)

Description—Male. Length 5″ ; wing 3″ ; tail 1·65″ ; tarsus ·55″ ; bill from gape ·65″.

Bill plumbeous, darker at the tip ; legs plumbeous ; irides very pale yellow ; orbital skin lake.

Head light brown crown deep umber-brown ; upper parts brown banded with white ; upper tail-coverts almost completely white ; a scarlet stripe on each side of occiput ; lores brownish-white ; a white stripe from behind the eye down to the side of the neck ; ear-coverts and a band down the side of the neck, brown with another white stripe below ; wings brown spotted with white except the smaller coverts ; tail brown spotted with white ; chin and throat greyish-white ; remainder of lower plumage brownish-white streaked with brown.

Female. Similar to male but without the red occipital streaks.

Locality, habits, etc. Found as far south as Mysore ; ascends the Nilgiris to about 3,000 feet. The heads of birds from these hills are darker than in typical specimens and are more like the next species.

Breeding season. Nothing known at present.

(209) Yungipicus hardwickii gymnopthalmas (Blyth).

THE CEYLON PIGMY WOODPECKER.

(*Fauna of British India*, 2nd edition, No. 1382.)
(*Fauna of British India*, 1st edition, No. 977.)

Description—Male. Length 4·8″ ; wing 2·9″ ; tail 1·6″ ; tarsus ·55″ ; bill from gape ·65″.

" Bill brownish olivaceous, somewhat paler beneath ; legs and feet greenish plumbeous ; irides white, greyish white, yellowish white, or reddish white ; orbital skin dull lake-red.

" Very similar " *Y. hardwickii* " but blackish brown in colour instead of lightish brown ; lower plumage pale fulvous white ; chin and throat purer white and without streaks except in young birds where there are some faint ones. Scarlet occipital streaks as in *I. hardwickii* "—(*Fauna of British India*).

Female. Similar to male but with no crimson occipital streaks.

Locality, habits, etc. Davison says it occurs on the slopes of the Nilgiris up to 3,000 feet elevation and F. W. Bourdillon gives it in his list of Travancore Birds.

According to Davison it avoids heavy forest, frequenting scrubby and bamboo jungle and open grassy glades interspersed with trees. He found it in parties of 4 to 6 or in pairs and says it does not differ in habits from other members of the genus.

Breeding season. Breeds in Ceylon in February and March.

Nest. A hole in a small branch of a tree.

Eggs. 2 or 3 ; white ; average measurement ·62 × ·53″.

Genus **MICROPTERNUS** Blyth 1845.

"Nostrils exposed, mantle rufous, banded; culmen curved, tip pointed, without nasal ridge and chin-angle nearer to tip than gape; tail-feathers pointed, outer pair just exceeding tail-coverts in length"—(*Fauna of British India*).

(210) Micropternus brachyurus gularis (Jerdon).

THE SOUTHERN RUFOUS WOODPECKER.

(*Fauna of British India*, 2nd edition, No. 1392.)
(*Fauna of British India*, 1st edition, No. 985 (part).)

Description—Male. "Length 9″; wing 4·75″; tail 2·75″; tarsus ·5″; bill from gape 1·2″"—(*Fauna of British India*).

Upper mandible, tip and base of lower mandible dark brown, nearly black, remainder of lower mandible white tinged with plumbeous; legs and feet greyish-brown; irides dark brown; eyelids plumbeous.

Whole plumage chestnut-rufous, the head tinged with dusky-brown; feathers beneath the eye tipped with crimson; shafts whitish; feathers of throat squameted dark chestnut sub-edged with black and narrowly edged pale; upper plumage barred with black.

Female. Similar to male, but without the crimson tips to the feathers below the eye.

Locality, habits, etc. A permanent resident on the plains and ascends the hills to about 3,000 feet. Davison got one specimen a few miles from Ootacamund. He says:—

"It occurs but nowhere numerous, on the slopes of the Nilgiris, in the Wynaad and Mysore country. It avoids the heavy forest frequenting thin tree and bamboo jungle. Like other species of the genus the feathers especially about the head and breast are often covered with a viscid substance." This substance is got from the ants' nests the proprietors of which they feed on. Legge says it feeds on the ground and breaks up dried dung of cattle and it has a loud note often heard very early in the morning.

Breeding season. April in Travancore.

Nest. Built in the nest of red ants (species of "*Cremastogaster*") which make nests of leaves in trees.

Eggs. 3; glossless white; the texture is much softer in all eggs of this genus, which are laid in ants' nests, and is more like that of a Barbet's egg than of a normal Woodpecker; the eggs are often much discoloured; average size, 1·2 × ·86″.

(211) Micropternus brachyurus lanka Kloss.

THE CEYLON RUFOUS WOODPECKER.

(*Fauna of British India*, 2nd edition, No. 1393.)
(*Fauna of British India*, 1st edition, No. 985 (part).)

Description. Similar to *M. b. gularis* but smaller—(*Fauna of British India*).

Wing average about 116 mm., from 110 to 120 mm., culmen 21 to 24 mm.—(*Fauna of British India*).

Locality, habits, etc. South Travancore. In Ceylon it frequents, according to Wait, forest and well-wooded gardens—(*Fauna of British India*).

Breeding season. Unknown.

Genus **BRACHYPTERNUS** Strickland 1841.

"Nostrils exposed; bill scarcely longer than head; culmen curved; nasal ridge close to culmen but sub-obsolete; wings and tail longer than in *Micropternus*; outer tail-feathers a little longer than coverts; hallux small, about one-third second digit; a red occipital crest in both sexes; crown red in males, black with white spots in females; back yellow or red, lower parts black and white or fulvous"—(*Fauna of British India*).

(212) **Brachypternus benghalensis puncticollis** Malherbe.

THE SOUTHERN GOLDEN-BACKED WOODPECKER.

(*Fauna of British India*, 2nd edition, No. 1395.)
(*Fauna of British India*, 1st edition, No. 986 (part).)

Description—Male. Length 11·1″; wing 5·6″; tail 4″; tarsus ·95″; bill from gape 1·5″.

Bill horny; legs greenish; irides reddish.

Top of head black tipped with crimson; occipital crest crimson and pale-shafted; a stripe below the crown and a band through the eye to the nape, black and white; above this a white band and below it from near the nostrils down the sides of the neck another broad white band; back orange-golden scapulars golden-yellow; back of neck and from the lower back to the upper tail-coverts black; primaries dark brown spotted with white; primary-coverts brown with white spots, the remainder of the coverts golden-olive, some spotted with whitish; tail black; chin, throat and foreneck black with small white spots; lower plumage white tinged with fulvous; breast broadly and remainder slightly bordered with black.

Female. Similar to male, but the crown is spotted with white instead of being tipped with crimson.

Locality, habits etc. A common permanent resident on the plains where it is most often found in palm and mango groves; it also ascends the hills to almost 4,000 feet.

Breeding season. "Similar to that of the Northern bird but very few eggs have been taken and described. Kinloch obtained it breeding in the Nelliampathy Hills in March, the nest containing two eggs which measure 34·7 × 22·0 and 33·9 × 21·7 m.m. These are assuredly, abnormally large"—(*Fauna of British India*).

Genus **DINOPIUM** Rafinesque 1814.

"Toes three; otherwise similar to *Brachypternus*; the coronal feathers are more elongate and wing more pointed"—(*Fauna of British India*).

(213) Dinopium javanensis rubropygialis (Malh.).

THE MALABAR GOLDEN-BACKED THREE-TOED WOODPECKER.

(*Fauna of British India*, 2nd edition, No. 1400.)
(*Fauna of British India*, 1st edition, No. 988 (part).)

Description—Male. "Length 11·5″; wing 5·8″; tail 4″; tarsus ·95″; bill from gape 1·5″."

"Bill very dark brown; legs greenish; irides hazel; eyelids plumbeous"—(*Fauna of British India*).

Top of head, crest, lower back and rump crimson; remainder of upper plumage golden-olive edged with orange; upper tail-coverts black; ear-coverts black; there is a broad band of black at the back of the nape and a broad black malar stripe; sides of the head and neck white; quills dark brown with the outer webs of the secondaries golden-olive, all with large oval spots on the inner webs; primaries tipped with dull white on the outer webs; tail black; lower parts buffy-white; a black stripe down the middle of the throat; from the breast downwards broadly edged with black, narrower and browner on the abdomen and vent; under tail-coverts barred dark brown.

Female. Similar to male but with head and crest black with white elongated spots.

Locality, habits, etc. "The south-west coast of India from Travancore to Kanara, the hills of Mysore and Western Madras"—(*Fauna of British India*).

Mr. Ferguson says it is very common in the hills of Travancore at all elevations.

Breeding season. March.

Nest. Mr. T. F. Bourdillon took a nest in a hole of a mango tree about 30 feet from the ground at an elevation of 3,000 feet. He found others at elevations from 2,000 to 3,000 feet.

Eggs. 2 or 3; white, very glossy; length 1·11″; breadth 0·8″; "two in number, quite white"—(*T. F. Bourdillon*).

Genus **CHRYSOCOLAPTES** Blyth 1843.

"Hallux well developed, half length of second digit; plumage yellow or red; above white, the feathers edged with black below. Bill stout and long. Culmen nearly straight. Nasal ridge strongly marked, commencing at base of bill half way between culmen and commissure. Nostrils exposed. Head large and conspicuously crested"—(*Fauna of British India*).

(214) Chrysocolaptes festivus (Bodd.).

THE BLACK-BACKED WOODPECKER.

(*Fauna of British India*, 2nd edition, No. 1403.)
(*Fauna of British India*, 1st edition, No. 991.)

Description—Male. "Length 12·5″; wing 6·25″; tail 3·5″; tarsus 1·1″; bill from gape 2·2″.

"Bill dusky blackish; legs horny plumbeous; irides crimson.

"Forehead with large buffy-white spots on a brown ground ; long feathers of crown and occiput crimson ; a black border often mixed with white anteriorly, to the crown ; hind neck and middle of upper back white ; remainder of back, scapulars, smaller wing-coverts, along the forearm, tail-coverts and tail black ; larger and median secondary-coverts olive with golden yellow edges ; outer webs of secondaries golden olive ; rest of quill-feathers brownish black ; all outer webs with spots, brownish or greenish outside, white inside ; inner webs with large white spots ; sides of the head and neck and under parts white or buffy-white, except a broad black band from each eye down the side of the neck ; two black lines on each malar region, the two meeting at the side of the throat, and a median line down the throat, or five lines in all ; breast feathers with broad black lateral margins producing a striped appearance ; abdominal feathers with narrower and less defined borders ; under tail-coverts mixed black and white"—(*Fauna of British India*).

Female. Coronal and occipital feathers golden yellow ; broad forehead spotted as in the male"—(*Fauna of British India*).

In young males, the crest-feathers are dull scarlet, in young females the yellow crest-feathers have red tips"—(*Fauna of British India*).

Locality, habits, etc. "Rare in this Presidency ; recorded from the Nilgiris, Travancore and Malabar ; forest birds, but occasionally come into the open"—(*Fauna of British India*).

Breeding season. Howard Campbell took one egg of this Woodpecker in the Nilgiris from "a hole in a tree, growing in a *shola* of mixed forest." On the 28th January Stewart obtained a second in Travancore ; on the 4th February from a hole in a tree in deciduous forest.

Eggs. The two eggs measure 29·9 × 24·2 and 32·1 × 25·9 mm. They are curiously round for eggs of this family. Davison says that in Kanara they breed from November to January and that he has never seeg more than one young with the parent birds. They breed in thin forest or in the lighter parts of the heavier forest"—(*Fauna of British India*).

(215) Chrysocolaptes guttacristatus delesserti (Malh.).

MALHERBE'S GOLDEN-BACKED WOODPECKER.

(*Fauna of British India*, 2nd edition, No. 1406.)
(*Fauna of British India*, 1st edition, No. 992 (part).)

Description—Male. Length, 11 to 11·5" ; wing 6" ; tail 4" ; tarsus 1·3" ; bill from gape 2".

Bill horny ; legs slaty-green ; irides yellow.

Top of head and crest crimson ; a reddish-brown band from the eyes round the forehead ; a wide black stripe from the eyes down the sides of the neck, above this a white stripe ; back of neck white ; upper back and wings golden olive ; lower back crimson ; tail black ; primaries blackish edged externally with golden-yellow and with 3 or 4 large white spots on the inner web of each feather ; neck white with five black gular stripes ; breast black with a brown tinge, each feather with a large white spot ; rest of lower plumage white barred with black or brown.

Female. Similar to male but instead of the crimson crest has a black cap with a small white spot on each feather.

Locality, habits, etc. A permanent resident on hills and plains ascending quite to the summit of the former. It is usually seen in pairs in evergreen forest. We have seen these birds sometimes on the ground.

Breeding season. "In the Nilgiris and hills of Southern India this race breeds during December, January and February. Howard Campbell also took eggs in March near Ootacamund"—(*Fauna of British India*).

Nest. "According to Davison and Darling they excavate their nest holes at any height from 6 to 60 feet and, when not breeding, continue to use the holes as roosting-places at night"—(*Fauna of British India*).

Eggs. "They seem to lay from one to three eggs . . . averaging about 28·3 × 20·5 mm."—(*Fauna of British India*).

The eggs are white and not very glossy.

Genus **HEMICIRCUS** Swainson 1837.

"Size small; tertiaries with large spots; bill straight, compressed towards end; nasal ridge well marked, beginning at base half-way between culmen and commissure and extending half the distance to tip; feet very large; hallux well-developed; fourth toe longer than third; a long crest on occiput and nape; neck very slender; tail very short but little exceeding tail-coverts and about one-third length of wing; tail-feathers rounded at end, outer pair distinctly shorter. Both sexes have in the middle of the back a tuft of bristly feathers smeared with a viscid secretion having a peculiar resinous scent"—(*Fauna of British India*).

(216) **Hemicircus canente cordatus** Jerdon.

THE MALABAR HEART-SPOTTED WOODPECKER.

(*Fauna of British India*, 2nd edition, No. 1410.)
(*Fauna of British India*, 1st edition, No. 995 part).)

Description—Male. "Size smaller than that of typical race; wing 90 to 96 mm.; culmen 18 to 20 mm."—(*Fauna of British India*).

Bill blackish; legs greenish-black; irides reddish-brown.

Upper plumage dull brownish-black; forehead and crown tipped with white: a band from the chin below the ear-coverts joining behind the nape, buff; rump and feathers at bend of wing buff; wings dark brown except the tertiaries and greater and median coverts which are buff with a sub-terminal heart-shaped brownish-black spot; chin and throat buff; remainder of lower plumage brown tinged with olive, darker and purer on vent and flanks.

Female. Similar to male, but forehead and crown buff; slightly smaller in size. "Wing 89 to 95 mm.; culmen 17 to 19 mm."—(*Fauna of British India*).

Locality, habits, etc. Travancore and in forests of Malabar Coast both above and below the Ghats. An uncommon bird found in pairs or small parties frequenting the tops of high trees.

Breeding season. "Very little on record. Stewart found it breeding in Travancore from January to March and Bourdillon also found it breeding in February"—(*Fauna of British India*).

Nest. "It makes a tunnel in a dead branch of a tree at a considerable height from the ground and generally, if not always, selects a tree standing in forest"—(*Fauna of British India*).

Eggs. 2; dull white. "Eight eggs average about 23·5 × 18·6 mm. . . . "—(*Fauna of British India*).

Genus **THRIPONAX** Cab. and Heine 1863.

"Size large; all quills unspotted; a well-marked nuchal crest; plumage chiefly black, in most species with some white on body; the cap and malar patch red in males, and in females the occiput and nape retain the red colour"—(*Fauna of British India*).

(217) Thriponax javanensis hodgsonii (Jerdon).

THE MALABAR GREAT BLACK WOODPECKER.

(*Fauna of British India*, 2nd edition, No. 1414.)
(*Fauna of British India*, 1st edition, No. 997.)

Description—Male. "Length 19"; wing 9"; tail 7·5"—(*A. M. Primrose*).

"Bill black; legs dark plumbeous; irides crimson"—(*A. M. Primrose*).

Top of head and a large malar patch on each side, crimson; all the rest of the plumage black, except the lower back, rump, lower breast, upper abdomen, sides of body and base of secondaries on the inner webs, which are white.

Female. Similar to male, but has crimson on the occiput and nape only.

Locality, habits, etc. This fine bird inhabits evergreen forests, ascending the hills to 3,000 feet. It is usually seen in pairs; but Davison has been as many as six together. Mr. F. W. Bourdillon says it has a loud and rather pleasant cry which it utters at intervals when climbing up the stem of some large tree, and when passing from one tree to another it emits a loud chuckle. Mr. A. P. Kinloch calls its note a curious, plaintive, metallic clang, and says that they possess a laugh only uttered in flight. It rarely takes a long flight, and a pair may be heard a great distance off calling to each other, as they pass from tree to tree; they are fairly common and not very shy. On the other hand Davison says they are very shy and difficult to procure.

Breeding season. December to February.

Nest. A hole about 2 feet deep and usually some 30 to 50 feet up in a tree.

Eggs. 1 or 2 only, glossy white; average measurement 1·40 × 1·05".

Sub-family PICUMNINE.

"Shafts of tail-feathers flexible. Tail (in Indian forms less than $\frac{2}{3}$ length of wing; nostrils concealed by plumes"—(*Fauna of British India*).

Genus **PICUMNUS** Temminck 1825.

"Size small, toes four; bill conical, compressed, pointed, the culmen slightly curved and angulate; the nostrils and chin-angle concealed by dense plumes with black bristles projecting; wing and tail rounded; orbits feathered; plumage including tail-feathers soft, lax and elongate"—(*Fauna of British India*).

(218) Picumnus innominatus avunculorum Hartert.

THE NILGIRI SPECKLED PICULET.

(*Fauna of British India*, 2nd edition, No. 1418.)
(*Fauna of British India*, 1st edition, No. 1001 (part).)

Description—Male. "Length 4"; wing 2·3"; tail 1·4"; tarsus ·52"; bill from gape ·5"—(*Fauna of British India*).

"Bill plumbeous black; feet dark plumbeous; irides brown"—(*Fauna of British India*).

Some yellow feathers over the nostrils; forehead olive; sinciput black with orange tips; remainder of head olive; remainder of upper plumage dull golden-olive; crown with some black centres; a band from the eye down the side of the neck and a malar stripe dark olive, the latter mixed with white; a whitish supercilium and another band of the same colour below the eye, both prolonged down the sides of the neck; wings brown, outer webs golden-olive; the tail has the median feathers with their inner webs white, the next four black and the remainder black with some white on the outer webs and tips; chin and throat white; remainder of lower plumage pale yellow spotted all over with large black spots, except the flanks which are cross-barred.

Female. Similar to male, but with the crown uniform olive.

Locality, habits, etc. Found on the hills but rare; Davison obtained it below Kotagiri. "Nilgiri and Wynaad Hills. Agrore, Stewant and Bourdillon obtained it in the Travancore Hills"—(*Fauna of British India*). It inhabits both bamboo and tree jungle and is also found in brushwood. In habits and flight it is quite Woodpecker-like.

Breeding seaon. Not known.

Sub-family IYNGINÆ.

"Tail-feathers soft, flexible; tail about three-quarters the length of wing or more; nostrils not covered by plumes, but partially covered by a membrane"—(*Fauna of British India*).

Genus **IYNX** Linn. 1766.

"Bill of moderate length, conical, compressed; nostrils large near culmen; wing pointed; plumage soft, brownish grey in colour, minutely speckled. Sexes alike"—(*Fauna of British India*).

(219) Iynx torquilla torquilla Linn.

THE EUROPEAN WRYNECK.

(*Fauna of British India*, 2nd edition, No. 1423.)
(*Fauna of British India*, 1st edition, No. 1003 (part).)

Description—Male. Length 7·5"; wing 3·4"; tail 2·5"; tarsus ·8"; bill from gape ·85".

Bill, legs and irides brown.

Above greyish-brown finely barred and vermiculated with brown and tipped with light rufous; broad black stripes from the nape and down the centre of the back; a brown band through and behind the eye, and above it a streak of white; wings brown banded with pale rufous; wing-coverts mottled like the back and with some white spots divided by a black streak and banded above by black; some white at each side of gape; chin, throat and gape deep buff narrowly barred with black; lower plumage fulvous-white barred with brown absent on abdomen.

Female. Similar to male.

Locality, habits, etc. Found "principally . . . in Southern India"—(*Fauna of British India*).

A somewhat rare cold-weather visitor to the plains, frequenting bushes. They have a peculiar habit of twisting their neck round.

Breeding season. Breeds in Europe.

(220) Iynx torquilla japonica Bonap.

THE JAPANESE WRYNECK.

(*Fauna of British India*, 2nd edition, No. 1424.)
(*Fauna of British India*, 1st edition, No. 1003 (part).)

Description. "Differs from the preceding race only in being rather darker and more profusely spotted below"—(*Fauna of British India*).

Locality, habits, etc. "In Winter . . . the greater part of Eastern India as far South as Madras"—(*Fauna of British India*).

Breeding season. Breeds in Kashmir.

Family CAPITONIDÆ.

"Tail-feathers and primaries ten; the first of the latter are short; bill stout and strong; nostrils often overhung by plumes and bristles; rictal and chin bristles often largely developed; ventral feather-tract forked on the throat and on each side of the breast; wing rounded"—(*Fauna of British India*).

Genus **THEREICERYX** Blanford 1893.

"Plumage green: head, neck and breast brown more or less streaked; rictal bristles long; lower tail-coverts green; second primary shorter than 10th; bill large; culmen rounded, not angulate, much curved; upper mandible overlapping the lower mandible and generally pale yellow in colour; nostrils exposed"—(*Fauna of British India*).

(221) Thereiceryx zeylanicus zeylanicus (Gmel.).

THE CEYLON GREEN BARBET.

(*Fauna of British India*, 2nd edition, No. 1429.)
(*Fauna of British India*, 1st edition, No. 1008 (part).)

Description—Male. "Length 11"; wing 4·9"; tail 3·3"; tarsus 1·25"; bill from gape 1·8".

Bill pale brownish-red, tip dusky ; legs dull yellow ; irides brown ; orbital skin yellow.

Whole head, neck, chin, throat, breast and upper abdomen brown with pale shaft-streaks ; upper plumage bright grass-green ; lower plumage from breast pale grass-green ; tail above bright grass-green, below tinged with blue ; quills brown ; the outer webs edged with dirty white.

Female. Similar to male.

This bird may easily be distinguished from *T. viridis*, by its larger size and by the orbital skin which is much larger and extends to the gape.

Locality, habits, etc. South Travancore. Ferguson shot one at 4,000 feet elevation in the hills of Travancore. It has a loud note which sounds like "*kotur, kotur, kotur.*" It feeds on fruits but principally berries.

Breeding season. March and August.

Nest. A hole in a tree which it excavates after the manner of a Woodpecker.

Eggs. 3, dull white ; average measurement 1·22 × ·87".

Thereiceryx zeylanicus caniceps (*Frankl.*) The Northern Green Barbet (*Fauna of British India*, No. 1430) which only differs from the above in being "duller and paler and rather less boldly streaked" (*Fauna of British India*) may extend to our area as Stuart Baker writes "probably into the north of the Madras Presidency"—(*Fauna of British India*).

(222) Thereiceryx zeylanicus inornatus (Wald.).

THE BOMBAY GREEN BARBET.

(*Fauna of British India*, 2nd edition, No. 1431.)
(*Fauna of British India*, 1st edition, No. 1008 (part).)

Description. "Differs from *T. z. zeylanicus* in having the brown extending further on to the breast and lower back ; the whole plumage is paler and duller and the streaks on the breast are confined to the pale shafts ; the pale specks on the wing-coverts are wanting and the streaks on the head and upper back are generally less conspicuous. South Travancore birds are intermediate but on the whole much nearer true *zeylanicus*"—(*Fauna of British India*).

Locality, habits, etc. "Travancore, excluding the Southern quarter, North to the Godavari. . . . East it apparently extends to the Nilgiris, and Cannanore but there are no specimens in the British Museum"—(*Fauna of British India*).

Breeding season. "Breeds in March and April from Travancore to the Nilgiris where Col. H. R. Baker took eggs. The birds breed from the level of the plains up to at least 3,000 feet possibly a good deal higher"—(*Fauna of British India*).

Eggs. "The number of eggs laid seem to be two or three only"—(*Fauna of British India*).

(223) Thereiceryx viridis (Bodd.).

THE SMALL GREEN BARBET.

(*Fauna of British India*, 2nd edition, No. 1434.)
(*Fauna of British India*, 1st edition, No. 1010.)

Description—Male. Length 9·5″ : wing 4″ ; tail 2·75″ ; tarsus 1″ ; bill from gape 1·5″.

Bill fleshy, bluish at gape ; legs green (Barnes says plumbeous-brown) ; irides brown.

Head and hind neck brown ; the feathers of the neck centred yellowish ; upper plumage bright green ; wings green ; the primaries blackish-brown on the inner webs ; chin whitish ; throat, neck and upper breast brown ; each feather centred yellowish ; plumage below green ; tail below bluish green.

Female. Similar to male.

Locality, habits, etc. A permanent resident on the plateaux of about 3,000 feet elevation (e.g. Bangalore), and very common on the hills up to the summit. It frequents the more open sholas and gardens which have large shady trees, and like its cousin of the plains the Crimson-breasted Barbet is very noisy, giving vent to its loud cries (which consist of two distinct calls—one a prolonged *Kr-r-r-r*, like the winding-up of a gigantic clock and not unlike the commencement of the call of the Gecko which is so common in Burmah, followed by *Ruku-ruku-ruku* repeated several times ; the other a loud *Hook-krrr Hook-krrr* also repeated several times) from moving to night and the whole year round, especially on fine, sunny days: when one bird begins, all the others within hearing seem to take up the same refrain, so that the country around appears to be full of nothing but these Barbets. Its food consists of berries and fruit, and it is especially fond of apples which it will boldly rob from orchards.

Breeding season. February to June.

Nest. Like that of a Woodpecker, in the dead branch or trunk of a tree.

Eggs. 3 ; white ; average measurement 1·13 × ·84″.

Genus XANTHOLÆMA Bonaparte 1854.

"Second primary, instead of being shorter than any other primary except the first, being always longer than the eighth, ninth and tenth and sometimes longer than the sixth. Bill short and thick ; rictal bristles long, sometimes reaching to end of bill ; naked orbit small"—(*Fauna of British India*).

(224) Xantholæma hæmacephala lutea (Less.).

THE INDIAN CRIMSON-BREASTED BARBET.

Plate XV.

(*Fauna of British India*, 2nd edition, No. 1447.)
(*Fauna of British India*, 1st edition, No. 1019 (part).)

Description—Male. Length 6 to 6·5″ : wing 3·5″ ; tail 1·5″ : tarsus ·8″ ; bill from gape ·9″.

THE YELLOW-FRONTED PIED WOODPECKER
(*Leiopicus mahrattensis blanfordi*).
Male.
Three-quarters Nat. Size.

THE INDIAN CRIMSON-BREASTED BARBET
(*Xantholaema haemacephala lutea*).
Three-quarters Nat. Size.

Bill black, rictal bristles very long ; legs coral-red ; claws black ; irides brown.

Forehead, crown and a broad band on the breast brilliant crimson ; lores and a band across the crown continued to the throat, black ; neck bluish-green ; rest of upper plumage green ; wings dusky edged green externally, whitish internally ; chin, throat and a stripe above and below the eyes pale yellow ; an orange band below the crimson one on the breast ; rest of lower plumage pale whitish-yellow streaked with green.

Female. Similar to male.

Locality, habits, etc. The " Coppersmith " bird if one of the commonest birds, on the plains, its monotonous *took, took* being heard all the year round from morning till night from any and every tree-top. The bird is a bit of a ventriloquist in its own way and this combined with its protective green colouring makes it often extremely difficult to discover in spite of its continuous and loud notes. When spotted it will probably be seen sitting high up in the tree in some adsurdly conspicuous place bobbing its head from side to side at every *took* as if it had to force the note out of its throat. It also ascends the hills to about 3,000 feet. Mr. A. P. Kinloch says this bird does not occur on the Nelliampathy Hills.

Breeding season. February to April or later.

Nest. A hole excavated in the branch of a tree. I have seen a hole being made by the bird in the pole of a fence and believe it sometimes attacks telegraph poles—(*H.R.B.*).

Eggs. 3 or 4 ; white, elongated ; average measurement 1 × ·67".

(225) Xantholæma malabarica (Blyth).

THE CRIMSON-THROATED BARBET.

(*Fauna of British India*, 2nd edition, No. 1448.)
(*Fauna of British India*, 1st edition, No. 1020.)

Description—Male. Length 6·25" ; wing 3·2" ; tail 1·5" ; tarsus ·8" ; bill from gape ·85".

" Bill black ; legs red ; irides red-brown."

" Crown and upper parts, wings and tail as in " *X. hæmatocephala* " except that the general colour is grass-green ; the band above and that below the eye, a spot at the base of the lower mandible on each side, chin, throat and foreneck, crimson ; the malar and gular areas fringed with golden yellow ; the black of the vertex runs down on each side behind the eye and the sub-ocular crimson patch does not extend to the malar area ; sides of the head behind the black, and area between the ear-coverts and throat, light greyish-blue ; lower parts from neck pale green, the feathers of the flanks darker green near the shafts "—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. " From South Travancore to Ratnagiri, East to Mysore, Wynaad and Palni Hills. A specimen in the British Museum labelled Madras is probably from the extreme west of the Province and not from Madras City " - (*Fauna of British India*).

The late Mr. A. P. Kinloch said it was very common on the Nelliampathy Hills, that it utters the same persistent cry as the preceding species.

Breeding season. February and March.

Nest. Similar to that of the preceding species.

Eggs. White, without gloss but with the usual fine silky texture. Measure 0·98 × 0·65″.

Sub-order **CUCULI.**

"Ambiens muscle present; the *flexor longus hallucis* leads to the hallux alone; the *flexor perforans digitorum* serves the other three digits. The palate is desmognathous; basipterygoid processes are wanting"—(*Fauna of British India*).

Family CUCULIDÆ.

"Feet zygodactyle, the first and fourth toes directed backwards; cæca present; both carotids present; contour-feathers without any aftershaft; dorsal feather-tract divided between the shoulders and enclosing a lanceolate naked space on the back; an oil-gland present but nude. Young hatched naked and not passing through a downy stage before acquiring feathers. Tail-feathers, 10""—(*Fauna of British India*).

Sub-family CUCULINÆ.

"Tarsus feathered anteriorly (only at base in *Coccystes*); no accessory femoro-caudal muscle"—(*Fauna of British India*).

Genus **CUCULUS** Linn. 1766.

No crest; secondaries in closed wing scarcely exceeding half length of primaries; wing long and pointed. The first primary is about two-thirds the length of the wing. Tail shorter than wing, graduated, the outer feathers falling short of the middle pair by one-fourth to one-third the length of the tail. Bill moderate. In adults the upper plumage is almost uniform dark ashy or brown; the chin and throat ashy; abdomen white, barred with black; the wings barred on the inner webs. The young undergo two or three changes, one phase being chestnut above barred with dark brown"—(*Fauna of British India*).

(226) **Cuculus canorus telephonus** (Heine).

THE ASIATIC CUCKOO.

(*Fauna of British India*, 2nd edition, No. 1452.)
(*Fauna of British India*, 1st edition, No. 1104 (part).)

Description—Male. Length 13″; wing 8 to 9″ and occasionally longer; tail 6·7 to 7·3″; tarsus ·8″; bill from gape 1·25″—(*Fauna of British India*).

"Bill dusky horn, yellowish at the base and edges; gape orange yellow; iris and legs yellow; the young have the iris brown and the lower mandible pale green"—(*Fauna of British India*).

Upper plumage ashy; wings brownish, inner webs barred with white; tail blackish, tipped white and with white spots down centre of feathers; chin and upper breast ashy, paler than upper plumage; remainder of lower plumage white barred with black. In young plumage the bird is brown barred with rufous and the feathers white-tipped. There is also a white nuchal spot; the tail is also brown with rufous bars and has the white spots down the centre of the feathers as in adult; the lower plumage is white narrowly barred with black.

Female. "Similar to male, but with upper breast rufous and sides of neck sometimes rufous"—(*Fauna of British India*).

Locality, habits, etc. A somewhat rare spring visitor to the Nilgiris where, according to Mr. Stuart Baker, it stays to breed, though I personally have not heard of any one taking its eggs on the hills—(*H.R.B.*). All Cuckoos have loud notes, some of which are pleasing, some otherwise; their food consists chiefly of caterpillars and other soft insects. They do not pair in the strict sense of the word and, as everybody knows, are parasitic, laying their egg or eggs in other bird's nests, these are sometimes laid direct into the nest but usually laid on the ground and then picked up and placed in the nest by its bill. They are also more or less migratory.

Breeding season. March to end of June.

Nest. We have abstained from giving notes on nidification outside our area but the habits, in this respect, of the Cuckoos are so interesting that we include them. "The favourite fosterers seem to be the Forktails and the Shrikes, *Lanius c. erythronotus*, in Simla and in Garhwal, as well as the Ruby-throat, Indian Bush Chat and the various Larks, Pipits and Wagtails. In Kuman, Mussorie, and Murree the birds most often cuckolded are the Bushchats, *Trochalopterum lineatum and Larvivora brunnea*, and a beautiful blue egg has been evolved exactly similar in tint to those of the latter. Magrath also obtained a blue egg from the oviduct of a female. Evolution in the subspecies seems to have advanced to a stage in which the eggs of the Forktails, Shrikes, Ruby-throats and *Larvivora* have almost reached perfection. At the same time many other birds' nests have been found to contain Cuckoos' eggs totally unlike that of their own and these are probably only casual deposits, made use of because the one desired is not available.

The hen Cuckoo is undoubtedly polyandrous or, perhaps it is more true to say, where Cuckoos are especially numerous, both sexes are quite indiscriminate in their love affairs, on the other hand, where there are but few Cuckoos a pair will continue in each other's company indefinitely—(*Fauna of British India*).

To anyone interested in the subject of the Oology of the Cuckoos we cannot do better than recommend the perusal of the interesting notes on "The Oology of Indian Parasitic Cuckoos" by Mr. Stuart Baker in the Bombay Natural History Society Journal. Vol. XVII, 1, 2 and 3.

Eggs. The eggs "average about 23·6 × 18·1 mm."—(*Fauna of British India*).

(227) Cuculus poliocephalus poliocephalus (Lath.).

THE SMALL CUCKOO.

(*Fauna of British India*, 2nd edition, No. 1455.)
(*Fauna of British India*, 1st edition, No. 1106.)

Description—Male. Similar to *C. telephonus* but with lower plumage tinged with buff and the crossbars on same are much broader.

"Bill blackish; base of lower mandible, gape and eyelids yellow; iris brown; feet yellow"—(*Fauna of British India*); "iris yellow." (*W. P. Masson*). Young birds have the whole upper plumage deep rufous, everywhere barred with black on rump and upper tail-coverts which are more of a chestnut colour than the rest; chin and throat pale rufous and remainder of lower plumage white, the former more narrowly and the latter very broadly barred with black.

"From the third or chestnut stage the young moult by degrees into the fully adult grey plumage"—(*Fauna of British India*).

Locality, habits, etc. A rare visitor to the hills and occasionally to the plains. Jerdon obtained it at Nellore.

Breeding season. Breeds throughout the Himalayas from May to July.

Eggs. The eggs are of two very different types, one is white and the other varies from a pinkish to a deep chocolate. According to Stuart Baker in the *Fauna of British India*, 2nd edition, the former "are normally placed in the nests of *Phylloscopus*, *Acanthopneuste*, *Pnœpyga* and other genera, which lay either pure white or white slightly speckled with darker colours" and the chocolate eggs are normally laid in the nests of "species of *Horornis*, which also lay dark chocolate eggs and, more rarely, *Tesia castaneocoronata* which lays dark pinkish eggs." They average 21·0 × 14·2 mm.

(228) Cuculus micropterus micropterus (Gould).

THE INDIAN CUCKOO.

(*Fauna of British India*, 2nd edition, No. 1456.)
(*Fauna of British India*, 1st edition, No. 1107.)

Description—Male. Length 12·5″; wing 7·6″; tail 6″; tarsus ·8″; bill at gape 1·2″.

Bill blackish; lower mandible greenish-yellow at base; legs and feet and gape yellow; irides brown; eyelids greenish edged with yellow.

Head, neck, chin and upper breast ashy, paler on chin and upper breast; remainder of upper plumage brown; inner webs of quills barred with white; tail brown tipped white and with a sub-terminal black band; plumage from breast buffy white barred with black.

Female. Browner on breast.

Young birds have the head mixed brown and buffy white, the latter colour predominating; sides of neck buffy white; remainder of upper plumage brown tipped with rufescent and with some feathers tipped with buffy white; lower plumage buff barred with black.

Locality, habits, etc. A rare visitor to most parts of our Presidency though Mr. Stewart records it as common in Travancore. According to Mr. Stuart Baker, excessively common in other parts of India. "This Cuckoo has a very fine voice and its call is perhaps one of the best known of birds' sounds in North Eastern India and the other parts to which it extends. Its two most popular names "Bo-kota-ko" in Bengali, and the "Broken Pekoe" bird in English—are two of the best representatives of its call"—(*Stuart Baker*).

Breeding season. April to June. "It doubtless breeds more or less over the whole of its habitat, ascending higher up during the breeding season and migrating locally at this time from places where there are no suitable forests or hills"—(*Stuart Baker*).

Eggs. "It is an extraordinary fact that little is known of the breeding of this extremely common Cuckoo. Rattray has shown that one type of egg laid is exactly the same as the blue egg laid by *Cuculus canorus telephonus*, a pale blue either faintly spotted with neutral-tint specks and quite unspotted. These eggs are laid in the nests of *Trochalopterum lineatum*, *Hodgsonius phoenicuroides Larvivora brunnea* and *Saxicola torquata indica*, all of which lay blue or bluish eggs, with which the Cuckoo's eggs do not contrast conspicuously. Stewart obtained the only complete oviduct egg known from a female in Travancore; this egg is all blue, but of a greyer shade than those found by Rattray, though otherwise very similar . . . Evidently there is little doubt it will be found to lay some type of egg which cannot be distinguished from that of the foster-parent except by special care. . . . A collector for Major R. E. Skinner saw one of these Cuckoos sitting on a nest of a Paradise Fly-catcher and, waiting until it flew away, examined the nest and took a Cuckoo's blue egg and two eggs of the owner from it.

The remains of an oviduct egg obtained by Le Tonche is described as pinkish-white marked with rich red and carmine very much like some eggs of the *Dicruridæ*. Twenty-four eggs average 23·7 × 18·1 mm."—(*Fauna of British India*).

Genus **HIEROCOCCYX** S. Müller 1842.

"Differs from *Cuculus* in having rather shorter wings with the primaries extending from one-fifth to one-third the length of the closed wing beyond the ends of the secondaries; sometimes the third primary is longest, sometimes the fourth. The colouration is remarkable, even amongst Cuckoos, for its close imitation of Hawks and Falcons. Not only is the adult garb Accipitrine in character but the plumage of the young resembles that of several immature birds of prey. The resemblance in plumage and flight to Hawks is quite unexplained though as it is sufficient to cause great alarm to small birds in general, it is probably connected with breeding habits. In all species of *Hierococcyx* the tail is broad with distinct dark cross-bars; the plumage above is uniform or nearly so in adults, mixed with rufous bars in the young; below it is spotted in the young but generally becomes nearly uniform or transversely banded in the adult stage. Sexes alike"—(*Fauna of British India*).

(229) Hierococcyx sparveroides (Vigors).

THE LARGE HAWK-CUCKOO.

(*Fauna of British India*, 2nd edition, 1457.)
(*Fauna of British India*, 1st edition, 1108.)

Description—Male. "Length about 15″; wing 8·5 to 10″; tail 8·25 to 9·25″; bill from gape 1·4″"—(*Fauna of British India*).

"Upper mandible dark brown, lower greenish; gape and orbits yellow; iris yellow or orange in the adults, brown in the young; legs deep yellow; claws paler yellow"—(*Fauna of British India*).

Head above and sides of neck dark ashy; lores white; remainder of upper plumage rich brown glossed with purple: wings like back but with outer webs with small buff indentations, and inner webs banded with white and with tips of the quills whitish; tail lightish brown with three or four blackish-brown bands, the terminal one very much broader than the others; the tips of the feathers rufous-white; chin dark ashy; throat white, broadly streaked with ashy; breast rufous also broadly streaked with ashy and most of the feathers margined with white; remainder of lower plumage white banded with brown; in some birds the lower plumage is tinged with rufous throughout; a white moustachial streak present on both sides of the chin.

Female. Similar to male, but smaller.

"The young bird is brown above, the feathers margined and faintly banded with rufous and the lower parts are rufescent white, with large streaks and drops of dark brown becoming arrow-headed marks on the flanks; the chin is blackish and there is a slight rufous collar. As the bird grows older the head becomes dark ashy, the markings on the flanks and abdomen assume the appearance of bands and there is a gradual passage into the adult"—(*Fauna of British India*).

Locality, habits, etc. Common in the Nilgiris, South to Travancore (*Stewart*), the Palni Hills (*Howard Campbell*) and the Wynaad (once only)—(*Fauna of British India*).

"Its voice is not unlike that of the "Koel" but is less harsh and penetrating and some of its notes are really quite melodious one of these latter has been described as *Chuck-do-dot* and *Chuck-dol-dol* and this has a distinctly Cuckoo-like sound about it. Its favourite note, however, is one which runs up the scale in repetitions of the sounds *pi-pee-ah, pi-pee-ah*, the emphasis on the second syllable, until the bird has got as high as it can, when it recommences again"—(*Stuart Baker*).

Breeding season. Appears to extend from May to July.

Eggs. Stuart Baker in the 2nd edition of the *Fauna of British India* (*Birds*) gives instances of this bird laying two types of eggs, "not only differing in colour to suit their fosterers but as differing in size. Pale bright blue eggs have been taken from the nests of *Trochalopterum lineatum*, *Myiophoneus temminckii*, *Trochalopterum erythrocephalum*, *Garrulax moniliger*, *Garrulax pectoralis* and several other species of Laughing-Thrushes, all of which lay blue eggs with or without sparse markings. The other type which varies in colour from "pale brown to dark olive-brown and vandyke brown" have been taken from the nests of the Large Spider-Hunter which lays eggs very similar in colour.

"The blue eggs average about 30·1 × 21·9 mm. and the brown eggs about 26·0 × 18·9 mm."—(*Fauna of British India*).

THE COMMON HAWK-CUCKOO
(*Hierococcyx varius*).
One-half Nat. Size.

THE SPOTTED OWLET
(*Athene brama indica*).
One-half Nat. Size.

(230) Hierococcyx varius (Vahl.).

THE COMMON HAWK-CUCKOO.

Plate XVI.

(*Fauna of British India*, 2nd edition, No. 1458.)
(*Fauna of British India*, 1st edition, No. 1109.)

Description—Male. Length 13·5″; wing 7·8″; tail 6·8″; tarsus 1″; bill from gape 1·25″.

Bill bluish green, culmen and tip of both mandibles black; base of culmen lighter than the rest; irides yellow or orange, in young brownish; rim round eyelids, gape and legs yellow, claws brownish yellow.

Upper parts ashy-grey with a faint rufous collar interrupted with ashy-grey at back of neck; lores and cheek white tinged with rufous; quills brownish with inner webs banded with white; upper tail-coverts margined white; tail grey, tipped with light rufous and banded with 4 or 5 blackish-brown bands, the terminal one being the broadest and the others broadly edged posteriorly with white tinged with rufous; sides of head ashy-grey like the upper plumage; chin grey; throat pale rufous-white; breast pale rufous with narrow grey shaft-streaks; remainder of lower plumage white barred with pale rufous and grey; lower tail-coverts white.

Female. Similar to male.

The young bird is brownish above, the feathers broadly edged and barred with rufous, making the bird appear more rufous than brown; the edgings to the bars on the tail are also much more rufous; the lower plumage is white tinged with rufous, with oval brown spots, the chin being much streaked with brown; lower abdomen and under tail-coverts without the brown spots; these spots soon change to bars and arrow-shaped marks.

Locality, habits, etc. This, the true "Brain-fever" bird is found all over India, frequenting gardens, groves, avenues, etc. Sir A. Cardew obtained it on the Nilgiris, but Mr. Dewar says he has only once heard its call in Madras. Mr. A. P. Kinloch didn't find it on the Nelliampathy Hills. Writing of this Cuckoo, Mr. Stuart Baker remarks:—"This is the true "*Brain-Fever*" bird, beloved of all sick Europeans in India, though the *Koel* and the Large Hawk-Cuckoo are often so called locally, especially where the Common Hawk-Cuckoo is absent; its note is the same "*pi-pee-ah, pi-pee-ah*" as that of *sparveroides*, but it is even more shrill and penetrating and the bird itself is even more persistent; night or day seems much the same to it, and when the nights are very dark, it awakes with the dawn and has double the energy to expend on destroying the rest of everyone within hearing."

Breeding season. March to July.

Eggs. It lays its eggs in the nests of various Babblers (*Argya* and *Turdoides*) and in the hills in the nests of the Laughing-Thrushes *Garrulax moniliger* and *G. pectoralis* and according to Stuart Baker sometimes in Bulbuls nests, etc., also "Stewart took eggs from the nests of the Fairy Blue-Bird." This presumably was in Travancore. The eggs exactly match those of the common Babblers (*Turdoides*) but Stuart Baker writes "they can really be easily distinguished by their great

weight, very hard thick shell and by their pale yellow yolk. The surface also is finer, smoother, yet less glossy, as a rule, than those of the fosterer and they stain easily in a manner the latter eggs never do." As many as five or six eggs are sometimes found in one nest laid by several Cuckoos. "The young Cuckoo when hatched ejects the other eggs and young from the nest and when more than one young Cuckoo is hatched the strongest survives"—*Fauna of British India*. The eggs which are blue "measure about 26·0 × 20·0 mm. but vary very greatly in size. They average larger than the eggs of *Clamator jacobinus* but otherwise cannot be distinguished from them"—(*Fauna of British India*).

Genus **CACOMANTIS** S. Müller 1842.

"Differs from *Cuculus* by having much shorter wings with the primaries only extending about one-third the length of the wing beyond the end of the secondaries, and by having the tail as long as the wing" —(*Fauna of British India*).

(231) Cacomantis merulinus passerinus (Vahl.).

THE INDIAN PLAINTIVE CUCKOO.

(*Fauna of British India*, 2nd edition, No. 1462.)
(*Fauna of British India*, 1st edition, No. 1112.)

Description—Male. Length 9″; wing 4·5″; tail 4·5″; tarsus ·7″; bill from gape 1″—(*Fauna of British India*).

Bill reddish brown; legs brownish yellow; irides brownish red; mouth salmon.

Upper plumage dark grey; wings brown, more or less glossed with green above and inner webs of quills banded with white; bend of wing white; lower parts ashy, paler on abdomen and white on under tail-coverts.

"The young at first are dark glossy brown above, each feather with a rufous edging; the lower parts are white with brown bars and the throat and breast tinged with rufous; the tail is black with broad white and rufous bars and markings.

"In the second stage the whole upper plumage with the sides of the head and neck, is bright chestnut, the back and wings broadly barred with black: the head, hind-neck, rump and upper tail-coverts with merely a few black spots and the tail with some irregular black shaft-marks. A large sub-terminal black patch and a white tip to each feather. The lower plumage is white, narrowly banded with black; the chin, throat and upper breast more or less suffused with chestnut.

"In older birds of this stage, the head, hind-neck, back, rump and tail-coverts become immaculate, the bars on the wings are resolved into spots; only the sub-terminal black patches remain on the tail-feathers, and many of the bars on the throat and breast fade away, these parts becoming bright chestnut. After this the adult plumage is rapidly assumed by the acquisition of ashy patches"—(*Fauna of British India*).

Locality, habits, etc. Not uncommon on the Nilgiris where it ascends to 5,500 ft. Ferguson says the Museum in Trivandrum has two specimens shot in April in forest in the low country. It frequents forests, gardens and bush jungle and has a plaintive call of two syllables, the last lengthened out, which Elliot says sounds like "*whi, whew,—whi whew whew whew*", and which Jerdon represents as "*ka-veer ka-veeeer*, and to which the bird, by pointing its head to different sides gives a ventriloquistic effect. Jerdon writes that this Cuckoo is most abundant on the Malabar Coast, in the Wynaad and on the warmer slopes of the Nilgiris; rare in the Carnatic but found here and there in jungly places and on the Eastern Ghats.

Breeding season. In the Nilgiris it lays in August, September and October—(*Fauna of British India*).

Eggs. In the Nilgiris the eggs are, according to Mr. Stuart Baker, laid in the nests of *Prinia inornata jerdoni* and are very similar to that bird but "larger, paler and more feebly marked." Other birds in whose nests they lay are Fantail-Warblers and Tailor-birds. In these nests the eggs laid are pale-blue or white with light reddish blotches corresponding very closely to those of the fosterers. From one area, Hyderabad, Mr. Stuart Baker has received a "wonderful series of eggs . . . which are most extraordinary examples of adaptive selection. In this quite small area the Cuckoo has deserted its ordinary foster parents and is parasitic almost entirely on *Prinia socialis*, a Warbler which lays very bright chestnut-red eggs and we find that a bright pink-red egg has been evolved to go with that of this Warbler"—(*Fauna of British India*).

The eggs average "about 19·9 × 14·0 mm."—(*Fauna of British India*).

Genus **PENTHOCERYX** Cabanis 1862.

"Resembles *Cacomantis* in structure and size but differs from it in having the tail-feathers a little narrower towards their tips . . . The genus differs from all the preceding genera in having no change of plumage from the young to the adult"—(*Fauna of British India*).

(232) Penthoceryx sonneratii sonneratii (Lath.).

THE INDIAN BANDED BAY CUCKOO.

(*Fauna of British India*, 2nd edition, No. 1464.)
(*Fauna of British India*, 1st edition, No. 1114 (part).)

Description—Male. "Length 9·5"; wing 4·6 to 5"; tail 4·75 to 5·2"; tarsus ·7"; bill from gape 1·1".

"Upper mandible and tip of lower, black, rest of lower, greenish-yellow; iris brown of different shades; legs and feet brownish slaty or greenish"—(*Fauna of British India*).

Forehead whitish, remainder of upper plumage rufous, the whole banded with greenish-brown; wings brown edged with rufous and inner webs partially barred with the same colour; tail rufous tipped with white; middle pair strongly barred with brown, that colour predominating, but the other feathers have only a brown sub-terminal band and the outer webs strongly barred and the inner ones less so

with brown ; ear-coverts like back but remainder of head and all the lower plumage white tinged with fulvous on abdomen and under tail-coverts, the whole being finely banded with brown.

Female. Similar to male.

Locality, habits, etc. Found on the slopes of the Nilgiris and also on the Eastern Ghats about the latitude of Madras, rare in Travancore and common in the forests of Malabar. A shy bird with, according to Stuart Baker, two distinct cries, one exactly like that of *Cuculus micropterus* except in a much higher key ; the other like that of *passèrinus* with this difference that it (*sonneratii*) always stops in the middle of the 2nd and 3rd repetition.

Breeding season. Appears to extend from February to June ; in some places up to August.

Eggs. This Cuckoo appears to choose the nest of *Ægithina tiphia*, the Common Iora, more often than that of any other bird in which to deposit its egg, though the nest of *Otocompsa fuscicaudata* and *Dumetia albigularis* are said occasionally to be used.

Stuart Baker writes that "other eggs have been taken . . . . "from the nests of Bulbuls (various), *Tribura*, *Stachyris*, *Stachyridopsis*, *Malacocincla*, *Urocichla*, *etc.* In one or two cases these exactly resemble the oviduct egg but they range from this, a dark egg, to others with a pale cream or pink ground with a few specks or blotches of reddish-brown." The oviduct egg had a "ground-colour dull lilac with rufous-pink spots profusely scattered all over it." Mr. Baker has also "taken many Cuckoos' eggs from the nests of *Alcippe* which I believe to be of this Cuckoo. These eggs vary from pure white speckled with purple-brown to a deep dull pink or lilac, minutely speckled everywhere with dull neutral tint or reddish-brown, the spots generally larger and more definite at the larger end, where they may form an obscure cap or ring. Many of these eggs are very like those of *Alcippe*, which also vary extremely in coloration but they have a different, coarser texture with less gloss . . . and average considerably larger. In a few instances in which the types of both fosterer and Cuckoo agree they are difficult to distinguish. They average about 19·3 × 15·8 mm."—(*Fauna of British India*).

Genus **SURNICULUS** Lesson 1831.

"Plumage almost entirely black and the tail forked owing to the lateral rectrices being turned outwards ; this gives this genus an extraordinary resemblance to a King-crow (*Dicrurus*). All the tail-feathers are nearly equal in length except the outermost pair which are much shorter. The young differ from the adults in having a few white spots and less glossy plumage"—(*Fauna of British India*).

(233) Surniculus lugubris stewarti Stuart Baker.

THE CEYLON DRONGO-CUCKOO.

(*Fauna of British India*, 2nd edition, No. 1470.)
(*Fauna of British India*, 1st edition, No. 1117 (part).)

Description—Male. Length 9·5 to 10″ ; wing 5·5″ ; longest tail-feathers 5″ ; tarsus ·65″ ; bill from gape 1·1″.

Bill black ; irides dark-brown ; legs plumbeous.

Plumage above black with a steel-blue and green gloss ; a white nape patch except in very old birds ; upper tail-coverts often and feathers of thighs marked with white, the under tail-coverts and outermost tail feathers barred narrowly with white. The wings have a white spot on the inner webs of the feathers forming an oblique stripe.

This sub-species differs from the others in having "the fourth primary longest, or rarely equal to third"—(*Fauna of British India*).

Female. Similar to male.

"In the young, there is less gloss on the feathers and small terminal white spots are irregularly dispersed over the plumage ; the white markings are more developed on the tail-feathers and the under wing-coverts are partly white"—(*Fauna of British India*).

Locality, habits, etc. According to Ferguson, not uncommon in open forestland in South Travancore. Cardew also obtained it in Malabar. Probably it is more common than thought to be, being mistaken for a King-Crow. Mr. Stuart Baker has heard it utter a double plaintive note like that of a King-Crow which bird it also sometimes resembles in mode of flight, though usually its flight is straight. Its usual note, however, is a very human whistle of six ascending notes.

Breeding season. "In Travancore, January to March"—(*Fauna of British India*).

Eggs. Drongos have been seen feeding young Drongo-Cuckoos and Bell has obtained eggs which he believes were laid in nests of *Dicrurus macrocercus* and were described by him as similar to Drongos eggs. "On the other hand Wait obtained a young *Surniculus* in the nest of the Black-Fronted Babbler and has taken two eggs from the nests of these birds which we believe to be *Surniculus* eggs. They are grey-white eggs speckled and blotched with brown and with underlying marks of neutral tint. They measure 19·3 × 14·7 and 10·6 × 14·8 mm. Another egg taken by Stewart in Travancore, also from the nest of *Rhopocichla* is exactly like those and measures 19·5 × 14·6 mm. Yet a fourth egg taken in an Iora's nest with two of that bird is of the same type, though less boldly marked. It measures only 17·5 × 13·8 mm."—(*Fauna of British India*).

Genus **CLAMATOR** Kaup 1829.

"A pointed occipital crest present ; tail longer than wing and the tail-feathers graduated ; wing short and rounded, the primaries extend only one-fourth to one-fifth the length of the closed wing beyond the secondaries ; tarsus bare except at base ; bill compressed, culmen much curved towards tip ; sexes alike and no distinctive plumage in young"—(*Fauna of British India*).

(234) **Clamator jacobinus jacobinus** (Bodd.).

THE PIED CRESTED CUCKOO.

(*Fauna of British India*, 2nd edition, No. 1472.)
(*Fauna of British India*, 1st edition, No. 1118 (part).)

Description—Male. Length 13" ; wing 5·8" ; tail 7" ; tarsus 1" ; bill from gape 1·2".

Bill black ; irides brownish-claret : feet plumbeous.

Upper plumage black glossed with green ; quills brown barred with white at base : tail like back, tipped white : broadly on outer and narrowly on median ; feathers ; lower plumage white, greyish above the thigh coverts.

Female. Similar to male.

Young birds are brown on the upper plumage and buff on the lower ; very often in some, otherwise full adult specimens, traces of this buff colour remain.

Locality, habits, etc. This Cuckoo is fairly common on the Nilgiris which it ascends as high as Ootacamund ; is rare on the Malabar Coast. (*Jerdon*). Also uncommon around Madras (*Dewar*). It is, where found, a well-known bird frequenting gardens, groves, etc. In the breeding season, as Jerdon truly remarks, it is very noisy, two or three males (apparently) often following a female uttering their loud peculiar call which is a high-pitched wild metallic note : uttered continually whilst flying.

Breeding season. "In the Nilgiris it lays in January, February and March"—(*Fauna of British India*).

Eggs. Mr. Stuart Baker writes in the *Fauna of British India* :—"This is one of the few Cuckoos of which it may be said that the evolution of the egg is perfect and complete. Many oviduct eggs have been taken and these, like the eggs found with the fosterers, have all been of one type. The Pied Crested Cuckoo practically invariably deposits her eggs in the nests of Babblers of the genera *Turdoides* and *Argya*. Both these genera lay deep blue eggs which in shape are blunt broad ovals, often almost elliptical. The Cuckoo lays eggs that are always either elliptical or spheroidal in shape and in size and colour much the same as the eggs of *Turdoides terricolor*. Of course, when placed in the nests of the small *Argya* the difference in size is conspicuous, though not nearly so greatly so as it often is in the eggs of other Cuckoos. . . . Every now and then eggs are seen in other birds' nests but the number is negligible. They have been taken in Bulbuls, two or three species each of *Trochalopterum* and *Garrulax* which lay blue eggs *Alcippe*, *Lanius*, *Enicurus* and *Geocichla citrina*"—(*Fauna of British India*).

Very often a number of Cuckoos eggs are found in one nest.

They "average about 23·9 × 18·6 mm. but vary greatly in size"—(*Fauna of British India*).

(235) Clamator coromandus (Linn.).

THE RED-WINGED CRESTED CUCKOO.

(*Fauna of British India*, 2nd edition, No. 1474.)
(*Fauna of British India*, 1st edition, No. 1119.)

Description—Male. Length 16·5″ ; wing 6·5″ ; tail 10″ ; tarsus 1·1″ ; bill from gape 1·4″.

Bill horny, whitish underneath ; irides dark brown ; legs plumbeous.

Head and a line under the eyes dull black. Long crest glossy black with green reflections ; a white demi-collar at the nape. Back and upper tail-coverts which are much elongated, black with glossy green reflections ; tail deep glossy blue, tipped whitish ; wings bright

chestnut, broadly tipped dull brown ; wing-coverts and shoulders glossy metallic green ; chin, throat and neck, rufous ; breast white passing into ashy-brown on abdomen and vent ; under tail-coverts which are elongated, black, glossed with violet and tipped light brown.

Female. Similar to male.

"The young has most of the feathers in the upper plumage tipped with pale rufous, the chin and throat white ; under tail-coverts and edges of tail-feathers buff"—(*Fauna of British India*).

Locality, habits, etc. This Cuckoo appears to be very rare in our Presidency. I have seen one specimen only which I shot at St. Thomas' Mount in the compound of my bungalow—(*H.R.B.*). Ferguson says it is a rare visitor to the hills, in winter, in Travancore. In the Hume collection, there are others from Madras, Trichinopoly and the Nilgiris. It frequents both forest and bush jungle.

Breeding season. April to August. There is no record of its breeding in our Presidency.

Eggs. The eggs are deposited generally in the nests of various species of Laughing Thrushes but the commonest species made use of are *Garrulax pectoralis*, *G. moniliger* and *Grammatoptila*. Stuart Baker writes 'When the nests of these were exhausted they were then dropped in those of *G. gularis*. *G. lencolophus* and of various species of *Trochalopterum* and *Ianthocinela*. This Cuckoo probably generally, certainly sometimes, lays its egg direct into the fosterer's nest . . . At odd times eggs may be found in any nest, simply placed there when the Cuckoo could not find her proper fosterers. They have been seen in the nests of *Copsychus*, *Geocichla* and even in so small and unsuitable a nest as that of *Alcippe*. The eggs are like those of *C. jacobinus* but very much larger and much paler . . . Fifty eggs average 26·9 × 22·8 mm."—(*Fauna of British India*).

Sub-family EUDYNAMINÆ.

"Tarsus naked ; accessory femoro-caudal muscle present ; wing short and rounded ; the tail generally long, well graduated and broad. The pectoral tract of feathers on each side divides, opposite the articulation of the humerus into two branches which terminate separately"—(*Fauna of British India*).

Genus **EUDYNAMIS** Vig. and Horsf. 1826.

"In this genus the bill is stout with the culmen strongly rounded ; the wing and tail are equal in length, the latter graduated ; tarsi long and stout, scutellated in front, naked except just next to the thigh ; sexes dissimilar ; young like the male"—(*Fauna of British India*).

(236) Eudynamis scolopaceus scolopaceus (Linn.).

THE INDIAN KOEL.

(*Fauna of British India*, 2nd edition, No. 1475.)
(*Fauna of British India*, 1st edition, No. 1120 (part).)

Description—Male. Length 15 to 15·5" : wing 7·5" ; tail 7·75" ; tarsus 1·25" ; bill from gape 1·1".

Bill pale greenish ; inside of mouth red ; irides red ; legs plumbeous. Entire plumage glossy black with green reflections.

Female. 16 to 17·5″ ; wing 8″ ; tail 8 to 8·5″ ; tarsus 1·25″ ; bill from gape 1·6″.

Bill pale greenish, leaden at the base ; irides red or crimson ; legs bluish-plumbeous.

Above glossy dusky brown with a green tinge, spotted throughout with white, longitudinally on the head. Wings and tail banded with white. Beneath white with longitudinal black spots on throat and neck, arrow-shaped spots on breast, and transverse bars on abdomen, thighs and under tail-coverts. The whole lower plumage more or less tinged rufous or fawn, according to age.

Locality, habits, etc. Very common on the plains especially during the hot, *i.e.*, the breeding season, when its noisy cries are heard unceasingly from morning to night. On moonlight nights it delights to keep the worn-out Anglo-Indian awake, which it does as effectually as the yapping pie-dogs.

Mr. A. P. Kinloch says this bird does not occur on the Nelliampathy Hills.

Breeding season. March to May or June and December.

Nest. The Koel deposits its eggs generally in crows nests (*Corvus splendens* and the sub-species of *Corvus coronoides*) and according to Stuart Baker suits "its own breeding season to that of the crows. They are also known, says the same author, to cuckold the magpies *Pica p. sericea*, species of *Urocissa* and a Starling *Graculipica* ". I have myself, on several occasions, taken them from nests of the Common Myna (*Acridotheres t. tristis*)—(*C.M.I.*).

To any one interested in the habits of the Koel during the breeding season, we would recommend the perusal of the notes thereon written by Mr. D. Dewar in the *Bombay Natural History Society Journal*, Vol. XVII, 3, who gives an extremely interesting account of some experiments carried out by him.

Eggs. "The eggs bear a rough sort of resemblance to a Crow's eggs, but are smaller and broader in proportion. The ground colour is any tint of green or greenish-yellow, sometimes stone-colour, and they are densely marked all over with blotches, freckles and spots of dark reddish-brown. They average about 1·19 × ·92″ "—(*Stuart Baker*).

"I once took 5 fresh Koel's eggs from one crow's nest "—(*C.M.I.*).

Mr. A. E. Jones records finding 9 eggs of this species in one crow's nest, evidently the produce of several females.

Sub-family PHŒNICOPHAINÆ.

"Differs from the preceding sub-family in that all its species have the feathers of the head and neck more or less spiny and in being non-parasitic "—(*Fauna of British India*).

Genus **RHOPODYTES** Cab. and Heine 1862.

"Tail much longer than wing, greatly graduated ; head feathers spiny ; claws of all toes similar ; feathers of back and breast not spiny ; bill of a green colour ; culmen much curved throughout ;

nostrils small, rounded or oval and oblique ; a large naked space round orbits, separated from bill by a narrow band of feathers. No eyelashes ; tarsus naked "—(*Fauna of British India*).

(237) Rhopodyles viridirostris (Jerdon).

THE SMALL GREEN-BILLED MALKOHA.

(*Fauna of British India*, 2nd edition, No. 1478.)
(*Fauna of British India*, 1st edition, No. 1122.)

Description—Male. "Length 15·5″ ; wing 5·1 to 5·4″ ; tail 8·75 to 10″ ; tarsus 1·35″ ; bill at gape 1·4″ "—(*Fauna of British India*).

"Bill bright apple-green : naked skin around eyes cobalt-blue : irides blood-red ; legs blackish green "—(*Jerdon*).

"Feathers of throat and foreneck bifurcate, there being no web to the terminal portion of the shafts and the plumage of those parts looking as if wet or partially stuck together ; upper parts dark ashy with a green gloss which becomes much stronger and metallic on the wings and tail ; the remiges and rectrices glossy above and below, and the latter broadly tipped with white ; under parts pale ashy ; throat and foreneck streaked owing to the structure of the feathers ; breast whitish, more or less tinged with rufous "—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. Jerdon says "It frequents thick bamboo and bushy jungles, also groves and avenues especially the fine large hedges of *Euphorbia* in the Coimbatore District. It feeds on various large insects, grasshoppers, mantides and caterpillars and makes its way with great adroitness through the thickets. Its flight is feeble and it unwillingly takes wing and then for no distance." In Ceylon it is said to feed on fruit. It is said not to ascend the hills, but Ferguson shot it at Peermede at 3,000 feet elevation, and Sir A. Cardew obtained it on the Shevaroys.

Breeding season. Sir A. Cardew took a nest in the North Arcot District ; his note we transcribe from Hume's "*Nests and Eggs*."

Nest. "I obtained a single nest of this bird on the 10th March 1885 near Wandiwash in the North Arcot District. It was a slight structure, made of a few twigs and with a few green leaves as lining and was placed about 5 feet from the ground in a thorn bush near a stream.

Eggs. The nest contained 2 chalky-white eggs, in shape very round ovals, measuring 1·15 × 1·0″."

Genus **PHŒNICOPHAUS** Vieill. 1816.

"In this genus the bill is stout, wide and high at the base, compressed at the front and with the culmen curved throughout, nostrils placed close to the commissure, narrow slits in shape ; sides of the head and neck bare and papillose, the bare skin extending across the forehead next the bill; tail, wings and bristly shafts to throat and forehead as in *Rhopodytes*. Sexes alike "—(*Fauna of British India*).

(238) Phœnicophaus pyrrhocephalus (Pennant).

THE RED-FACED MALKOHA.

(*Fauna of British India*, 2nd edition, No. 1484.)
(*Fauna of British India*, 1st edition, No. 1126.)

Description—Male. "Length about 18″; tail 11″; wing 6·25″; tarsus 1·4″; bill from gape 1·6″."

"Bill apple-green; irides brown; whole sides of face crimson; legs and feet bluish slate"—(*Legge*).

"Crown, hind neck and sides of neck black, with a greenish gloss, narrowly streaked with white; rest of upper parts metallic bluish green; quills more blue; tail-feathers with long white tips, longest on the outer rectrices; chin and cheeks white with black shaft-marks; throat, and foreneck glossy black; rest of lower parts white"—(*Fauna of British India*).

Female. Similar to male except that the irides are white.

Locality, habits, etc. "Extreme South of Travancore where it has been obtained by Stewart"—(*Fauna of British India*).

A shy bird, seen in small flecks, and keeping to forests, and undergrowth. It feeds principally on fruit but has also been known to eat insects. Legge says the only note he heard it utter soundest like "*Kaa*" and that its flesh is tender and pleasant.

Breeding season. Breeds in Travancore in April and May where Stewart took the nests.

Nest. "The nests were typical Malkoha's nests, shallow saucers of grass, twigs, and roots placed in high bushes in forest with thick undergrowth"—(*Fauna of British India*).

Eggs. 2 to 3 in number. "Like others of this sub-family, but rounder than those of the Malkohas, and more like those of *Centropus*. 12 eggs average 35·8 × 27·0 mm."—(*Fauna of British India*).

Genus **TACCOCUA** Lesson 1831.

"Bill deeper than in "*Rhopodytes*", upper mandible distinctly festooned near the base. Wings short and rounded; tail long, broad and graduated; upper tail-coverts more than half as long as the tail. The plumage of head, neck, upper back and breast spinous; shafts of the frontal feathers projecting. A row of coarse bristles nearly surrounds the eye except behind. Tarsus strong; claws short and curved"—(*Fauna of British India*).

(239) Taccocua leschenaulti leschenaulti Lesson.

THE SOUTHERN SIRKEER CUCKOO.

(*Fauna of British India*, 2nd edition, No. 1486.)
(*Fauna of British India*, 1st edition, No. 1129 (part).)

Description—Male. Length 15 to 17·5″; wing 5·5 to 6·5″; tail 8 to 10″; tarsus 1·7″; bill from gape 1·4″.

Bill deep cherry-red, orange-yellow at tip and with a black patch on lower mandible at commissure towards tip produced to gape as a

black edge ; irides reddish-brown ; orbital skin deep purplish-black ; legs and feet plumbeous.

Upper plumage yellowish-brown more or less glossed with olive-green ; shafts of feathers black except on rump ; bases of eye-lashes and shafts of lores white ; middle tail-feathers like back and obsoletely cross-rayed ; remainder black broadly tipped with white ; chin, throat and breast light fulvous, the latter tinged with ashy and the shafts black ; remainder of lower plumage rufous without black shafts.

Female. Similar to male.

Locality, habits, etc. It is comparatively rare, and has been obtained from the plains up to 6,000 feet on the Nilgiris. It keeps much to low bush-jungle, feeds mostly on the ground and runs very well. Whilst going from one place to another it runs for a short way with its head and tail in a straight line parallel to the ground ; it then raises itself, has a look round and then lowers its body again and scuttles along. Its flight is very weak, and it has a most peculiar chuckling note.

Breeding season. March in the Nilgiris.

Nest. Of sticks lined with green leaves.

Eggs. 2 or 3, chalky white ; "average 33·9 × 26·1 mm."—(*Fauna of British India*).

Genus **CENTROPUS** Illiger 1811.

"Distinguished from all other members of the family by having on the hallux a long, nearly straight hind claw, very much like a Lark's. The tarsus is strong and naked. The bill is deep, moderately large, with the culmen much curved ; the nostrils are partly covered by a membrane. There is a row of bristles above the eye. The wing is short and rounded, the primaries scarcely exceeding the secondaries in length ; the tail is graduated, long and broad. The feathers of the head, neck and breast are harsh and spinous. Sexes alike"—(*Fauna of British India*).

(240) **Centropus sinensis parroti** Stresemann.

THE SOUTHERN CROW-PHEASANT.

(*Fauna of British India*, 2nd ed., No. 1492.)
(*Fauna of British India*, 1st ed., No. 1130 (part).)

Description—Male. Length 19″ ; wing 7·25 to 9·5″ ; tail 10 to 11″; tarsus 2″ ; bill from gape 1·8″.

Bill and legs black ; irides crimson.

Head, neck, back and upper tail-coverts and all lower plumage black with more blue or green-blue than purple reflections. Tail black glossed with green ; wings reddish-chestnut, interscapulars black.

Female. Similar to male but larger.

Mr. Finn in his "*Garden and Aviary Birds*" writes :—

"The young in first plumage have grey eyes but vary a great deal in colour, some being dull editions of the parents and others quite different. In these latter the black parts of the plumage are closely barred with white and the wings barred with black."

Locality, habits, etc. A very common permanent resident, both on the plains and hills, its deep "*hoot, hoot*" being heard wherever there is cover, such as in gardens, groves, jungle clearings, hedge-rows, etc. It feeds chiefly on the ground on which it walks and runs well ; its food consisting of insects, slugs, caterpillars, lizards and such like, with an occasional egg pilfered from some nest. According to Finn, the quite young bird when calling for food has a peculiar choking note like "*Guk-kop-kop.*"

Breeding season. March to end of August.

Nest. Of grass, straw, etc., large, globular, placed in a thick tree or clump of bushes.

Eggs. 2 to 4 ; chalky white. "Average 36·2 × 26·3 mm."—(*Fauna of British India*).

(241) Centropus benghalensis benghalensis (Gmel.).

THE LESSER COUCAL OR CROW-PHEASANT.

(*Fauna of British India*, 2nd edition, No. 1495.)
(*Fauna of British India*, 1st edition, No. 1133.)

Description—Male. Length 15″ ; wing 6·5″ ; tail 7·5 to 8″ : tarsus 1·5″ : bill at front 1″.

Bill black ; irides crimson ; legs plumbeous.

Head, neck, upper tail-coverts, tail and all the lower plumage black glossed with green ; wings and back chestnut.

Female. Similar to male.

Both sexes have one or two intermediate stages :—irides pale dingy brown ; head, neck and lower plumage black ; back and wing-coverts brown ; wings chestnut tipped and edged with black ; the feathers of the neck, back and coverts yellow-shafted and edged light. Rump and upper tail-coverts black glossed with green, the former tipped pale brown.

According to Jerdon "the young birds are pale rufous above with broadish black bands, the rufous forming narrow bands on the upper tail-coverts and tail ; and the black, narrow bands on the back and wings, the head and neck are streaked longitudinally, the feathers being dusky with a pale rufous centre ; under parts flavescent whitish, with only a few dusky specks and rays ; bill pale yellow horny."

Locality, habits, etc. "The South-West coast of India from Travancore to Kanara ; Wynaad, Mysore" (*Fauna of British India*). It frequents grass and scrub-jungle and in habits is like the previous species.

Breeding season. May to September.

Nest. "It makes a nest much like that of the larger Coucals but seldom uses twigs in its construction and very often incorporates the living grass-blades in the base, roof or sides of the structure. It is placed either in clumps of grass or in low-bushes in grass lands, scrub or secondary growth"—(*Fauna of British India*).

Eggs. "3 to 5 are small replicas of those of the larger *Centropi*. Fifty eggs average 28·2 × 23·8 mm."—(*Fauna of British India*).

Sub-order **PSITTACI.**

"Feet zygodactyle; dorsal vertebrae opisthocœlous; bill short, stout and strongly hooked; upper mandible loosely articulated to skull so as to be moveable. The palate is desmognathous. There is a fleshy cere at base of bill, as in Birds of Prey. The tongue is thick and fleshy. The deep plantar tendons are Galline as in *Coccyges*. The ambiens muscle is variable, and so are the carotids. The furcula is weak and sometimes incomplete. There are no cæca and the gall-bladder is generally wanting. The feathers are furnished with an after-shaft; the spinal feather-tract is well defined on the neck and forked on the upper back. The oil-gland is usually present and tufted, but is wanting in a few genera. There are twelve tail-feathers in all Indian species, primaries ten"—(*Fauna of British India*).

Family PSITTACIDÆ.

"Characters of the family the same as those of the sub-order"—(*Fauna of British India*).

Genus **PSITTACULA** Cuvier 1800.

"Tail very long and graduated, the median feathers narrow, much exceeding the others in length; bill thick, deeper than long; upper mandible swollen at the sides; culmen convex, much curved; lower mandible short"—(*Fauna of British India*).

(242) **Psittacula eupatria eupatria** Linn.

THE LARGE CEYLONESE PAROQUET.

(*Fauna of British India*, 2nd edition, No. 1496.)
(*Fauna of British India*, 1st edition, No. 1134.)

Description—Male. "Length about 19″; tail 11·5″; wing 8″; tarsus ·8″; bill from cere to gape at point 1″; depth of upper mandible (culmen to gape) ·75″.

"Females a little less.

"Bill depressed; iris pale yellow, with a bluish grey inner circle; feet plumbeous.

"Above grass-green, much brighter on the forehead and lores and rather darker on the wings; a dark line from nostril to eye; a rose pink collar round the back and sides of neck, nape just in front of collar more or less tinged bluish grey; chin (thinly feathered) and a narrow stripe from the lower mandible to the rose collar, black; a large deep red patch on the secondary wing-coverts; rump rather brighter green than the back; median tail-feathers passing from green at the base into verditer blue and then into yellowish at the tips; throat and breast dull pale green; abdomen brighter; lower surface of quills and larger under wing-coverts bright green; tail feathers below dull yellow."—(*Fauna of British India*).

Female and young, without either the rose collar or black mandibular stripe.

Locality, habits, etc. "Possibly the Paroquets seen by Jerdon in the Carnatic were this species and race. Those seen in Mysore by Taylor and in Malabar by Jerdon were almost certainly so, as they have since been obtained by Stewart in Travancore"—(*Fauna of British India*).

It is said to collect in flocks uttering their loud cries and may be found in forest, open country and even in gardens. They feed on both grain and fruit.

Breeding season. January and February in Travancore.

Nest. They nest in holes in large trees.

Eggs. 2 to 4 ; white ; average measurement 1·2 × ·95″.

(243) Psittacula krameri manillensis (Bechst).

THE ROSE-RINGED PAROQUET.

(*Fauna of British India*, 2nd edition, No. 1500.)
(*Fauna of British India*, 1st edition, No. 1138 (part).)

Description—Male. Length about 16·5″ ; wing 6·75″ ; tail 9 to 9·5″ ; bill at gape 1″.

Upper mandible cherry-red with a black tip ; lower mandible horny brown.

Head and face emerald-green ; a narrow black line from nostrils to eyes ; nape and hindneck tinged lilac. A demi-ring round the back of neck the colour of "sunset" roses, it can hardly I think be called pink as it has a decided tinge of orange in it ; back and scapulars green ; rump and upper tail-coverts emerald-green ; primary coverts green washed with blue ; primaries and secondaries dark green margined with light yellow and a portion of their inner webs dusky. Central tail-feathers blue, remainder blue on the outer webs, yellowish-green on the inner, all with dark brown shafts. The lower aspect of all tail-feathers greenish-yellow. From the chin down the neck and forming a demi-collar, black; remainder of lower plumage yellowish-green.

Female. Similar to male, but without the rose and black collars ; in the place of which she has a narrow emerald-green collar.

Locality, habits, etc. One of the commonest Indian Paroquets and at the same time perhaps the most destructive ; it associates in large flocks and frequents cultivated areas, gardens, etc., being particularly in evidence when the corn fields are ripening ; it then swarms down upon the fields morning and evening, and each bird, if not disturbed, will deliberately nip off and carry away a head of corn. It also does immense damage to fruit, as we know to our own cost, especially to guava-trees, littering the ground below with half-eaten fruit.

Breeding season. February or March.

Nest. It nests in holes of trees or of buildings and walls, under the roof of houses, etc.

Eggs. 4 ; white ; average measurement 1·2 × ·95″.

(244) Psittacula cyanocephala cyanocephala (Linn.).

THE WESTERN BLOSSOM-HEADED PAROQUET.

(*Fauna of British India*, 2nd edition, No. 1502.)
(*Fauna of British India*, 1st edition, No. 1139.)

Description—Male. "Length 14"; tail 8·5"; wing 5·25"; tarsus ·6"; bill from cere to tip ·6"—(*Fauna of British India*).

Upper mandible bright gamboge-yellow, tip and commissure fleshy; lower mandible black; cere dusky green; iris pale yellowy-white; legs and feet dusky green.

Head rosy-red tinged with blue, more so on the occiput, nape and near the black collar; this blue tinge gives it a plum-like bloom; the red is purest on the forehead; a black stripe runs from each side of gape joining at the chin and forming a narrow collar completely round the neck; behind this narrow collar is a verdigris-green band; remainder of upper plumage yellow-green; rump bluish; wings grass-green, narrowly edged lighter; inner webs of quills brown, coverts edged with bluish; the secondary wing-coverts with a deep maroon spot; median tailfeathers blue-green at base, the blue merging into white at tip; next pair with more green and less blue, also white-tipped; other feathers green on outer and yellow on inner webs; lower plumage yellow-green.

Female. Head dull plum-blue tinged with greyish-brown, especially on the sides of the head; a band of yellow on the neck; there are no black and verdigris-green collars as in the male; otherwise remainder of plumage is the same.

The young birds are green.

Locality, habits, etc. It ascends the Nilgiris to about 3,500 ft., but Ferguson says it does not ascend the hills in Travancore, although it is common in the low country wherever there is forest and also at the foot of the hills. Sir A. Cardew obtained it on the Malabar coast and Jerdon records it as common on the Eastern Ghats and in the Carnatic. It is swifter in flight than *P. k. manillensis*.

Breeding season. December to March.

Nest. It lays its eggs in holes in trees.

Eggs. 4 to 6; white; average measurement 1·0 × ·81".

(245) Psittacula columboides Vigors.

THE BLUE-WINGED PAROQUET.

(*Fauna of British India*, 2nd edition, No. 1506.)
(*Fauna of British India*, 1st edition, No. 1143.)

Description—Male. Length 15"; wing 5·75"; tail 8·25"; tarsus ·62"; bill at gape ·75".

Bill above brilliant cherry-red, beneath dusky tipped fleshy; irides yellow; legs greenish-plumbeous.

Head, neck, upper back and breast pale purplish-grey; a verdigris-green patch on forehead, lores and around the eyes; a black collar meeting at the chin; below it a collar of verdigris-green, blue at back of neck; lower back and tail-coverts blue-green; wing-coverts and scapulars dark green edged pale greenish-yellow; primaries bright

dark blue faintly edged green ; tail has the central pair of feathers blue tipped yellow ; the next pair blue on the outer web, yellow on the inner, green near the base and tipped yellow ; the rest green externally, yellow internally ; abdomen, vent and under tail-coverts pale verdigris-green, more yellowish on the latter.

Female. Similar to male but has a horny black bill and wants the verdigris-green collar ; it is also, if anything, smaller.

Locality, habits, etc. A very common resident on the slopes of the Nilgiris up to about 4,500 feet, also in the jungles on the Malabar coast. Mr. A. P. Kinloch believes this to be the only Paroquet on the Nelliampathy Hills, also found in Mysore, the Palnis and other hills. It frequents only the thickest jungle, keeping to the highest trees, and feeds principally on fruit.

Breeding season. January, February and March.

Nest. Mr. T. F. Bourdillon has taken the eggs from a hole in a tree, usually an iron-wood tree (*Mesia ferrea*) at heights varying from 16 to 100 feet from the ground. Mr. Stewart also took the eggs in Travancore.

Eggs. Usual number 4 ; pure white, rather rough and decidedly stout for their size. Average measurement 1·08 × ·88″.

Genus **CORYLLIS** Finsch 1868.

" Bill much smaller and longer comparatively than in *Psittacula* and much more compressed ; the culmen less curved ; the depth of the two mandibles together less than the length from cere to point ; tail short, slightly rounded "—(*Fauna of British India*).

(246) Coryllis vernalis rubropygialis S. Baker.

THE MALABAR LORIQUET.

(*Fauna of British India*, 2nd edition, No. 1514.)
(*Fauna of British India*, 1st edition, No 1150 (part).)

Description—Male. Length 5·75″; wing 3·75″; tail 1·5 to 1·75″; tarsus ·45″; bill from gape ·4″.

Bill orange ; irides pale yellow ; legs plumbeous.

Whole plumage bright green, darker on wing-coverts, paler and more yellow beneath. Wings and tail blue-green ; rump and upper tail-coverts crimson ; lining of wings and tail beneath pale azure-blue. Chin and throat tinged with verdigris-blue.

Female. Similar to male, but the chin and throat is only faintly washed with blue.

This subspecies is darker than the typical form *C. v. vernalis*.

Locality, habits, etc. The " Love-bird " is found on the slopes of the Nilgiris and other hills in Travancore and on the Malabar coast frequenting groves, topes and thin forest. It feeds on fruit and flower buds, presumably extracting the nectar from the latter, and keeps up an incessant chirping while doing so. It also calls during flight which is swift. It sleeps hanging with its head downwards like a bat.

Breeding season. March and April. Mr. Stewart took a nest in January.

Nest. It nests in holes of trees. Mr. T. F. Bourdillon found a nest at the top of a hollow stump covered with creepers at about 15 feet from the ground in a clearing in deep forest.

Eggs. 3 ; dull white ; average measurement ·74 × 6″.

Sub-order **CORACII.**

Palate desmognathons ; basipterygoid processes rudimentary or absent. There is no ambiens muscle. A hallux is always present. and there are almost constantly three anterior toes more or less joined together at base ; the deep plantar tendons in all but the Hoopoes coalesce more or less completely either before their subdivision to supply the different digits or at a point below that at which a slip leaves the *flexor perforans digitorum* to supply the hind toe. In *Upupa* the *flexor perforans digitorum* supplies the second and fourth toe and the *flexor longus hallucis* the second and third "—(*Fauna of British India*).

Family CORACIIDÆ.

"Bill corvine in shape, the upper mandible notched beneath near the end ; culmen rounded ; outer united to middle toe at the extreme base, inner toe united by its basal joint ; nostrils at the base of the mandible ; primaries ten ; tail-feathers twelve ; sexes alike "—(*Fauna of British India*).

Genus **CORACIAS** Linn. 1766.

"Bill rather long, compressed ; breadth at gape about half the length of culmen ; the latter slightly curved, nostrils elongate ; gape wide, with strong rictal bristles "—(*Fauna of British India*).

(247) Coracias benghalensis indica Linn.

THE SOUTHERN INDIAN ROLLER.

(*Fauna of British India*, 2nd edition, No. 1518.)
(*Fauna of British India*, 1st edition, No. 1022 (part).)

Description—Male. Length about 12″ ; wing 7·25″ ; tarsus 1″ ; bill from gape 1·7″.

Bill blackish ; legs dusky orange-yellow ; irides dark brown, eyelids yellow.

Head and nape dingy greenish-blue ; hind neck with a nuchal collar purple ; upper back and scapulars (which latter are much elongated) ashy-brown with a green gloss, lower back blue ; rump and upper tail-coverts peacock-blue ; shoulders and lesser coverts, deep violet-blue ; two the other coverts dark greenish-blue ; wings pale blue tipped dusky and with a broad, deep violet-blue bar in the centre of the outer and on a portion of the inner webs of the primaries, but occupying the terminal half of the secondaries ; tertiaries dusky tinged greenish-blue ; the two central tail-feathers dingy green, the remainder deep violet-blue with a sub-terminal pale blue bar which widens exteriorly, and tipped dusky. Chin, throat and breast vinous, with pale shaft-stripes on throat, sides of neck and upper breast ; abdomen, vent, flanks and under tail-coverts pale blue, washed with dingy green on abdomen and flanks.

The dark and pale blue on the wings are like the Oxford and Cambridge colours.

Female. Similar to male, but the colouring is perhaps not so brilliant.

Locality, habits, etc. The "Blue Jay," as it is commonly called, is a common permanent resident on the plains, frequenting open jungle, groves and gardens; it ascends the hills up to 3,000 feet. Its favourite perch is the bare branch at the top of some tree, or a telegraph pole or wire from which it can obtain a good view of the ground around and from which it pounces down upon its insect-prey, returning to its perch to devour it. It will catch, kill and eat mice and small reptiles.

This bird has been seen to plunge into water like a king-fisher. Major H. Delmé Radcliffe found the Burmese bird doing the same and says :—"After each dive he returned to his perch on the bush on the bank above the tank and he swallowed his prey quickly, also shaking his feathers very vigorously several times to dry his plumage." Major E. G. Phythian Adams writes :—"Common in South Mysore and parts of Nilgiris (low country) at 3,000 feet. It breeds in January and February, a favourite site being a hole in a dead date palm."

Breeding season. April to June, when it forsakes the more open country and retires to the more wooded districts. The wonderful gymnastic "stunts" performed by the male in the air during the breeding season are well known.

Nest. Of grass, straws, feathers, etc., in a natural hole in a tree, or in a building or wall.

Eggs. 4 or 5; white; average measurement 1·4 × 1·08″.

(248) Coracias benghalensis benghalensis Linn., the typical bird. The Indian Roller is also sure to occur as Stuart Baker says it is found in "Practically the whole of India except the South of Travancore." Both birds are very alike, the difference as given in the above author's key being that in the present subspecies the ruchal collar is absent or obsolete. This is also a larger bird. The habits are the same.

Genus **EURYSTOMUS** Vieill. 1816.

"Bill short, broad; breadth at gape about equal to culmen; the terminal part compressed and upper mandible hooked; no rictal bristles"—(*Fauna of British India*).

(249) Eurystomus orientalis orientalis Linn.

THE BROAD-BILLED ROLLER.

(*Fauna of British India*, 2nd edition, No. 1520.)
(*Fauna of British India*, 1st edition, No. 1025 (part).)

Description—Male. Length 11·15 to 12″; wing 7·62″; tail 4 to 4·25″; tarsus ·8″; bill from gape 1·7″.

Bill orange-vermilion, tip horny; irides brown, eyelids red; gape pale yellow-brown; legs and feet salmon-red.

The whole head, lores, ear-coverts, cheeks and chin black; rest of upper plumage bluish-green; wings black with a broad pale blue patch

at the centre of the primaries ; bastard-wing and primary coverts purplish-blue; lesser wing-coverts dark bluish-green ; median and greater coverts brighter and more blue. Tail black, with the basal half purplish-blue externally ; throat and neck bright purple-blue, with paler blue central streaks. The rest of the lower plumage greenish-blue, darkest on breast and sides of neck, brightest on abdomen, vent and under tail-coverts.

Female. Similar to male.

In the young bird the bill is black and the colour is much duller, and wants the streaks on the throat.

Locality, habits, etc. " It occurs in the hills and adjacent plains of the West Coast from Travancore, North to the Wynaad "—(*Fauna of British India*).

Davison saw this species on the Coonoor Ghat and Ferguson got one near Koni in Travancore at an elevation of about 300 feet. In the *Journal of the Bombay Natural History Society*, Mr. T. F. Bourdillon writes—" The Broad-billed Roller is a very remarkable bird and comes to us to breed, leaving Travancore again before the commencement of the monsoon. Pairs of these birds may be seen here and there throughout the length of the hills at elevations from 500 to 3,000 feet, any time between September and the end of April ; but they are by no means common though their curious chattering cry and eccentric flight attract attention at once."

Breeding season. Mr. A. P. Kinloch says it inhabits the Western Ghats but is nowhere common ; it may occasionally be seen perched on some dead tree, either above or cuddling up to its mate, in the heart of the forest. It has a screaming whistle distinctly reminding one of an eagle's cry.

Nest. Their nests are placed in holes of trees at about 30 to 40 ft. from the ground.

Eggs. 3 or 4 ; white ; varying considerably in shape and size. There are 18 eggs in the collection of Mr. E. C. Stuart Baker, measuring about 1·36 × 1·04". The texture is hard and close and there is generally a decided gloss.

Family MEROPIDÆ.

" Bill long, slender and curved throughout, culmen ridged, both mandibles pointed ; legs and feet feeble, syndactyle, the outer or fourth toe united to the third or middle toe as far as the last joint ; second and third toes united by the basal joint only. Tail-feathers 12. Primaries 10. Sexes alike or nearly so "—(*Fauna of British India*).

Genus **MEROPS** Linn. 1758.

" Bill very long, slender and pointed, nostrils partially covered by plumes ; a few small rictal bristles at the base of the bill ; wings long, pointed ; 1st primary minute, 2nd longest ; the two middle tail-feathers longer than the others and with their terminal portion narrow "—(*Fauna of British India*).

(250) Merops orientalis orientalis Lath.

THE COMMON INDIAN BEE-EATER.

(*Fauna of British India*, 2nd edition, No. 1523.)
(*Fauna of British India*, 1st edition, No. 1026 (part).)

Description—Male. Length 9″; wing 3·75″; tail 2·5″; to end of central pair of feathers 4·75″; tarsus ·4″; bill from gape 1·4″.

Bill and legs black; irides red.

Forehead green; head and nape golden; upper plumage green, wings tinged golden; chin and a stripe under the eyes light blue; ear-coverts black; throat bluish-green; a black gorget between breast and neck; lower plumage green, paler on the under tail-coverts.

Female. Similar to male.

Locality, habits, etc. This is one of the commonest birds found in the Presidency, being met with in great numbers everywhere in the low country and ascending the hills to about 6,000 feet. It is usually seen perched upon the outermost twig of a bush or tree, on a pole or telegraph wire or some such exposed position, from which it every now and then flies off to catch some passing insect, returning to its perch after the manner of Fly-catchers to devour its victim.

Mr. E. Van Ingen says he has seen the sebirds on three occasions on the downs at Ootacamund, there being several of them together on each occasion; and that they often 'flight' over Ootacamund flying very high.

Breeding season. April and May.

Nest. Of grass, straws, etc., in a hole excavated in a sand bank or earth-cliff, rarely in level ground.

Eggs. 4 to 7; glossy white; almost round. Average measurement ·74 × ·64″.

(251) Merops superciliosus javanicus Horsf.

THE BLUE-TAILED BEE-EATER.

Plate XVII.

(*Fauna of British India*, 2nd edition, No. 1526.)
(*Fauna of British India*, 1st edition, No. 1027.)

Description—Male. Length 11 to 12″; wing 5″; tail 5 to 5·75″; tarsus ·5″; bill from gape 2″.

Bill and legs black; irides crimson.

Head, neck, upper back and tertiaries dull green tinged with brownish-gold; upper tail-coverts, tail and outer edges of primaries, bright azure-blue; a black stripe from the base of the bill through the eyes to the ear coverts; a thin azure-blue line on each side of this stripe. Chin yellowish-white; throat rusty; upper breast greenish tinged golden; lower breast greenish-blue; under tail-coverts pale blue.

Female. Similar to male.

Locality, habits, etc. This species is far less common and much more locally distributed than the last; again it is generally met with in the vicinity of water, such as on paddy-field bunds or along the banks of

rivers and backwaters. whereas *M. o. orientalis* shows a marked preference for dry places. Its other characteristics resemble those of its congeners.

Mr. A. P. Kinloch found this bird very common on the Northern slopes of the Nelliampathy hills.

Breeding season. April to June.

Nest. As with the preceding species the bird breeds in colonies, excavating a hole in a river bank or cliff. We saw a colony breeding in a sand bank at the side of the railway a few stations north of Waltair.

Eggs. 4 to 7 ; glossy white ; average measurement ·92 × ·76″.

Genus **MELITTOPHAGUS** Boie 1828.

"The only difference between this and *Merops* is that the middle tail-feathers are not longer than the others"—(*Fauna of British India*).

(252) Melittophagus erythrocephalus erythrocephalus (Gmel.)

THE CHESTNUT-HEADED BEE-EATER.

(*Fauna of British India*, 2nd edition, No. 1528.)
(*Fauna of British India*, 1st edition, No. 1030.)

Description—Male. "Length 8·5″ ; tail 4″ ; tarsus ·43″ ; bill from gape 1·7″.

"Bill black ; iris crimson ; legs dusky-black"—(*Fauna of British India*).

Head to and including back chestnut ; remainder of upper plumage grass-green; wings green with black tips to the primaries and secondaries, and the inner webs margined with rufous ; tail green edged and tipped brown except the middle pairs ; lores and a line under the eyes and the ear-coverts black ; chin and throat yellow and a chestnut band across the upper breast meeting the chestnut of the upper plumage ; some of the feathers of this band in the centre of the breast sub-tipped black and tipped yellow; remainder of lower plumage green, bluer on abdomen and under tail-coverts.

Female. Similar to male.

Locality, habits, etc. A common permanent resident on the slopes of the Nilgiris and not uncommon, according to Ferguson, on the hills of North Travancore about Peermede and the High Range. Its habits are the same as those of the other Bee-eaters. Mr. A. P. Kinloch found it common on the Northern slopes of the Nelliampathy hills.

Breeding season. It breeds in company with *M. o. orientalis* on the Sigur Ghat and also on the Coonoor Ghat during February. "On the Malabar Coast these Bee-eaters lay principally in February, March"—(*Fauna of British India*).

Nest. A hole in a bank. This Bee-eater often selects almost flat sand banks in which to excavate its nest holes with a result frequently disastrous to eggs or young.

Eggs. 5 or 6 ; glossy white ; average measurement ·87 × ·76″. The number laid is almost invariably six in a full clutch.

Genus **BUCIA** Hodgson 1836.

"Breast-plumes elongate, pendent and brightly coloured; wings rounded; 4th quill longest; larger than *Merops*; bill stronger and deeper; ridge of culmen flattened; a hollow on each side of ridge; nostrils covered by plumes"—(*Fauna of British India*).

(253) Bucia athertoni (Jard. and Selby).

THE BLUE-BEARDED BEE-EATER.

(*Fauna of British India*, 2nd edition, No. 1529.)
(*Fauna of British India*, 1st edition, No. 1031.)

Description—Male. Length 14″; wing 5·5″; tail 5·75 to 6″; tarsus ·7″; bill from gape 2·3″.

Bill horny, bluish at base; irides yellow; legs greenish-yellow; soles of feet yellow.

Above bright green dashed with verditer-blue, especially on head and neck; forehead verditer-blue; neck deep green with long elongate feathers deep blue, edged paler; plumage below green shaded with buff; vent, under tail-coverts, lining of wings and lower surface of tail ochre-buff; quills of tail below ochreous-yellow.

Female. Similar to male but a little smaller.

Locality, habits, etc. This beautiful Bee-eater is nowhere common. We procured one specimen only on the Sigur Ghat at about 2,000 feet. Davison however obtained it at several places on the Nilgiris up to 5,000 feet. Mr. Ferguson says there is a specimen in the Trivandrum Museum collected in Travancore. Mr. Stuart Baker says—"their note is a very harsh double croak ending in a chuckle, and when uttering this note, the bird stoops down until its head is lower than its tail, puffs out its throat and gives vent to the first croak; then rising gradually it chuckles out the last notes with head high in the air."

Breeding season. It breeds in Kanara, Burma and Cachar from March till June, but nothing is recorded regarding its breeding in Southern India.

Family ALCEDINIDÆ.

"Both carotids are present; sternum has four notches on the posterior margin and the manubrium sterni is simple, composed of the *spina externa* only; generally the two plantar tendons are united but the slip leading to the hallux branches off fron the *flexor perforans digitorum* above the junction as in the *Meropidæ*, . . . oil-gland tufted; cæca absent, spinal feather-tract well defined and no dorsal apterium; down present in adults on the tracts not covered by feathers, a character peculiar to the Kingfishers"—(*Fauna of British India*).

Genus **CERYLE** Boie 1828.

"Plumage black and white. Bill long, compressed; culmen slightly curved, flattened or rounded above, with a groove on each side. Wings rather pointed; second or third quills longest, first but little shorter. Tail longer than culmen"—(*Fauna of British India.*)

(254) Ceryle rudis leucomelanura Reich.

THE INDIAN PIED KINGFISHER.

(*Fauna of British India*, 2nd edition, No. 1531.)
(*Fauna of British India*, 1st edition, No. 1033.)

Description—Male. Length 11 to 11·5″; wing 5·5″; tail 3″; tarsus ·4″; bill from gape ·3″.

Bill and legs black; irides dark brown.

A white supercilium; head, nape and ears black streaked with white; upper plumage black edged white; tail white with a broad black band in the centre; a broad white wing-spot; lower parts white streaked with black on the sides of the neck and spotted with black on the sides of the abdomen; a broad black gorget across the breast and a second and narrower one lower down.

Female. Similar to male except that she has only one (interrupted) black gorget across the breast.

Locality, habits, etc. A common permanent resident on the plains, frequenting rivers, backwaters, canals and tanks. The distinguishing characteristic of this bird is its habit of searching for its prey upon the wing, hovering over the water and darting down perpendicularly upon the fish which it seldom misses. Mr. A. P. Kinlock says this bird does not occur on the Nelliampathy Hills.

Breeding season. October to April.

Nest. A hole in a river bank or tank, occasionally in wells.

Eggs. 4 to 6; glossy white; average measurement 1·15 × ·97″.

Genus **ALCEDO** Linn. 1758.

"Back bright blue, head banded black and blue. Bill long, compressed; culmen very slightly curved, the ridge rounded not flattened above and with a slight groove on each side. Wing somewhat pointed, third or fourth quill longest, first and second very little shorter. Tail very short, shorter than the bill and rounded at the end; feet weak"—(*Fauna of British India*).

(255) Alcedo atthis taprobana Klein.

THE COMMON CEYLON KINGFISHER.

(*Fauna of British India*, 2nd edition, No. 1534.)
(*Fauna of British India*, 1st edition, No. 1035 (part).)

Description—Male. Length 6·37″; wing 2·75″; tail 1·12″; tarsus ·35″; bill from gape 1·9″.

Bill black; irides brown; legs coral-red.

Lores and ear-coverts pale chestnut or rufous; from the base of the lower mandible down the sides of the neck a dark green stripe ending in a large blackish patch tinged with green on the sides of the breast. A white patch behind the ear-coverts. Head and neck black with narrow bars of greenish-blue. Back, rump and upper tail coverts pale bright blue dashed with dusky on back and rump. Tail deep blue above, dark brown below. Wings and wing-coverts green, spotted and tinged with blue and green. Chin and throat white washed with

fulvous ; the rest of the lower plumage chestnut, tinged ashy on the breast.

Female. Similar to male, but has the basal half of the lower mandible orange.

The differences between this sub-species and the typical one is that it is much richer coloured ; scapulars and wing-coverts more blue and less green.

Locality, habits, etc. A common permanent resident on the plains ascending the summit of the hills occasionally ; it is found practically wherever there is water whether running or still, perching upon any convenient twig or stone from which it darts down upon its prey. Mr. A. P. Kinloch found it very rare on the Nelliampathy Hills.

Major Magrath records a bird, of one of these sub-species, having "taken" a frog quite 1½ "long and after hammering it disappeared with it into a hole in a river-bank. The frog was carried longitudinally between the mandibles, its bead being beyond the ends and its legs dangling on either side of the gape. He also writes :—"Occasionally this bird dives from the wing exactly after the manner of *Ceryle varia* ; the poise and hover sometimes is quite as much as 12 or 15 feet."

Breeding season. March and April in South India.

Nest. A hole made in the bank of a stream.

Eggs. 4 to 6 ; glossy white ; average measurement ·8 × ·68".

(256) Alcedo meninting phillipsi S. Baker.

THE CEYLON BLUE-EARED KINGFISHER.

(*Fauna of British India*, 2nd edition, No. 1537.)
(*Fauna of British India*, 1st edition, No. 1036 (part).)

Description—Male. "Wing 65 to 71 mm. ; bill 35 to 48 mm. In nearly all the wing is over 67 and the bill over 40 mm".

"Iris dark brown ; bill black, fleshy and orange-red at the base and gape ; leg and feet coral-red."

"Lores and a very fine line at the base of the bill black ; sides of the forehead rufous ; centre of forehead, crown to nape, ear coverts and sides of head deep purple-blue, the crown and hind-neck barred with velvety black ; upper back, rump and upper tail-coverts brilliant blue, darkest on the coverts ; tail black tinged with blue ; scapulars and wing-coverts overlain with purple-blue and the latter boldly spotted with deep blue ; quills black. the secondaries edged with purple-blue and the innermost nearly all of this colour ; the inner webs edged with rufous, showing on the under surface ; a long oval patch of white or pale rufous on either side of the neck ; chin and throat rufescent or buffy-white, remainder of lower plumage deep ferruginous"—(*Fauna of British India*).

Female. "Differs only in having much of the bill reddish towards the base. Very old females are not distinguishable from the male"—(*Fauna of British India*).

Locality, habits, etc. "South Travancore ; Pottianore, Madras"—(*Fauna of British India*).

These birds are jungle loving keeping to streams running through deep forests.

Nest. Holes in banks of streams. "The only nest of which I have a record is one taken by Stewart in January in Travancore"—(*Fauna of British India*).

Eggs. "6; measuring 20·7 × 17·1 mm."—(*Fauna of British India*).

(257) Alcedo meninting asiatica Swains.

BEAVAN'S KINGFISHER.

(*Fauna of British India*, 2nd edition, No. 1539.)
(*Fauna of British India*, 1st edition, No. 1036 (part).)

Description. "The palest of all the races; the black scapulars overlain with deep green-blue; the spots on the wing-coverts large, very blue and conspicuous. This is also the largest of all the races."

"Wing 69 to 74 mm:; culmen 37 to 41 mm."—(*Fauna of British India*).

Locality, habits, etc. "Specimens I have had sent one from Travancore, except from the extreme South, seem referable to this race rather than to the Ceylon form. The habits are the same as the last"—(*Fauna of British India*).

Breeding season.
Nest.
Eggs.
} Nothing recorded.

Genus **CEYX** Lacépède 1801.

"Only three toes, the inner or second wanting. Bill intermediate in form between *Alcedo* and *Halcyon*, less compressed than the former, not grooved; culmen straight and slightly flattened. Tail very short and rounded. Plumage very bright, red often predominating"—(*Fauna of British India*).

(258) Ceyx tridactylus tridactylus Pall.

THE INDIAN THREE-TOED KINGFISHER.

(*Fauna of British India*, 2nd edition, No. 1544.)
(*Fauna of British India*, 1st edition, No. 1040 (part).)

Description—Male. Length 5 to 5·5″; wing 2·25″; tail ·75″; bill from gape 1·31″.

Bill coral-red; irides brown; legs and feet red.

The whole head, neck, rump and upper tail-coverts fine orange rufous, with a lilac gloss behind the eyes and on the rump and upper tail-coverts; a dark violet-blue patch behind the ears, beneath this a small whitish spot; back black tinged and streaked with bright-blue; tail rufous; wings brown, washed with blue, all the feathers margined with pale rufous on their inner webs; the scapulars edged exteriorly with pale rufous; chin and throat white, rest of lower plumage orange-yellow.

Female. Similar to male.

Locality, habits, etc. This is a rare bird, being found only on forest streams and heavily-wooded backwaters. It is indeed a beautiful sight to see one of these birds darting up a stream. They feed largely on insects, especially spiders.

Breeding season. April to August—(*Fauna of British India*).

Nest. Breeds in holes in the banks of streams in dense jungle, often well away from water and rarely on the banks of large open streams.

Eggs. 4 to 6 in number ; white and glossy, frequently with one end rather pointed. Average size 0·72 × 0·51″.

Genus **RAMPHALCYON** Reich. 1851:

"Bill very large and strong, compressed ; culmen flattened with a groove on each side. Size large ; back and rump pale blue, lower parts buff. Third or fourth quill longest ; first about equal to tenth ; tail much longer than bill, rounded at the end"—(*Fauna of British India*).

(259) Ramphalcyon capensis gurial (Pearson).

THE BROWN-HEADED STORK-BILLED KINGFISHER.

(*Fauna of British India*, 2nd edition, No. 1548.)
" (*Fauna of British India*, 1st edition, No. 1043 (part).)

Description—Male. Length 16″ ; wing 6 to 6·5″ ; tail 4″ ; bill from gape 4″.

Bill blood-red, dusky at tip ; irides brown ; legs coral red.

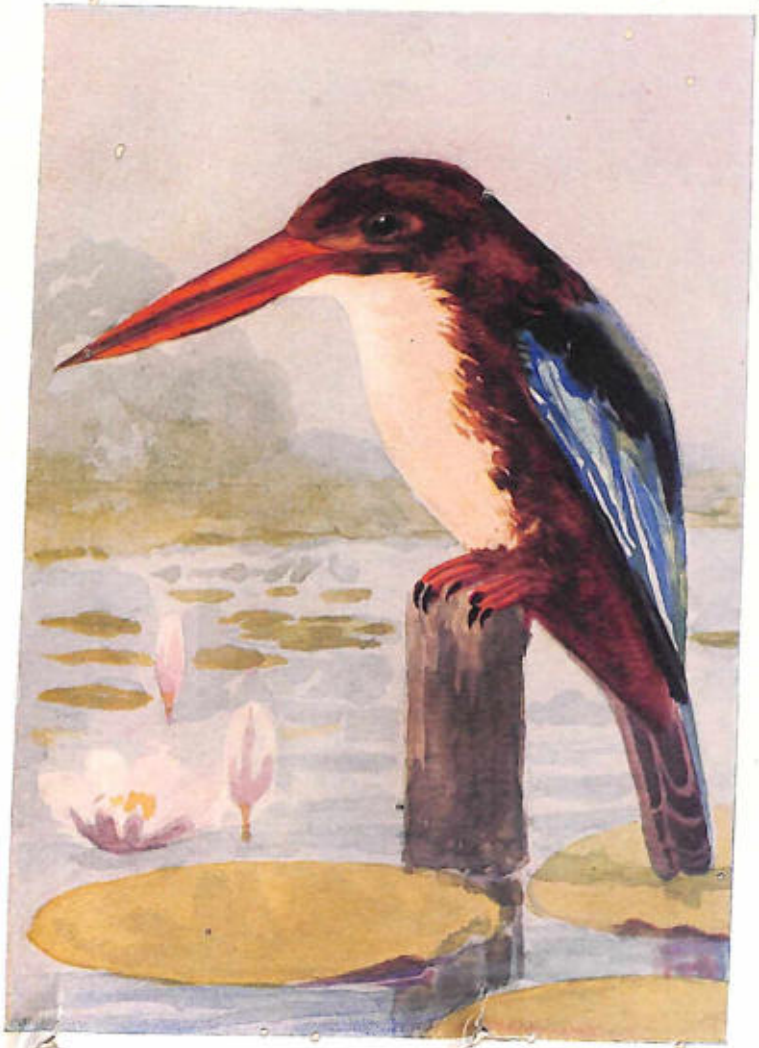
Head, nape and cheeks brown ; chin, the whole lower plumage and a broad collar fulvous, washed with blackish on the breast. Rump and upper tail-coverts bright pale blue ; back and scapulars dull greenish-blue ; quills black margined with blue on the outer webs and with pale yellowish on the inner webs, except the first primary which is not margined at all ; tail blue above, black below.

Female. Similar to male.

Locality, habits, etc. This Kingfisher is said to be common in Malabar, frequenting the banks of well-wooded rivers and backwaters.

Mr. Stuart Baker in his "Birds of Cachar" gives a most interesting account of this bird. He says :—"Fish is probably the staple diet of this bird, but it by no means confines itself to such, varying it often with small lizards, crabs, prawns and anything almost which is not too large for it to tackle in comfort and safety. It is on record that this bird indulges in a vicious propensity for robbing the nests of other and smaller birds, the contents of which it devours. To one of these burglarious and cannabalistic raids I was a witness in 1885 when living in Rangpur. In this place, there are, or were, in the Collector's compound, many fine, but aged trees full of holes and crevices affording a very favourite nesting place for many birds. Amongst these a pair of Mynas (*A. tristis*) had selected a large hollow in a big limb of one of the largest trees some forty feet from the ground. At the time of which I am writing, the young birds were a few days old. One day however my attention was arrested by the shrieks of one of these Kingfishers accompanied by the cries of many small birds, the most excited among whom, were the two Mynas.

THE BLUE-TAILED BEE-EATER
(*Merops superciliosus javanicus*).
Two-thirds Nat. Size.



THE WHITE-BREASTED KINGFISHER
(*Halcyon smyrnensis fusca*)
One-half Nat. Size.

"Looking up, I discovered a *Pelargopsis* perched on the tree close to the entrance of the unfortunate Myna's nest uttering every now and then his unmusical notes.

"Finally in spite of the loud curses heaped on him by the Mynas, he disappeared into the hole and when he came out a callous young Myna could be seen making ineffectual struggles to escape from the hold of his powerful beak.

"When employed in its legitimate occupation of fishing its actions are much the same as those of *H. smyrnensis* and its flight also is much like that of that bird, though I think that the Stork-billed Kingfisher may be rather the more rapid flyer of the two, under ordinary circumstances; the White-breasted Kingfisher on the other hand being more active in escaping danger."

Breeding season. It breeds in Travancore "from January to April and again from the end of May to July"—(*Fauna of British India*).

Nest. A hole in a bank of a river or a tree. Bingham got one made of grass in a fork of a bamboo.

Eggs. 3 to 5; typical Kingfisher's eggs, very spherical, white and glossy; average size 1·40 × 1·26". The normal clutch appears to be 4.

Genus **HALCYON** Swainson 1820.

"Bill red throughout, large, rather broad at the base; culmen straight, rounded above, and without any groove at the side; wing rounded, third quill generally longest. Tail moderate, longer than culmen, slightly rounded at end. One of the characteristic features is the presence of a large white patch on the wing formed by the basal portion of the primary quills"—(*Fauna of British India*).

(260) **Halcyon smyrnensis fusca** Bodd.

THE INDIAN WHITE-BREASTED KINGFISHER.

Plate XVII

(*Fauna of British India*, 2nd edition, No. 1551.)
(*Fauna of British India*, 1st edition, No. 1044 (part).)

Description—Male. Length 10·5"; wing 4·5"; tail 3·5"; tarsus 0·5"; bil from gape 2·8".

Bill coral-red; irides brown; legs vermilion.

Head, neck, lower breast, vent and under tail-coverts deep chocolate-brown; back, rump and upper tail-coverts bright blue; chin, throat and breast white; wings bright blue edged black; lesser coverts chestnut; median coverts black; a broad oblique white bar on inner webs of primaries.

Female. Similar to male.

Locality, habits, etc. A common resident on the plains, and ascends the hills to the summit being found in and around Ootacamund. Mr. A. P. Kinloch says: "it does not occur on the Nelliampatty Hills. I saw one on the Lovedale Lake near Ootacamund in April 1922" (*H.R.B.*) "Not found in the extreme south of Travancore"—(*Fauna of British India*).

It apparently procures food with equal ease on land as in water, for it is as often found in gardens, groves and open jungle as it is in the vicinity of streams, tanks or wells. As might be expected from its habits, it feeds far more on large insects such as grasshoppers, etc., than on fishes or water insects. It is a very noisy bird, proclaiming its presence by frequent loud harsh screams.

Breeding season. March to July.

Nest. A hole excavated in a bank or earth-cliff.

Eggs. 4 to 6 ; rarely 8 ; pure white, almost round ; average measurement 1·13 × 1·03″.

(261) Halcyon smyrnensis generosa Mad.

THE CEYLON WHITE-BREASTED KINGFISHER.

(*Fauna of British India*, 2nd edition, No. 1552.)
(*Fauna of British India*, 1st edition, No. 1044 (part).)

Description. "This is merely a rather smaller, rather darker form than *H. s. fusca*."

"Wing 108 to 117 mm. ; culmen 49 to 55 mm."—(*Fauna of British India*).

Locality, habits, etc. "The extreme south of Travancore"—(*Fauna of British India*).

The same as those of the preceding species.

Breeding season. "Breed in Ceylon from February to August"—(*Fauna of British India*).

(262) Halcyon pileata (Bodd.).

THE BLACK-CAPPED KINGFISHER.

(*Fauna of British India*, 2nd edition, No. 1554.)
(*Fauna of British India*, 1st edition, No. 1045.)

Description—Male. Length 11·5″ ; wing 5″ ; tail 3·25″ ; tarsus ·6″ ; bill from gape 2·8″.

Bill coral-red ; irides red-brown ; legs brownish-red.

The whole head and neck, lores, cheeks and ear-coverts black ; the rest of the upper plumage rich violet-blue, brightest on the rump ; a broad collar white-tinged rufous ; wings and coverts (except the primary coverts), black ; primary coverts, the central portion of the primaries, the secondaries and tertiaries on the outer webs rich violet-blue ; a small pale blue bar on the outer webs of the second to seventh quills ; a broad white bar on the inner webs of the primaries ; chin, throat and sides of neck, and breast white ; the rest of the lower plumage and wing-lining rufous-buff.

Female. Similar to male.

Locality, habits, etc. This fine Kingfisher is very rare and is found at the mouths of rivers and wooded backwaters—(*H.R.B.*). Sir A. Cardew found it in South Kanara—Mr. Ferguson says it is a rare bird in Travancore, where one specimen was brought to him alive, having

been captured in a well at Trivandrum. Jerdon obtained it at Tellicherry on the Malabar Coast. More recently Mr. Roscoe Allen reports having obtained it on the Upputeru river in the Gōdāvari delta. Its food consists of fish and crabs and sometimes also insects.

Breeding season. Breeds in Burma in S. Tenasserim.

Genus **ENTOMOTHERA** Horsf. 1820.

"Distinguished by its peculiar plumage, being rufous throughout except on lower back and rump. There is no white on the primaries; otherwise there is no difference from *Halcyon*"—(*Fauna of British India*).

(263) Entomothera coromanda coromanda (Lath.)

THE INDIAN RUDDY KINGFISHER.

(*Fauna of British India*, 2nd edition, No. 1555.)
(*Fauna of British India*, 1st edition, No. 1046.)

Description—Male. "Length 10·25"; wing 4·3"; tail 2·6"; tarsus ·65"; bill from gape 2·5""—(*Fauna of British India*).

"Bill, legs and feet lobster-red; iris dark brown; rim of eye-lids orange-red"—(*H. N. Coltart*).

Upper plumage light chestnut more or less glossed with ruddy violet; lower back and rump mixed ultramarine and ruddy violet. the white bases of feathers showing through; lower plumage rufous ochraceous, pale on chin, throat and abdomen.

Female. Similar to male.

Locality, habits, etc. This beautiful Kingfisher must be very rare in our Presidency; the only record lof it that we can find being in Mr. Dewar's list of Birds found in and around Madras" (*Journal, Bombay, N.H.S. Volume XVI-3, page* 492) in which he writes:—"There are in the Madras Museum three specimens of this bird, one of which was shot by Mr. Edgar Thurston, Superintendent of the Museum at Guduvancheri, about 16 miles south of Madras. Not given by Mr. Stuart Baker as occurring in this Presidency but we record it on the above authority.

According to Mr. Stuart Baker, it keeps to tiny streamlets in dark ravines far away from any stream or river other than the trickling one at the bottom of the nullah; it lives largely, he thinks, on insects and perhaps on any tiny reptile which may cross its path.

Genus **SAUROPATIS** Cabanis and Heine 1860.

"Distinguishable from *Halcyon* by its short, broad bill, of which the lower mandible is much more curved upwards; the bill also is black or nearly all black and not red"—(*Fauna of British India*).

(264) Sauropatis chloris vidali Sharpe.

THE MALABAR WHITE-COLLARED KINGFISHER.

(*Fauna of British India*, 2nd edition, No. 1558.)
(*Fauna of British India*, 1st edition, No. 1047 (part).)

Description—Male. "Lores and a few feathers above the forehead black ; a white fulvous patch above the lores sometimes produced back to the eye ; crown nape and upper sides of head bluish-green ; ear-coverts green ; lower parts, sides of neck and a very wide collar on the extreme upper back white ; upper back bluish-green, lower back, rump and upper tail-coverts bright blue ; tail dark blue, sometimes tinged with greenish ; wing-coverts pale blue, quills black edged on all but the first with blue, deepest at the base, paler at the tips ; the innermost secondaries nearly all of this colour."

"Wing 110 to 116 mm. ; tail 70 to 73 mm. ; tarsus about 16 mm. ; culmen 42 to 49 mm."

"Iris deep brown ; upper mandible and terminal third of lower black or deep greenish-black ; basal two-thirds of lower mandible pinkish or yellowish white ; legs slaty-black or plumbeous"—(*Fauna of British India*).

Female. Similar to male.

This subspecies differs from typical *S. c. chloris* in having "on the whole brighter and paler blue on the wings and more consistently green on the back ; the ear-coverts are green with no trace of black and the black nuchal collar is absent whilst the white collar is very wide" —(*Fauna of British India*).

Locality, habits, etc. "South-west Coast of India. Stewart and Bourdillon both record it from Travancore and it appears to inhabit the coastal region from Travancore to the Konkan"—(*Fauna of British India*).

"Tame, confiding birds, haunting the vicinity of villages and towns . . . Their food consists largely of small land-crabs but they also feed on grasshoppers, insects, small reptiles, etc."—(*Fauna of British India*).

Breeding season. "Nothing recorded"—(*Fauna of British India*).

Family BUCEROTIDÆ.

"In the Hornbills the caeca are wanting ; the oil-gland is tufted ; the sternum has two shallow notches, one on each side in the posterior margin ; behind the partly developed manubrium is a perforation as in the *Meropidæ*. Toes syndactylous ; both carotids generally, but not always present ; spinal feather-tract not defined on the neck, which has no lateral bare tracts or apteria ; there is no after-shaft and no down on the featherless parts of the skin. There are eleven primaries and from ten to sixteen secondaries ; the under wing-coverts do not cover the bases of the quills, a fact which accounts for the extraordinarily loud noise made by the larger Hornbills when flying. The tail-feathers number ten ; the bill is always very large, sometimes enormously so, and is often furnished with a casque of varying shape and description. The eyelids are furnished with long eyelashes . . . Sexes generally alike"—(*Fauna of British India*).

Genus **DICHOCEROS** Gloger 1842.

"Size large ; bill very large, stout and much curved ; casque large and broad, covering more than the basal half of the culmen, the sides flat and vertical behind, the top overhanging in front, the posterior edge broad, projecting over the head behind and rounded, the upper surface flat behind, concave in front, terminating anteriorly in two lateral points that are blunted in old birds. No conspicuous crest ; feathers of head loose-textured ; chin covered with feathers ; tail slightly rounded at end ; sexes alike in plumage ; the casque is small and pointed in the young and gradually becomes developed as in all Hornbills"—(*Fauna of British India*).

(265) Dichoceros bicornis bicornis (Linn.).

THE GREAT HORNBILL.

(*Fauna of British India*, 2nd edition, No. 1563.)
(*Fauna of British India*, 1st edition, No. 1051.)

Description—Male. "Length about 52″ ; tail 15″ ; wing 20″ ; tarsus 2·9″ ; bill from gape to point in a straight line 10·5″".

"Bill and casque yellow tinged with red at the tip and with orange in the middle. In the male the culmen in front of the casque, a triangular patch at each side of the anterior end of the casque, and the posterior portion of the casque black, but not in the female in which, however, the posterior portion of the casque is red. In both sexes the base of the mandible is black. Irides in male blood-red, in female pearly white ; eyelids black ; orbital skin dark fleshy pink ; legs and feet greenish plumbeous"—(*Fauna of British India*).

Upper plumage, excepting neck all round which is ochraceous and upper tail-coverts which are white, wing-coverts and wings black ; tips and bases of greater coverts and quills white ; whole lower plumage black except neck which is ochraceous and lower abdomen and under tail-coverts which are white ; tail black ; broadly banded with white.

Female. Similar to male, except smaller dimensions ("Wing 18″ ; bill from gape 9″"—(*Fauna of British India*). Colour of casque and irides as mentioned above.

Locality, habits, etc. According to Davison it occurs sparingly in the forests of the slopes of the Nilgiris, not ascending to the table-land. He never saw it above Burliar about half-way between Coonoor and the foot of the Ghats. Ferguson says regarding : Travancore "not common, but very much in evidence when present : it is found throughout the Range." Mr. A. P. Kinloch found it very common on the Nelliampathy Hills.

Regarding nidification, Mr. T. F. Bourdillon writing from Travancore says :—

Nest. "Breeds in the holes of large forest trees at a height of 30 to 50 feet from the ground, returning year after year to the same tree. It seems pretty well ascertained now that the female plasters herself up in the nest when she begins to incubate the eggs, and remains there till the young ones are hatched, depending all the time on the male for

food. During this time single birds alone are seen and the nest may with little difficulty be found by observing where the male returns when he has collected a sufficient quantity of food for his mate." Mr. M. Clementson says that he has found nests of this Hornbill near his estate below Kalhatti on the Northern slopes of the Nilgiris at about the same elevation as Burliar on the South-Eastern slopes.

Mr. A. P. Kinloch writes :—"The female helps the male to plaster herself into the nesting-hole, the plaster being largely composed of the birds' own droppings."

Breeding season. "In the beginning of March I got an egg ; it was of very rough texture, and was no doubt originally white, but when I got it, the egg was stained quite brown.

January, February, March, "an egg in my collection was taken by Mr. Stewart in Travancore on the 18th March at an elevation of 2,800 feet."—(*C.M.I.*)

Eggs. The size of the egg was 2·5 × 1·79″. The number of eggs is one, two or three. Two eggs in my collection are of a creamy colour, one pitted all over, the pitting being of a lighter shade than the ground-colour ; the other one has the same ground colour but is minutely speckled all over with neutral tint ; and a third egg is very deep fulvous more approaching to rusty buff, it also is pitted with light pittings. They measure 2·4 × 1·68″ ; and 2·8 × 1·99″ ; 2·5 to 1·7″.

The food of this species is composed principally of fruit, but insects and lizards are also eaten.

Genus **ANTHRACOCEROS** Reich. 1849.

"Casque very large and high, sharp-edged and projecting in front broader and carried back above crown behind, the upper border curved and parallel with commissure. Orbital skin and that on the sides of the throat under chin and middle of throat feathered. Tail very long and wedge-shaped at the end ; wings rounded and short. Plumage of the two sexes similar but casque differently coloured "—(*Fauna of British India*).

(266) Anthracoceros coronatus (Bodd.).

THE MALABAR PIED HORNBILL.

(*Fauna of British India*, 2nd edition, No. 1564.)
(*Fauna of British India*, 1st edition, No. 1052.)

Description—Male. "Length about 3′ ; wing 13·5″ ; tail 12·5″ ; tarsus 2·5″ ; bill from gape 7·5″."

"Whole head and neck and upper parts throughout including the wings above and the middle pair of tail-feathers, black glossed with dark green ; lower breast, abdomen, lower tail-coverts and all the tail-feathers except the middle pair, white, as are broad tips of all the quills except the first two primaries and the tertiaries and the bases of the primaries and part of the edge of the wing under the wing-coverts and axillaries black."

"The casque is large and compressed, not convex at the sides. Bill and casque are waxen yellow except the base of both mandibles and a large spot occupying about the anterior three-fourths of the upper portion of the casque, which are black. Irides orange-red in males,

brown in females ; naked skin blackish round the eye in males, white in females ; bare skin on the throat flesh-coloured ; legs and feet grey " —(*Fauna of British India*).

Young birds have the iris a curious pale grey-blue giving them a very clear-eyed appearance. This darkens at first to a duller grey-blue, then changes to brown or red according to sex.

" In the young the basal half of the outer tail-feathers is black, and there is at first no black on the casque which is small. The nestling according to Parker, has a brownish-white bar on the black feathers, except on the quills and rectrices "—(*Fauna of British India*).

Locality, habits, etc. Found in small parties on the slopes of the Nilgiris in ever-green forests but not ascending to any height. Ferguson says :—" It is uncommon in Travancore, and locally distributed, in forest land at the foot of the hills. The Museum possesses only one specimen shot about nine miles from Trivandrum." When flying they flap and sail along in a slow and silent manner. Mr. A. P. Kinloch found it very common on the Nelliampathy Hills.

Breeding season. In Travancore from January to March.

Nest. " The nidification has not been recorded by an eye-witness, but as shown by Legge, Parker and others, is undoubtedly similar to that of other Hornbills "—(*Fauna of British India*).

Eggs. " 2 to 4, measuring about 2 × 1·5"—(*Fauna of British India*).

Genus **LOPHOCEROS** Hemp. & Ehr. 1828.

" Size small, casque either small, compressed and terminating anteriorly in a point or entirely wanting. Bill much curved, carinate above. Tail graduated in all Indian species. Crest moderate. Plumage of Indian birds chiefly grey "—(*Fauna of British India*).

(267) Lophoceros birostris (Scop.).

THE COMMON GREY HORNBILL.

Plate XVIII.

(*Fauna of British India*, 2nd edition, No. 1575.)
(*Fauna of British India*, 1st edition, No. 1062.)

Description—Male. Length 25" ; wing 8" ; tail 12" ; tarsus 1·7" ; bill from gape 3·5 to 4·25".

Bill and casque horny black, the tip of the former whitish. Irides red-brown ; legs dark slaty ; casque low and compressed at base where it is concealed by the feathers of the forehead which droop over it ; the anterior portion prolonged and with a sharp ridge.

Plumage above, neck and upper breast grey ; remainder of lower plumuge white ; ear-coverts and a streak over the eyes whitish ; first three primaries dusky margined white on outer webs, remainder black broadly tipped with white ; tail grey, all but the central pair of feathers with a broad sub-terminal black band and tipped white.

Female and immature birds similar to male except that the first six primaries are margined with white on outer webs only.

Locality, habits, etc. Found all over the Presidency, except on the Malabar and Travancore Coasts, in open country or thin forest. It ascends the hills to about 3,000 feet. It associates in pairs or small flocks and has a note which sound like *pee-ye*. Its flight is like that of other members of this family. It feeds principally on fruit but will also eat insects and reptiles. Lt.-Col. Newnham records a bird ejecting and killing a young paroquet which was in a hole in a tree. Both Mr. E. Van Ingen and Major E. G. Phythian Adams have found this bird very good eating. The latter found it fairly common in S. Mysore in the banyan trees lining the road.

Breeding season. April to June.

Nest. As with other Hornbills, in holes of large trees such as *Peepul* and *Simul*, the female plastering herself in.

Eggs. 2 or 3. The texture is finer than that of other Hornbills and less granulated ; dull white, average 1·7 × 1·22″.

(268) Lophoceros griseus griseus (Lath.).

THE MALABAR GREY HORNBILL.

(*Fauna of British India*, 2nd edition, No. 1576.)
(*Fauna of British India*, 1st edition, No. 1063.)

Description—Male "Length 24″ ; wing 8·5″ ; tail 9″ ; tarsus 1·75″ ; bill from gape 4·25″. Females measure rather less.

"Bill horny yellow, with a brownish red tinge except towards the tip, dusky or black along the commissure ; irides red-brown ; orbital skin black ; legs and feet greenish. In the females the bill is paler and has black patches on the top of the culmen and at each side of the lower mandible, near the base in both cases. Young birds have dull white or yellow irides."

"Both mandibles are thickened at the side by a kind of crustation towards the base ; nostrils elongate, in a groove, the posterior portion of which is covered by a membrane and overhung by a tuft of feathers"—(*Fauna of British India*).

Forehead, supercilium and shafts of feathers of head and neck dirty brownish-white ; remainder of upper plumage leaden-grey ; scapulars slightly glossed with green ; back tinged with brown ; ear-coverts deep brown, light-shafted ; lower plumage paler grey with dirty, brownish-white shaft-streaks ; chin and abdomen brownish-white ; under tail-coverts rufous ; quills black, most of the primaries broadly tipped with white ; tertiaries edged grey and slightly glossed with green ; tail blackished glossed with green and with the 3 outermost pairs of feathers broadly tipped with white.

Female. Similar to male, with the above-noted exceptions and, if anything, duller in colour.

Locality, habits, etc. Ferguson says this species is common on the Cardamon Hills at 3,000 feet but he has also shot it at over 5,000 feet on the High Range and at 4,000 feet at Chimangi in South Travancore. Mr. F. W. Bourdillon says "It is common in heavy jungle from 1,000 to 3,000 feet elevation. Its flight is easy and rapid."

Sir A. Cardew obtained it in Malabar and its eggs in North Kanara. Davison says in *Stray Feathers*, "I have sometimes found it in pairs and once came across a single one, but this is very rare as it is almost always in small flocks varying from half a dozen to twenty or more individuals. It is an exceedingly noisy bird, the whole flock keeping up an almost incessant screaming as they move about feeding, one bird commencing and the others taking up the call in rapid succession. But though their presence is easily detected by their call (which may be syllabized *kyah, kyah, kyah, ad lib*) they are so exceedingly shy that it is no easy matter to secure a specimen. Unlike the other two species of Hornbill they do not confine themselves to the larger and denser forests but frequent thin tree and bamboo jungle." Mr. A. P. Kinloch found it very common on the Nelliampathy Hills.

Breeding season. January to April.

"A clutch of 4 in my collection was taken by Mr. Stewart in Travancore on the 16th March"—(*C.M.I.*).

Nest. Its breeding habits are the same as those of *L. birostris*.

Eggs. 2 to 4; dull white; average measurement 1·65 × 1·25".

Family UPUPIDÆ.

"The sternum has the posterior notches deep instead of shallow and the manubrium is flat and broad; only the left carotid is present."

"The deep plantar tendons are free from each other as far as the division of the *flexor perforans digitorum*, but a vinculum from the *flexor longus hallucis* leads to that slip from the other tendon which supplies the third digit, or middle toe, the union with the vinculum taking place below, but above the root of the toe. The foot is imperfectly syndactyle, digits three and four being joined at the base"—(*Fauna of British India*).

Genus **UPUPA** Linn. 1758.

"Bill slender, long, curved from the base; tongue very short; a well-marked long coronal crest; the hinder feathers longest; tarsus short, scutillate behind, wing rounded with ten primaries. Tail moderate, of 10 rectrices"—(*Fauna of British India*).

(269) **Upupa epops orientalis** Stuart Baker.

THE INDIAN HOOPOE.

(*Fauna of British India*, 2nd edition, No. 1581.)
(*Fauna of British India*, 1st edition, No. 1067.)

Description—Male. "Wing 128 to 160 mm.; culmen 42 to 60 mm. Practically all sexed males have a wing of over 150 mm."—(*Fauna of British India*).

Bill blackish; legs and feet plumberous; irides brown.

Head neck and crest rufous the latter tipped with black; back and shoulders rufous the lower back banded white and black; wings banded black and white; breast rufous, abdomen, flanks and undertail-coverts white, the abdomen streaked with black.

Female. Similar to male.

Locality, habits, etc. "Its southern limits are quite impossible to define, as it grades slowly into the smaller more richly-coloured Ceylon form *ceylonesis* . . . it may be said to extend . . . on the East still farther South to the Madras Presidency."

Habits the same as those of the Ceylon sub-species.

(270) Upupa epops ceylonensis Reich.

THE CEYLON HOOPOE.

(*Fauna of British India*, 2nd edition, No. 1582.)
(*Fauna of British India*, 1st edition, No. 1067 (part).)

Description—Male. "Wing 117 to 140 mm.; but of over thirty specimens measured only three have wings of over 135 mm.; culmen 39 to 54 mm. (one, only, 72 mm.)"

"This is the darkest and smallest of all the forms of Hoopoe; the breast has seldom any tint of vinous and the rufous of the head and crest is deep and rich"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. A very common resident on the plains, but also ascends to the summit of the hills during the breeding season and is found in gardens, groves and thin jungle where it feeds upon worms, insects, ants, etc.; while feeding, during flight and at rest it carries its crest depressed but immediately erects it when alarmed or on first alighting on the ground or on a tree. Its usual note, rarely uttered except during the breeding season, is a double *whoop* but we have noticed that towards the end of the breeding season it generally gives three not very clear or successful *whoops* in fact changes the number of notes like the Cuckoo: when carrying food to its young ones in the nest, it utters a soft hissing cry, presumably to attract attention. An albino specimen has been procured.

Mr. A. P. Kinloch found this bird uncommon on the Nelliampathy Hills. The Rev. Mr. Bomford records a Hoopoe ejecting 2 young out of 4 from a nest evidently finding it too troublesome to feed them all.

Breeding season. January to May; the early months on the plains, the later ones on the hills. Major Phythian Adam's experience is that it nests around Ootacamund chiefly in February.

Nest. In a natural hole in a tree or building. In Jerdon records having found them in mud walls. "I, in common with others (*vide* Major Begbie's notes in the *Bombay Natural History Society's Journal*, *Vol. XVI*, 3) have noticed that the Hoopoe appears to delight in a highly scented nest. One I found in a deep hole in an old mango tree at St. Thomas' Mount smelt so badly that I had perforce to leave it alone"—(*H.R.B.*).

Major Phythian Adams has often found it breeding in holes in rocks.

Eggs. 4 to 7; dull greeny blue, or very pale whitey blue; average measurement ·87 × ·7".

Sub-order **TROGONS.**

"The Trogons differ from all other birds in the structure of the feet. The first and second digits are turned backwards and are supplied by the *flexor longus hallucis*, whilst the third and fourth digits are directed forwards and connected with the *flexor perforans digitorum*. The two flexor tendons are united by a vinculum.

"Palate schizognathous; basipterygoid processes present; sternum with four notches on the posterior border; manubrium long and slightly forked; caracoids in contact; oil-gland nude; cœca present but short; spinal feather tract well defined from nape to oil-gland but not forked; after-shaft of contour-feather large; wing without median coverts; tail feathers twelve; ambiens muscle wanting. Sexes dissimilar and young like the female"—(*Fauna of British India*).

Family TROGONIDÆ.

"Bill short, strong, wide, the tip of the culmen hooked and toothed; nostrils and base of bill covered with well-developed bristles; feet small; tarsi short. Tail-feathers 12: primaries 10. Plumage soft and dense; skin very thin"—(*Fauna of British India*).

Genus **PYROTROGON** Bonaparte 1854.

"Tail long with broad feathers, squarely terminated in adults, pointed in young, the outer three pairs much graduated. Wings rounded, the inner primaries and secondaries very short. Tarsus half-feathered. Face naked at sides"—(*Fauna of British India*).

(271) **Pyrotrogon fasciatus malabaricum** (Gould).

THE MALABAR TROGON.

(*Fauna of British India*, 2nd edition, No. 1585.)
(*Fauna of British India*, 1st edition, No. 1100.)

Description—Male. "Length 12″; wing 5″; tail 6·75″; tarsus 0·6″; bill from gape 1″.

"Bill deep blue; orbital skin smalt blue; irides dark brown; feet light lavender blue.

"Head and neck all round with upper breast dull black or nearly so with merely a brown tinge; back, scapulars and coverts along forearm yellowish brown, slightly paler on the rump and upper tail-coverts; wings black, the coverts away from the forearm except the greater primary coverts, tertiaries and outer webs of secondaries, finely and closely barred with slightly undulating white lines, the quills white at the base; the outer webs of all primaries except the first and a few of the last, with a white border; middle tail-feathers chestnut with a black tip, the remainder black; generally some chestnut on second or third pairs from middle, three exterior pairs with long white tips; a white band between the black upper breast and the rest of the lower parts which are pale crimson; the lower tail-coverts paler still"—(*Fauna of British India*).

Female. "Head, neck and upper breast olive-brown; no white gorget; rest of lower parts brownish-buff; bars on wing-coverts, secondaries and tertiaries light brown instead of white; tail-feathers as in immature males"—(*Fauna of British India*).

Young males have the head and neck brownish black; lower plumage deep rusty buff and the vermiculations on the wings are buff instead of white; also there is more chestnut on the tail-feathers next the centre ones.

Locality, habits, etc. Found on the slopes of the Nilgiris to the summit, Davison having obtained it in the forests of the Droog at Coonoor, at Pykara, and at Neddiwattam. Ferguson says "not uncommon in heavy forests of Travancore from 1,000 feet upwards." Hill ranges of Mysore, etc. It prefers dense jungle but is also sometimes seen in the open. It is a silent bird and has, according to Davison, both a cat-like mewing note and one which sounds like *kur-r-r* with all the *r's* rolled together. They will, at times, descend to the ground. The late Mr. A. P. Kinloch wrote as follows in the *Bombay Natural History Society's Journal* from the Nelliampathy Hills:—"Common, I notice that the Malabar Trogon has a curious habit, while perched, of expanding and elevating its tail, giving voice the while to a low twittering croak. As I have not observed this before, it is probably a courting display. The tail of course is often expanded in flight. I noticed this bird the other day pecking some insect off tree leaves of a "jak" (*Artocarpus integrifolia*); while so employed it hovered for a few seconds like a huge Honeysucker and was a glorious sight." Major Phythian Adams writes:—"I should call this a distinctly *uncommon* bird in these parts, in the last 3 years I have only seen one, at Mudumalai (Nilgiris) at 3,000 feet elevation."

"Breeds commonly in Travancore"—(*Fauna of British India*).

Breeding season. Mr. Bourdillon took its nest in March in Travancore at an elevation of 2,100 feet at the edge of a thick jungle. "A clutch of 2 in my collection was taken in Travancore on the 27th May"—(*C.M.I.*).

Nest. The nest was placed at the top of a stump about 6 feet from the ground and consisted simply of a few chips of rotten wood at the bottom of a hollow four inches deep which the bird had dug out of the stump. Here there lay two white eggs with the very slightest tinge of coffee colour, very glossy and round.

Eggs. The eggs vary from 2 to 4 in number, usually three and are a pale *café-au-lait* or fawn colour, never white. The texture is fine and smooth, often with a good deal of gloss. "Average measurement 26·7 × 23·4 mm."—(*Fauna of British India*).

Sub-order **CYPSELI.**

"The Swifts are distinguished by having the shortest humerus and longest manus of all known birds.

The foot of the swift is remarkable and is of the form turned *pamprodactylous*, i.e., all the toes are turned forward.

The arrangement of the deep plantar tendons vary in the different genera"—(*Fauna of British India*).

Family MICROPIDÆ.

"The skull is aegithognathous and lacks basipterygoid processes; the sternum has a very deep keel and a continuous posterior border; there is a broad horse shoe-shaped *apterion* across the *pteryla capitis*; the semitendinosus is absent; there are no cæca; there is a large after-shaft; the young have down on the *apteria* until the feathers appear" —(*Fauna of British India*).

Sub-family MICROPINÆ.

"This includes the Common Swifts, which are typical, the hind toe being completely reversible, whilst the third and fourth toes have only three phalanges. Sexes alike"—(*Fauna of British India*).

Genus **MICROPUS** Meyer and Wolf 1810.

"The true Swifts have all four toes directed forward, though the first or hinder toe is reversible; the tarsus is feathered in front, short and adopted for clinging purposes only; the wings are long, very powerful and pointed. Sexes alike"—(*Fauna of British India*).

(272) Micropus melba melba (Linn.).

THE ALPINE SWIFT.

(*Fauna of British India*, 2nd edition, No. 1589.)
(*Fauna of British India*, 1st edition, No. 1068.)

Description—Male. "Length 8·5″; wing 8·5″; tail 3″; tarsus ·6″" —(*Fauna of British India*).

"Bill black; irides dark brown; legs and feet blackish purple; the tail is deeply forked, the outer feathers being about ·75″ longer than the middle pair."

"Upper parts, sides of head and neck, a broad band across the upper breast and the lower tail-coverts brown, varying slightly in depth of tint, nearly uniform in old birds, the feathers darker near the end and with whitish edges in young individuals; chin, throat, lower breast and abdomen white, feathers sometimes black-shafted; under wing-coverts always with white edges especially near the bend of the wing"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. A resident on the Nilgiris. Shot by Ferguson on the High Range in Travancore. Jerdon met with it commonly on the Malabar Coast during the cold weather and discovered one of their roosting places at the Gairsoppa Falls. Very swift in flight, but less so than the Spine-tails.

Mr. A. P. Kinloch found this common during the cold weather on the Nelliampathy Hills.

Breeding season. May and June.

"I have repeatedly had reports as to its breeding at the Gairsoppa Falls. McMaster saw birds evidently breeding about the precipices above which the fort is perched at Chikalda"—(*Fauna of British India*).

Nest. Built against a rock, consists of feathers and grass cemented with saliva.

Eggs. 2 to 4, very rarely the latter; pure white, rather glossy, elongated; average measurement 1·2 × ·75″.

(273) Micropus pacificus leuconyx (Blyth).

BLYTH'S WHITE-RUMPED SWIFT.

(*Fauna of British India*, 2nd edition, No. 1595.)
(*Fauna of British India*, 1st edition, No. 1072.)

Description—Male. "Length 6·8″; wing 6·55″; tail 3″: tarsus ·35″; culmen ·7″"—(*Walton.*)

Bill black; irides dark brown; feet fleshy; claws almost black.

Upper plumage glossy blackish brown: rump white with shafts black; chin and throat dull white, remainder of lower plumage brown margined with white and sub-margined glossy blackish brown.

Female. Similar to male.

Locality, habits, etc. Jerdon obtained this species in Malabar where it frequented rocky hills; it also occurs on the Nilgiris where it may sometimes be seen in company with *M. affinis and M. melba.*

Breeding season. "May to end of July"—(*Fauna of British India*).

Breeds in Murree, Mussoorie, Assam.

(274) Micropus affinis nipalensis (Hodgs.).

THE NEPAL INDIAN HOUSE-SWIFT.

(*Fauna of British India*, 2nd edition, No. 1598.)
(*Fauna of British India*, 1st edition, No. 1073 (part).)

Description—Male. Length 4·75 to 5·55″; wing 5″; tail 1·75″; tarsus ·4″.

Bill and legs black; irides brown.

Head and neck brown with a faint tinge of green; back and scapulars black glossed with green; rump and throat white; upper tail-coverts and tail deep brown glossed with green; wings brown, beneath brownish black; under tail-coverts pale brown glossed with green.

Female. Similar to male.

Locality, habits, etc. A very common resident on the plains, though somewhat locally distributed. Almost certain to be met with wherever there are any old buildings, tombs, etc., or where there are cliffs with caves and overhanging rocks. It also occasionally ascends the hills where we have observed it in January near Ootacamund. Although during the day time it is generally seen hawking for insects alone or in

small parties, at dusk and in the early morning it assembles in large flocks previous to returning to or quitting its roosting place.

Breeding season. January to June or later.

Nest. Of mud, feathers, etc., cemented with saliva, placed in caves, under eaves of roofs, overhanging rocks, etc., often in large clusters.

Eggs. From 2 to 4; rarely 5 are laid; glossy white, elongated; average measurement ·9 × ·55".

Genus **TACHORNIS** Gosse 1847.

"Toes arranged in pairs, the third and fourth toes outwards, the first and second inwards. Size small"—(*Fauna of British India*).

(275) Tachornis batasiensis batasiensis (Gray).

THE BENGAL PALM-SWIFT.

(*Fauna of British India*, 2nd edition, No. 1600.)
(*Fauna of British India*, 1st edition, No. 1075 (part).)

Description—Male. Length 4·87 to 5·25"; wing 4·25 to 4·5"; tail 2·25"; tarsus ·4."

Bill and claws black; legs reddish purple; irides brown.

Plumage above dull brown, lightest and indistinctly tipped pale on rump; darker on tail, wings black, glossed with green, and inside margin of inner webs white; whole lower plumage pale smokey-brown, slightly paler on chin and throat.

Female. Similar to male.

Locality, habits, etc. A common permanent resident on the plains, abounding wherever palmyra and coconut palms are found. It is, in fact, never found at any distance away from these trees. It does not appear to ascend the hills, at least to any great height.

Breeding season. February to June.

Nest. Shaped like a small pocket formed of the down of *Argemone medicana* and other plants and feathers, cemented with saliva and placed on a leaf of the palmyra palm. Several nests are often found on the same palm, and the birds may be continually seen circling round them flying in and out of the leaves.

Eggs. 3; elongated, pure white; average measurement ·71 × ·46".

Sub-family CHÆTURINÆ.

"This Sub-family contains those species of Swifts which have spiny shafts to the rectrices and the little Swiftlets which make edible nests. The tarsi are naked; the second toe has three, the third four and the fourth toe five phalanges"—(*Fauna of British India*).

Genus **HIRUNDAPUS** Lath. 1801.

"Shafts of rectrices very stiff; the ends projecting beyond the webs"—(*Fauna of British India*).

(276) Hirundapus giganteus indicus (Hume).

THE BROWN-THROATED SPINETAIL.

(*Fauna of British India*, 2nd edition, No. 1605.)
(*Fauna of British India*, 1st edition, No. 1078.)

Description—Male. "Length 9"; wing 8"; tail 2·6"; tarsus ·68"; the tail is slightly wedge-shaped and the shafts of the feathers are very strong and project nearly half an inch"—(*Fauna of British India*).

Bill black; irides dark brown; legs and feet fleshy pink—(*Baker*).

Whole upper plumage, except the back, wings and tail blackish-brown glossed with green; back light brown; a white spot in front of eye; whole lower plumage brown, paler on chin and throat; a white border to rump behind the thigh; vent and under tail-coverts white, the shafts black.

Female. Similar to male.

Locality, habits, etc. Common on the hills, both on the Nilgiris and the hills in Travancore.

Jerdon also observed them on the plains at the eastern side of the Nilgiris and on the Malabar Coast, always, he states, in immense flocks. These are the swiftest of all known birds; their flight is steady and when flying fast, a regular swish can be heard. "At times they circle round slowly and then they are not difficult to shoot"—(*C.M.I.*).

Stuart Baker says: "The Hill Tribesmen haunt the Spinetails with great eagerness, as they consider the flesh if eaten prolongs life and encourages fertility; indeed, if the supply were constant enough they would become practically immortal." Their call is shrill like that of all Swifts.

Mr. A. P. Kinloch says: "It is common during the cold weather on the Nelliampathy Hills."

Mr. J. Stewart writing on the 10th April 1913 to the *B.N.H. Society's Journal* from Travancore says:—"It may interest some members, to know that the Brown-necked Spinetail roosts and breeds in large, hollow, green trees on the Travancore Hills.

"I have on several occasions seen colonies of 30 to 50 birds roosting in trees but have only just succeeded in finding them breeding.

Breeding season. "On the 12th instant (March) I discovered a tree in which the birds were popping in and out at the only entrance which was at a height of about 45 feet; the tree was hollow from top to bottom and on cutting a hole in it near the ground I found 2 nests each containing 2 fresh eggs. The nests were mere depressions in the earth at the foot of the tree lined with dry leaves and straw. The eggs are porcelain-white with very hard shells; the average size of the 4 eggs is 1·28 × 1".

"I have since tapped another tree in the same way and found three nests at the foot of it; two nests were empty and the third contained two young birds.

"All the trees I have seen occupied by this Swift have been at elevations of 1,000 to 2,000 feet in heavy forest.

"Since sending the above notes last month on the habits of this Swift I have been fortunate in obtaining a considerable number of their eggs. Although the birds roost in trees at times in large colonies I have not found more than 2 pairs breeding in one tree, in most cases

only one pair of birds breeds and occupies a tree during the breeding season. I have found as many as 5 eggs in a clutch but 3 or 4 seem to be the usual number."

Genus **INDICAPUS** Mathews 1918.

"Differs from *Hirundapus* principally in colour-pattern having no pale centre to the back and in having a broad white rump and grey underparts, the tail is longer proportionately . . . the feet are very small and feeble, the toes appear to be placed three pointing forward and one backward but they are of course all reversible"—(*Fauna of British India*).

(277) Indicapus sylvaticus (Tickell).

THE WHITE-RUMPED SPINETAIL.

(*Fauna of British India*, 2nd edition, No. 1606.)
(*Fauna of British India*, 1st edition, No. 1079.)

Description—Male. "Length about 4·25"; wing 4·2"; tarsus ·4"; the under tail-coverts extend nearly to end of the tail.

"Bill, legs and feet black; irides dark brown.

"Upper parts black or blackish brown with slight green gloss. A broad white band across the rump; chin, throat and breast greyish brown; abdomen and lower tail-coverts white, the two colours passing into each other; wings beneath blackish and glossy; in young birds the white feathers of the rump, abdomen and lower tail-coverts have black shafts"—(*Fauna of British India*).

Locality, habits, etc. "South-West India from South Travancore to the Wynaad, Nilgiri and Palni Hills"—(*Fauna of British India*).

Jerdon says: "It is, of course, chiefly a jungle-haunting species, preferring the vicinity of rivers, and has an elegant, but for one of this genus, not remarkably rapid flight. I found it at first in small scattered parties, afterwards in tolerably large flocks."

Breeding season. March and April.

Mr. J. Stewart writes from Travancore to the *B. N. H. Society's Journal* on the 13th April 1913:—"The White-rumped Spinetail (*Chætura sylvatica*) also breeds on the Travancore Hills in open forest at elevations of about 2,000 feet. It hawks about during the day in parties of about a dozen birds, but does not breed in colonies

Nest. The nest is made of vegetable fibre strongly attached to the inside of a hollow tree with saliva.

Eggs. The eggs are white and glossy and are usually 4 in number; the average size of 15 eggs is ·64 × ·40".

Genus **COLLOCALIA** Gray 1840.

"Tail-feathers of ordinary form and shafts not rigid; feet small; the hind-toe directed backwards normally and only partially reversible; second quill longest; tail slightly forked"—(*Fauna of British India*).

(278) Collocalia unicolor unicolor (Jerdon).

THE INDIAN EDIBLE-NEST SWIFTLET.

(*Fauna of British India*, 2nd edition, No. 1608.)
(*Fauna of British India*, 1st edition, No. 1081.)

Description—Male. "Length 4·75 to 5″; wing 4·5 to 4·75″; tail 2″; tarsus ·4″.

Bill black, very small and feeble; irides brown; legs pale reddish ashy.

Above mouse-brown, glossed with green: wings glossed with steel-blue; beneath ashy, paler on abdomen and vent.

Female. Similar to male.

Locality, habits, etc. A resident on the hills from about 3,500 feet upwards; always found in the vicinity of rocks. Jerdon apparently observed it in numbers on the Malabar Coast where it breeds on the Vingorla and Sacrifice Rocks.

March to June, rearing at least two broods annually.

Nest. Of a lichen called "*Usnea barbata*" cemented by saliva (such at least was the composition of some nests taken by me near Ootacamund), but I am unaware of what the nests of those birds that breed on the sea-coast are composed; the nest being attached to the wall or roof of a cave. The nest of the second make, *i.e.*, the one built after the first one has been robbed, is made of different materials to the first and is often lined with feathers. These nests are gathered annually in large numbers by the Moplahs, but whether they eat them or send them to China or elsewhere, I do not know. While in Singapore, I had an opportunity of tasting "Birds' nest soup" which was to my mind distinctly nasty"—(*H.R.B.*).

Stuart Baker says on the coast seaweed and in Ceylon moss are the principal materials used in the nests.

Eggs. 2; pure white; average measurement ·81 × ·51″.

Sub-family HEMIPROCNINÆ.

"The *flexor longus hallucis* gives off a slip to the hallux which is not supplied by the *flexor perforans digitorum*. It then goes on to blend with a branch of that tendon which supplies the fourth digit.

The hind toe is not reversible.

The posterior portion of the sternum has two foramina, one on either side"—(*Fauna of British India*).

Genus **HEMIPROCNE** Nitzsch. 1829.

The sincipital plumes are long and erectile . . . The tail is long and forked; the wings when folded reach to the end of the tail or just beyond: the sexes differ in plumage and the young are unlike the adult; there is a patch of silky downy feathers on each flank"—(*Fauna of British India*).

(279) Hemiprocne coronata (Tickell).

THE INDIAN CRESTED SWIFT.

(*Fauna of British India*, 2nd edition, No. 1616.)
(*Fauna of British India*, 1st edition, No. 1086.)

Description—Male. Length 9·1″ ; wing 6·35″ ; tail 5·5″ ; culmen 0·75″ ; tarsus 0·3″—(*H. J. Walton*).

" Bill black ; iris dark brown ; eyelids plumbeous ; legs pinkish brown "—(*Fauna of British India*).

Upper plumage bluish grey ; crest and wing-coverts much darker than the rest and glossed with green ; lores black ; a narrow white supercilium ; ear-coverts and chin ferrugineous ; remainder of lower plumage grey, white on abdomen and lower tail-coverts ; wings and tail dark brown glossed with green.

Female. Length 8·4″ ; wing 6·1″ ; tail 5″ ; culmen 0·75″ ; tarsus 0·3″—(*H. J. Walton*).

Plumage similar to male except that the ear-coverts are greyish black bordered below by a thin white line and the chin is of the same colour as the breast.

Young. " The feathers of the upper plumage finely edged with pure white with broad subterminal bands of pale brownish-grey; the scapulars and innermost secondaries have the ends broadly grey-white with very fine subterminal lines of brown ; below, the feathers are edged white and sub-edged blackish "—(*Fauna of British India*).

Locality, habits, etc. Jerdon found it common on the Malabar coast and the Wynaad, extending up the Nilgiris to about 4,000 feet and obtained it also from the Southern Ghats of Nellore. Ferguson says it is uncommon in Travancore. Sir A. Cardew obtained it from North Kanara. It has a loud parrot like call and has, as Jerdon says, the habit of descending suddenly to any water and just touching it and then rising again in a most graceful manner. According to Stuart Baker, they roost packed together on one branch after the style of *Artamus*.

Mr. A. P. Kinloch found it during the cold weather on the Nelliampathy Hills.

Breeding season. January to June.

Nest. They make a minute saucer-shaped nest of bark and feathers cemented with saliva and placed on the upper branch of a tree and it is so small that the bird sits on the branch with its body over the nest. Mr. Stuart Baker found it making an unusually large nest which was fixed to the side of a branch.

Eggs. A single egg is laid, elongated, oval, dull white, measuring ·98 × ·65″.

Sub-order CAPRIMULGI.

" Palate schizognathous ; basipterygoid processes present ; cæca functional : a nude oil-gland ; sternum with a broad shallow incision on each side behind. Semitendinosus muscle present. Aftershaft to feathers very small "—(*Fauna of British India*).

Family CAPRIMULGIDÆ.

"Bill short, weak and flexible ; gape very wide ; nostrils tubular ; wings long, the second quill generally the longest. Middle toe long, the claw pectinated on the inside. Fourth toe with only four phalanges. Plumage soft and finely mottled "—(*Fauna of British India*).

Genus **CAPRIMULGUS** Linn. 1758.

"Rictal bristles strong ; no ear-tufts ; wing long and pointed, first primary shorter than second and generally than third ; tail long, more or less rounded. Sexes generally distinguished by white spots on the wing and tail in males, represented by buff or rufous spots or else wanting altogether in females and young birds. In some species, however, the sexes are alike "—(*Fauna of British India*).

(280) Caprimulgus macrourus atripennis Jerdon.

JERDON'S LONG-TAILED NIGHTJAR.

(*Fauna of British India*, 2nd edition, No. 1620.)
„ (*Fauna of British India*, 1st edition, No. 1093 (part).)

Description—Male. Length 11" ; wing 7·25" ; tail 5·5".
Bill dusky ; irides dark brown ; legs and feet fleshy-brown.
Upper plumage vermiculated brown and buff ; some broad, splashes of umberbrown on centre of forehead, crown and nape ; a hind collar, more or less indistinct, rufous and some black lines on the upper back ; scapulars barred with rufous and with large velvety-black spots ; wing coverts blackish speckled light ashy and tipped white ; the inner web of the first quill and webs of the next three have a large white spot forming a sort of a wing-stripe broken in the middle on the second ; primary coverts much speckled with rufous ; lores, cheeks, ear-coverts and sides of throat pale rufous minutely barred or speckled with brown ; centre of throat and a triangular patch on the neck white, the lower feathers tipped rufous and blackish ; upper breast buff finely speckled and barred with dark brown ; tail like the back but the two outer feathers, on each side, are broadly tipped with white and banded with black next the white ; the white is sometimes edged with buff.

Female. Similar to male, but has much more rufous about its plumage and the primaries with rufous-buff instead of white spots.

"Travancore and the Malabar coast to the Wynaad, Nilgiris and Palnis "—(*Fauna of British India*).

Locality, habits, etc. Found on the Nilgiris where it frequents dense woods during the day, coming out into the open for food at sunset, perching on the ground, on stones or trees, from whence it pursues its prey. On issuing from the shelter of the jungle at dusk, it, for some time, pursues its prey on the wing after the manner of a bat which indeed it closely resembles in the gloaming, sometimes at a good height from the ground, but not always so. While perched upon a stone, tree, or on the ground it utters the well-known *chock chock* from which the species derives the name of "Ice-bird."

Breeding season. March to August—(*Fauna of British India*).

Nest. The usual mere depression in the ground generally under a bush or tree "in scrub, bamboo or fairly light jungle"—(*Fauna of British India.*

The eggs differ from all those of the races in being boldly marked with deep black-brown blotches and spots on a cream or salmon ground. The smears, irregular pale blotches, found on the eggs of other races of *macrourus* are all absent or nearly so. Average measurements 30·1 × 22·2 mm."—(*Fauna of British India*).

(281) Caprimulgus indicus indicus Latham.

THE INDIAN JUNGLE NIGHTJAR.

(*Fauna of British India*, 2nd edition, No. 1625.)
(*Fauna of British India*, 1st edition, No. 1095 (part).)

Description—Male. Length 10 to 12″ ; wing 7·5″ ; tail 5″.
Bill blackish ; irides deep brown ; legs brown.

Plumage above ashy-brown, darker and more brown in colour on the back, all the feathers finely freckled with black, and the feathers of the forehead, centre of head, neck, back, scapulars, rump and upper tail-coverts with broad black streaks ; wing coverts with some pale fulvous and whitish blotches ; tail vermiculated ashy and brown with some narrow black bars and all the feathers, except the middle pair, with a subterminal white band ; first four primaries with white spots, the first only spotted on inner web, secondaries rufous mottled black ; chin and sides of throat rufescent-white finely barred black ; throat-spot and neckband white with a few black tips to the feathers ; breast finely freckled and pencilled brown and ashy ; abdomen, vent and under tail-coverts rufescent with narrow irregular black bars.

Female. Similar to male, except that the throat-spot and neck-band are pale rufous, and the abdomen, vent and under tail-coverts are more rufous. No white tips to the tail and spots on primaries rufous instead of white.

Locality, habits, etc. A common resident on the plains and hills frequenting well-wooded localities and also open country. Jerdon found it on the Malabar coast, Sir A. Cardew on the Shevaroy hills, and we at Ootacamund. Ferguson says of it, in Travancore, that it is a winter visitor to the lower slopes of the hills, but, during May and later, it is found on the High Range. "In the South of Travancore *C. I. kelaarti*, appears to be the prevailing form" (*Fauna of British India*).

Mr. B. B. Osmaston says :—" Its call is of two kinds ; firstly a monosyllable, *chuck—chuck—chūck*—repeated about half a dozen times at the rate of 5 *chucks* in 2 seconds. It has a second call, not so commonly heard, which is made up of dissyllables *chucker—chucker—chucker*—repeated at the same rate as the first call."

Breeding season. Breeds from February to May. Kinloch took eggs in the Nelliampathy Hills in February and Primrose took 2 eggs in Nilgiri on the 14th of the same month.

Nest. Eggs laid on the ground usually in jungle.

Eggs. Two elongated ovals, the ground being buff or salmon-pink sparingly blotched with reddish-brown and underlying neutral tint. "Average 30·4 × 21·8 mm."—(*Fauna of British India*).

(282) Caprimulgus indicus kelaarti Blyth.

THE CEYLON JUNGLE NIGHTJAR.

(*Fauna of British India*, 2nd edition, No. 1627.)
(*Fauna of British India*, 1st edition, No. 1095 (part).)

Description. "Wing 167 to 184 mm. (one 187, one 188 mm.)."
"Darker than *C. i. indicus*, less rufous and more grey in ground colour and "general tint"—(*Fauna of British India*).

Locality, habits, etc. "South of Travancore. Birds from North Travancore, Malabar Coast and the Wynaad and Nilgiri Hills are somewhat intermediate in colour and size between this form and true *indicus*, but should be retained with the latter"—(*Fauna of British India*).

Habits the same as those of *indicus*.

Breeding season. "Very little authentic recorded, most notes being referable to the Indian race . . . Bourdillon, Stewart and Wait, however, have taken properly authenticated eggs during February and March in Travancore and Ceylon"—(*Fauna of British India*).

Eggs. Similar to *C. i. indicus* but smaller. Average 28·1 × 20·7 mm. —(*Fauna of British India*).

(283) Caprimulgus monticolus monticolus Frankl.

FRANKLIN'S NIGHTJAR.

(*Fauna of British India*, 2nd edition, No. 1629.)
(*Fauna of British India*, 1st edition, No. 1090.)

Description—Male. Length 10″; wing 7·5″; tail 4·5″; tarsus 0·8″; bill at gape 1·25″.

"Bill pale brown, dark horny at tip; iris dark brown; legs and feet pale fleshy-brown; claws horny"—(*A. M. Primrose*).

In this species the tarsus is nearly naked.

Upper plumage brownish-grey speckled with black; the centre of head and nape marked with black; some rusty spots on sides of neck and on scapulars and wing-coverts; primaries brown, the first four banded with white; tail same colour as rest of upper plumage, barred and vermiculated with black except the two outer pairs of feathers which are white with brown tips; a white patch on throat; chin and breast like the upper plumage, the latter with some rusty spots; abdomen barred brown and buff; lower tail-coverts pure buff.

Female. Similar to male, but the tail-feathers have no white and the band on the primaries is rich reddish-buff instead of white; the white patch on throat also is tinged with rich reddish-buff.

Locality, habits, etc. "Practically the whole of India, South to Mysore and Travancore"—(*Fauna of British India*).

THE COMMON GREY HORNBILL
(*Tockus birostris*).
One-third Nat. Size.

THE COMMON NIGHTJAR
(*Caprimulgus asiaticus*).
One-half Nat Size.

Like all other Nightjars it hawks at dusk for its food which consists of insects. It has a noiseless flight and a long drawn call. Mr. B. B. Osmaston says "it has a rather sharp, penetrating note like *Choo-ee*, uttered on the wing. I can corraborate this—(*C.M.I.*).

When on a branch it does not sit across it as do other birds, but longitudinally along it, this being common to all Nightjars.

Breeding season. It breeds from March to August.

Nest. It makes no nest, but lays its eggs in a depression on the bare ground under a bush or shrub.

Eggs. 2 ; some eggs sent by Mr. A. M. Primrose are rather elongated ovals of a rich brownish-salmon colour clouded with neutral tint and blotched with a darker shade of the ground-colour. "Average measurement 1·25 × 0·85″."

(284) Caprimulgus asiaticus Lath.

THE COMMON INDIAN NIGHTJAR.

Plate XVIII.

(*Fauna of British India*, 2nd edition, No. 1630.)
(*Fauna of British India*, 1st edition, No. 1091.)

Description—Male. Length 9″ ; wing 5·5 to 6″ ; tail 4·25 to 4·5″ ; tarsus ·75″.

Bill brownish-fleshy, tip black ; irides brown ; legs pale brownish.

Plumage above pale ashy-brown, finely mottled, the centre of head and nape streaked with brownish-black and a few feathers of the back, rump and upper tail-coverts narrowly streaked with dark brown ; a broad pale rufous collar marked with black ; ear-coverts dark brown, finely mottled with rufous ; a white moustachial stripe and a white patch on each side of the throat tipped with pale rufous and black ; scapulars velvety black, edged rufescent ; wing-coverts beautifully mottled ashy-brown and dusky, with some large buff spots ; first four primaries dark brown, faintly mottled at the tip and each with a large white spot in centre ; the other primaries brown with large rufous spots on each ; the two central pairs of tail-feathers like the back, with some narrow black crossbars, the next pairs dark brown, barred and mottled lighter and margined with rufous on the inner webs ; two outermost pairs broadly tipped with white ; chin, throat and neck narrowly barred brown and rufescent remainder of lower plumage barred light brown and rufescent the bars disappearing towards the abdomen, and the vent becoming pale buff.

Female. Similar to male.

Locality, habits, etc. A common resident on the plains, but does not ascend the hills ; it frequents gardens, groves and scrub jungle but not thick forest.

The note is a "monotonous *tuk, tuk, tuk tukeroo*"—(*Fauna of British India*).

Breeding season. It appears to breed at various times of the year ; in Mysore it was found nesting in April.

Nest. None, it lays its eggs on the bare ground generally under a bush. "Sometimes lays quite in the open and at other times in orchards, thin forests and bamboo-jungle"—(*Fauna of British India*).

Eggs. 2; sometimes 1. Deep salmon-pink blotched with reddish-brown and some underlying neutral spots. "Average measurement 26·5 × 19·9 mm."—(*Fauna of British India*).

Genus **LYNCORNIS** Gould 1838.

"No rictal bristles; ear-tufts present"—(*Fauna of British India*).

(285) Lyncornis cerviniceps bourdillonı Hume.

BOURDILLON'S GREAT-EARED NIGHTJAR.

(*Fauna of British India*, 2nd edition, No. 1632.)
(*Fauna of British India*, 1st edition, No. 1096 (part).)

Description—Male. Bill horn colour; iris dark brown; legs and feet pinkish brown; claws light brown; "claws ashy"—(*Bourdillon*).

Crown and nape brownish-buff finely vermiculated with black and with some large oval black spots down the centre; ear-tufts black tipped with buff; upper plumage chestnut and buff barred and vermiculated with black; wings brown barred with chestnut, the coverts chestnut barred with black; tail-feathers black with broad mottled bands of buff; sides of head black mixed with chestnut; chin and breast chocolate-brown, the feathers tipped chestnut; a white band on throat; remainder of lower plumage rich buff barred with black.

"Similar to the Burmese form but perhaps a little darker with less buff and more grey on the wings and upper plumage"—(*Fauna of British India*).

Female. Similar to male. "Length 14·5″; wing 10·25″; tail 7·62″; tarsus ·56″; bill from gape 1·45″"—(*Hume*).

Locality, habits, etc. "South and Central Travancore only"—(*Fauna of British India*).

"Bourdillon . . . says that he found it not uncommon from sea-level up to about 2,000 feet and that it is especially fond of thorny-bush cover in or near forest. He adds that it has a most beautiful loud whistle of several notes which is uttered freely during the night"—(*Fauna of British India*).

"Stewart found this Nightjar almost common in Travancore"—(*Fauna of British India*).

Breeding season. "The birds commence laying early in January and the last eggs taken by him (Stewart) were laid in mid-May . . . Stewart found them breeding generally in bush cover on broken hill sides but also in deciduous forest in thin undergrowth. Eggs were located in many cases by hearing the constant wailing cry of the male, who keeps very close to the spot where the egg is laid. The same site is occupied year after year"—(*Fauna of British India*).

Eggs. 1; pinky-cream with underlying blotches of pale lilac-grey. "Average measurement 40·0 × 28·8 mm."—(*Fauna of British India*).

Sub-order **PODARGI.**

"Palate desmognathous; no basipterygoid processes; cæca large; no oilgland; a powder-down patch on each side of the rump; the sternum has a low keel and a pair of incisions on each side of the posterior border. The stomach is muscular"—(*Fauna of British India*).

Family PODARGIDÆ.

"Bill large, depressed, extremely broad, much more solid than in *Caprimulgidæ*, curved and the tip hooked. Base of the bill overhung by large numbers of bristly feathers concealing the nostrils which are narrow slits protected by membrane"—(*Fauna of British India*).

Genus **BATRACHOSTOMUS** Gould 1838.

"Wings rounded, short; 4th and 5th quills longest. Tail long, graduated. No rictal bristles, but there are conspicuous bristly feathers at the base of the bill; tufts of the same in front of the eyes, and eartufts with bristles at the ends of the feathers. Tarsus short; feet small, middle toe elongate. Sexes in most species very different in plumage"—(*Fauna of Britsh India*).

(286) **Batrachostomus moniliger** Layard.

THE CEYLON FROGMOUTH.

(*Fauna of British India*, 2nd edition, No. 1635.)
(*Fauna of British India*, 1st edition, No. 1099.)

Description—Male. "Length 9″; wing 4·76″; tail 4·5″; tarsus ·6″; width of bill at gape 1·3″.

"Bill olive-brown, the lower mandible paler; irides yellow; legs and feet fleshy grey; tarsus feathered for the greater part of its length.

"General tint mottled grey, with a more or less rufous tinge; supercilium whitish; black spots each terminated by a buff speck on the crown and back; a white collar on the hind neck; scapulars and tertiaries whitish, quills dark brown with buff or rufous spots on the outer webs; tail with pale and dark crossbands; lower parts much like the upper with an imperfect white gorget and much white on the abdomen"—(*Fauna of British India*).

Female. "Dull rufous: supercilium pale; an indistinct white collar on the hind neck; scapulars with very small sub-terminal black spots tipped with minute white specks; some white spots at the ends of the wing-coverts; beneath, the abdomen is much paler; there is a band across the throat of feathers white at the end with a somewhat irregular subterminal black bar; similar feathers are scattered over the abdomen. The upper parts are usually more or less mottled with blackish and there are indications of crossbars to the tail-feathers. Young birds are greatly mottled throughout"—(*Fauna of British India*).

Locality, habits, etc. "Travancore, the Wynaad"—(*Fauna of British India*). Ferguson says it is a difficult bird to obtain, being

entirely nocturnal and frequenting dense jungle. It perches like an ordinary bird, crosswise on a branch but normally lengthwise as do Nightjars.

Breeding season. "Breeds in Travancore from January to May, again in September, October"—(*Fauna of British India*).

In regard to its breeding, Mr. T. F. Bourdillon writes from Travancore :—

"It breeds at elevations of 2,000—3,000 feet from January to the end of February. My brother is the only person who has ever succeeded in getting the nest of this very extraordinary bird with the young bird, but since then I have picked up the curious pad which forms the nest, though I should never have known what it was without seeing the other. The first nest was taken on the 24th February and contained a young bird of about 10 days old. Beneath the tree, which was a small sapling, were the remains of a white egg evidently belonging to the above mentioned nest. The latter was placed in a fork about 12 feet from the ground and an almost flat pad 3 inches in diameter by nearly an inch in thickness, composed of a sort of felt which was really the bird's down combined with moss, leaves and small twigs."

Mr. J. Stewart has taken numerous nests of this bird and it appears that only one egg is laid as a rule. He never obtained more than one egg or young bird.

Eggs. The egg is pure white of the same silky texture as that of Barbets eggs. "Average measurements 29·9 × 20·6 mm."—(*Fauna of British India*).

Order STRIGES.

"Amongst the more conspicuous characters are the reversible outer toe, the position of the eyes which are always directed forward and are generally very large, and the short, curved and hooked bill, the basal portion covered with a cere in which the nostrils are placed, the cere being almost entirely concealed by the mass of bristly feathers on the lores and forehead. In most of the genera the head is large and the facial portion covered with feathers radiating from the eyes and forming the facial disc, the outer margin of which is surrounded by a ruff of close textured feathers forming a conspicuous border. From the margin of the ruff there arise in many owls aigrettes of lengthened feathers known also as horns or ear-tufts, the last term being incorrect. The plumage is soft and the coloration is generally brown or rufous, the feathers in some genera being delicately vermiculated or stippled as in the *Caprimulgi* ; the feet are strong and furnished with short claws ; a hallux is always present ; the oil-gland is nude ; the spinal feather-tract is well defined on the neck. There is no after-shaft. There are always 11 primaries. *The flexor longus hallucis* leads to the hallux, and the *flexor perforans digitorum* to the remaining three digits, but the two tendons are united by a broad vinculum. There is no ambiens muscle ; the femora-caudal is present, but the accessory femoro-caudal and the semi-tendinosus and the accessory semi-tendinosus are wanting. Basipterygoid processes are present and the palate is desmognathous or, according to Gadow, schizognathous, with a desmognathous tendency. Both carotids are present and the cæca are large. Cervical vertebræ 14"—(*Fauna of British India*).

Family TYTONIDÆ.

"Skull long and narrow, breadth much less than two-thirds of length ; furcula united to keel of sternum ; no manubrium sterni ; second joint of third toe considerably longer than the basal joint"—(*Fauna of British India*).

Genus **TYTO** Billberg 1828.

"No aigrettes ; facial disc well developed and large and entirely surrounded by a ruff of stiff feathers ; bill straight at the base, compressed and weak ; nostrils oval. Legs long, the upper part of the tarsus clad with feathers which pass into bristles on the lower tarsus and upper surface of the toes ; middle toe scarcely longer than the inner ; middle claw expanded and pectinate on the inner side. Wings very long and pointed, exceeding the tail, 2nd quill longest, 1st sub-equal ; tail moderate"—(*Fauna of British India*).

(287) **Tyto alba javanica** (Gmel.).

THE INDIAN BARN-OWL.

(*Fauna of British India*, 2nd edition, No. 1066.)
(*Fauna of British India*, 1st edition, No. 1152.)

Description—Male. Length 14" ; wing 11·25 to 12" ; tail 5 to 6" ; tarsus 2·5 to 2·7" ; bill from gape 1·5 to 1·75".

Bill pinky-white ; irides dark brown ; legs and feet brownish grey, claws horny.

Above pale grey, mixed with ochreous, each feather having a white spot surrounded by blackish-brown, small on the head and neck, larger on back, rump and upper tail-coverts; tail fawn with grey freckles each feather with a spot similar to rest of upper plumage and barred with dark brown ; underside pale axillaries white ; wings like the tail and having the same terminal spot and freckles ; the quills however are all margined with white on the inner web. Disc silky white with a large red-brown patch extending from the anterior corner of the eyes to the base of the upper mandible ; ruff silky yellow-brown ; beneath white tinged pale tawny on breast and flanks, each feather, except those of the throat, with small blackish-brown triangular spots.

Female. Similar to male.

Locality, habits, etc. Davison says it lives in holes in rocks on the Nilgiris and Ferguson says it is occasionally found in the low country about human habitations ; Dewar mentions it as one of the birds found around Madras. Its food is principally rats and mice but it will also kill birds.

Breeding season. "Most months of the year except during those of the heaviest rainfall, July, August"—(*Fauna of British India*).

Nest. It lays in holes in buildings, wells or trees ; one nest I took from the top of a pillar between it and the roof of a bungalow—(*C.M.I.*).

Eggs. 3 to 7 ; white. "Average measurement 41·1 × 33·4 mm."—(*Fauna of British India*).

(288) Tyto longimembris (Jerdon).

THE GRASS-OWL.

(*Fauna of British India*, 2nd edition, No. 1638.)
(*Fauna of British India*, 1st edition, No. 1153.)

Description—Male. Length 14·15″; wing 13·1″ ; tail 5″; tarsus 3·4″ ; bill from gape 1·6″.

Bill pinkish-white ; irides deep brown ; legs and feet brownish-yellow ; claws deep horny.

Disc white tinged with ferrugineous ; a dark brown spot in front of the eye ; ruff brown above, sides and below white tipped with rich tawny buff which is edged with dark brown. Upper plumage rich tawny-buff broadly edged with brown and tipped with a white spot ; wings buff tipped and barred with brown ; median tail-feathers buff, the others white more or less tinged with the same colour and barred with brown. Lower plumage, except the breast which is buff, white, and all sparsely spotted with brown. Some birds show more brown and less buff on the upper plumage.

Female. Similar to male.

Locality, habits, etc. "Southern India in Vellore, Carnatic, Nilgiris and adjoining Hills"—(*Fauna of British India*).

Davison says this species is rare on the Nilgiris but not so rare as the last species. Jerdon saw as many as twenty flushed from some

grass and reeds which were burnt at Nellore. They usually keep to long grass, but Davison found them on the Nilgiris on two occasions in grass scarcely a foot high. "They have a slow, heavy and even flight and look very awkward with their legs hanging down; usually they fly for a very short distance but we once saw one make quite a decent flight"—(*C.M.I.*).

Breeding season. "October to March"—(*Fauna of British India*).

Nest. "I found their nests difficult to discover as they lay on the ground in long grass. No nest appears to be made, but where I obtained a clutch of eggs the grass seemed to have been pressed down for a considerable space round them"—(*C.M.I.*).

Eggs. "Mr. Stuart Baker says they are "laid on a good pad or nest of soft shreds of grass, sometimes a couple of inches thick"—(*Fauna of British India*).

"Usually 4 to 6 but I have once had 7 and again 10 taken from a nest. They are dull white"—(*C.M.I.*).

"Average measurements 39·9 × 32·7 mm."—(*Fauna of British India*).

Family ASIONIDÆ.

"Skull broad, generally about two-thirds of length; furcula not in contact with keel of sternum; hinder margin of sternum with two deep incisions on each side; a small unforked manubrium is present. Basal and second joints of third toe sub-equal in length"—(*Fauna of British India*).

Sub-family ASIONINÆ.

"Ear-orifice large, exceeding the eye in size, lunate or ovoid in shape and furnished with an operculum. Facial disc well marked and nearly as high above the eyes as below them; ruff distinct; tarsus feathered"—(*Fauna of British India*).

Genus **ASIO** Schaeffer 1779.

"Aigrettes present but varying in size; ear-orifice very large, furnished with an operculum; bill short and strong, the part covered by cere is longer than that beyond the cere measured in a straight line from base to front. Tarsus and upper surface of toes thickly covered with feathers. Ruff complete or nearly so; facial disc well marked and extending nearly as far above the eye as beneath it. Wings long and pointed; second quill longest; third sub-equal; tail moderate, rounded. Iris yellow"—(*Fauna of British India*).

(289) Asio flammeus flammeus (Pontopiddan).

THE SHORT-EARED OWL.

(*Fauna of British India*, 2nd edition, No. 1643.)
(*Fauna of British India*, 1st edition, No. 1157.)

Description—Male. Length 15″; wing 13″; tail 5·6″; tarsus 1·6″; bill from gape 1·2″.

Bill and claws black; irides yellow.

Disc white, tawny around the bottom and behind the eye and streaked with black; ruff rich tawny mottled with brown; feathers round eyes black; upper plumage mixed brown and buff, the latter colour predominating on the scapulars; wings tawny-buff tipped and barred with brown; tail buff banded with brown; lower plumage pale buff, slightly darker on breast; breast broadly striated with brown, striations narrowing lower down and absent on under tail-coverts and legs.

Female. Similar to male.

Locality, habits, etc. A winter visitor to the hills and plains. Dewar states that he thinks it is fairly common around Madras, and it has been procured on the Nilgiris and Palnis. F. W. Bourdillon obtained it in Travancore at an elevation of 4,000 feet in December. "It is usually found in long grass, but not invariably so, as we once got one seated on a ridge in a waste field where there was no grass near. Some others which we flushed in some patchy grass kept to the ground near the roots of some small '*kheir*' and other thorny trees and when disturbed flew into the '*rabi*' fields. It lives chiefly on small mammals, birds, reptiles and also insects. Its note is a double or treble hoot. It flies well"—(*C.M.I.*).

Mr. A. P. Kinloch says this bird is very rare on the Nelliampathy Hills.

Breeding season. "When out snipe-shooting at the end of December 1921 I flushed a pair from a grassy swamp near Ootacamund, Nilgiris and shot the female. When flushed the birds flew around very much after the manner of a Hawk, their long pointed wings adding to the similarity, and settled among the bushes on the neighbouring hill-side. The stomach of the female contained the remains of a field-mouse"—(*H.R.B.*).

Genus **STRIX** Linn., 1758.

"No aigrettes; ear furnished with an operculum. Bill stout. Tarsus thickly feathered throughout; toes feathered above in all Indian species to base of last phalanx; claws strong. Ruff narrow, incomplete above; facial disc well developed extending almost as far above the eyes as below. Wings rounded; 3rd, 4th and 5th quills longest; tail of moderate length, rounded; irides always dark"—(*Fauna of British India*).

(290) Strix indranee indranee Sykes.

THE BROWN WOOD-OWL.

(*Fauna of British India*, 2nd edition, No. 1646.)
(*Fauna of British India*, 1st edition, No. 1160.)

Description—Male. Length 18·5"; wing 12"; tail 6·5"; tarsus 2·3"; bill from gape 1·5".

Bill bluish-horny; irides deep brown; legs bluish-fleshy.

Disc black, rufous externally; some white feathers with black shafts over the eyes and nostrils ruff chocolate-brown forehead fulvous with dark markings throat below the ruff white; a hair-brown band from chin down the sides of the neck to the nape: plumage above

chocolate-brown : the greater coverts, scapulars and tertiaries banded with white, which is most conspicuous on the outer scapulars ; rump and upper tail-coverts barred fulvous : tail brown barred fulvous and white and tipped white ; wings brown barred like the tail, beneath pale fulvous, whiter on the flanks, closely barred with brown and the upper breast suffused with brown.

Female. Similar to male but slightly larger ; length 19″ ; wing 13·6″ ; tail 8·3″ ; tarsus 2·3″ ; bill from gape 1·6″.

"South India North to Mahableshwar. It has also been obtained at Gumsur and in the Shevaroy Hills"—(*Fauna of British India*).

Locality, habits, etc. Davison gives a most interesting account of this bird, which we reproduce :—

"This Owl is not uncommon on the Nilgiris and their slopes but is less common in the Wynaad. Sometimes it is found in pairs, sometimes singly. It generally keeps to the sholas during the day, coming out at dusk ; but I have flushed it from among rocks. It is very fond of perching on the roof of a house at night and hooting, remaining often for an hour or more, hence it is that it is so dreaded by the natives who believe that such visits are bad omens, portending the death of one of the inmates of the house. There is nothing very dreadful in the sound of its hoot . . . consisting of four hoots. It seems to see well during the day, and once disturbed is by no means easy of approach. It is not infrequently flushed when beating the sholas for game."

"In Malabar and Travancore this fine Owl seems to be found from the lowest to the highest hills"—(*Fauna of British India*).

Legge found a captive bird ate small birds, lizards and fish which it first nibbled and then swallowed.

Breeding season. "Bourdillon obtained the eggs of this bird in Travancore in January and also took a single egg, probably a second laying, on the 1st March from the same place"—(*Fauna of British India*).

Nest. "The eggs were laid on rough nest of sticks and rubbish apparently collected by some other bird, on a shelf of a rock in deciduous forest"—(*Fauna of British India*).

Eggs. 1 or 2 ; white. "In size they vary between 49·5 × 40·3 and 52·2 × 43·1 mm."—(*Fauna of British India*).

(291) Strix ocellata Less.

THE MOTTLED WOOD-OWL.

(*Fauna of British India*, 2nd edition, No. 1640.)
(*Fauna of British India*, 1st edition, No. 1161.)

Description.—Male. "Length 18·5″ ; wing 14″ ; tail 8″ ; tarsus 2·25″ ; bill from gape 1·6″"—(*Fauna of British India*).

Bill black ; cere brownish ; eyelids dull orange ; irides dark brown In a nestling the eyelids were lake-red and irides black.

Facial disc white mottled with black and with a rufous-buff band down each side behind the eye ; ruff dark brown ; upper plumage rufous-buff, the head and neck tipped with black and spotted with white, remainder mottled with black and white, and barred with black ; quills at base and greater proportion of inner webs buff, the tips being brown ; the outer webs mottled with white and brown and banded with brown, the inner webs only banded with brown ; tail-feathers buff at base, brown towards the base ; the median feathers with both webs and the others with the outer ones mottled and banded with brown and white ; chin banded black and white ; a large white patch on throat : remainder of lower plumage white narrowly banded with black, the bases of the feathers rich buff.

Female. Similar to male.

Locality, habits, etc. Found at the base of the Nilgiris, and according to Jerdon, in Mysore and the Carnatic. Regarding Travancore, Mr. Ferguson says : " Two specimens were shot by my collectors at Perumbalam, an island in the Verubanad lake in January 1903. The contents of their stomach consisted of crabs and beetles. It is more exclusively a rat and mouse destroyer than any of the other Wood-Owls and also kills a large number of the little striped squirrels "—(*Fauna of British India*).

It is fairly common from Arukhutty to Vycome and frequents well-wooded places.

Breeding season. Eggs of this bird were brought to Mr. Bourdillon by hill-men in June.

Nest. They nest either in large hollows in trees or else in depressions at the fork of two large branches. " A nest I found was composed of a little grass in the bottom of a hollow in a tree ; another nest was of sticks in a mango tree where the branches spread out from the trunk "—(*C.M.I.*).

Eggs. They lay usually 2, sometimes 3 eggs, which are white with a creamy tinge and in shape are round ovals ; average measurement " 51·1 × 42·0 "—(*Fauna of British India.*)

Sub-family BUBONINÆ.

" Ear-orifice not exceeding the eye in size ; no operculum ; facial disc generally ill-marked and never extending as far above the eye as below ; ruff nearly or quite obsolete "—(*Fauna of British India.*)

Genus **KETUPA** Lesson 1831.

" Aigrettes present, long and pointed. The bill is large and strong. The facial disc is ill-marked, especially above. The wings are rounded and do not reach to the end of the tail ; 4th quill generally longest ; 3rd and 5th sub-equal ; tail moderate ; the tarsus partly or wholly naked and granular and the soles of the feet covered with prickly scales. The claws are large, well curved, each with a sharp cutting-edge beneath and the middle claw with a sharp keel on the inside also "—(*Fauna of British India*).

(292) Ketupa zeylonensis zeylonensis, Gmel.

THE CEYLON BROWN FISH-OWL.

(*Fauna of British India*, 2nd edition, No. 1652.)
(*Fauna of British India*, 1st edition, No. 1164 (part).)

Description—Male. Length about 24″; wing 16·25″; tail 8″; tarsus 2·65″; bill from gape about 2″.

"Iris bright golden-yellow; bill dull greenish-yellow, the base and basal half of the culmen darker; cere pale dusky green; legs dusky yellow, greenish-yellow or plumbeous yellow"—(*Fauna of British India*).

Head, neck, ear-tufts and upper back dull rufous-brown, each feather with a dark brown longitudinal streak; lower back, wing-coverts and scapulars with much narrower streaks and mottled with pale brown and tawny; primary and secondary coverts mottled dark and light brown and rufous, with a white spot mottled with dusky on the outer web near the tip; quills brown with broad bars whitish on the outer webs fulvous on the inner ones; tail brown with three or four pale fulvous bars and tipped the same; lores with a large patch of blackish bristles which are much elongated reaching almost to the tip of the bill; chin and throat white, some of the feathers with narrow brown shaft-stripes; the rest of the lower plumage pale fulvous, deeper on the breast, paler on abdomen, flanks and thighs, each feather with a rich umber-brown longitudinal stripe, broader on the breast, narrower elsewhere, and also cross-barred with numerous rufous-brown wavy bars.

Female. Similar to male.

Locality, habits, etc. "Travancore, Malabar, Mysore to the summit of the Nilgiris, Palni and Nelliampathy Hills"—(*Fauna of British India*).

Davison says: "This bird used to be not uncommon on the slopes of the Nilgiris, but of late years seems almost to have disappeared. It has been found at Ootacamund and also on the Palnis."

Regarding Travancore, Ferguson says: "Common in forest land in the low country near the sea-coast." They are to be found in groves or forest, and feed largely on fish and crabs, but also on small mammals and birds. "Their call is a deep treble note which has been likened to 'Gloom-oh-gloom' in addition they give vent to groans of displeasure and to low chucklings when feeding their young"—(*Fauna of British India*).

Breeding season. December to March. "March and April"—(*Ferguson*).

Nest. "It either makes a nest in the hollow of a tree or else builds on a ledge or recess of a cliff; the nest consists of a few sticks, or of leaves if in a hole in a tree."

Eggs. They lay 1 or 2 eggs, dull white, broad ovals in shape and average about 58·7″ × 47·3″—(*Fauna of British India*).

Genus **BUBO** Cuvier 1817.

"Birds of large size, with aigrettes and with the tarsus fully feathered; the claws are powerful and well-curved, the inner claw being

the longest, much exceeding the hind claw in length. The wing is rounded, the third primary longest, the fourth sub-equal ; tail moderate, slightly rounded at the end "—(*Fauna of British India*).

(293) Bubo bubo bengalensis Frankl.

THE INDIAN GREAT HORNED OWL.

(*Fauna of British India*, 2nd edition, No. 1660.)
(*Fauna of British India*, 1st edition, No. 1158.)

Description—Male. Length 19·75 to 23″ ; wing 14·5 to 16″ ; tail 7·5 to 9″ ; tarsus 2·4 to 3·25″ ; bill from gape 1·5 to 1·75″.

Bill horny black ; irides orange ; legs and feet feathered white. Forehead dark brown spotted with white and tawny ; head, neck and shoulders tawny edged whitish and with a broad stripe of dark brown ; back and wing-coverts beautifully mottled pale tawny, dark and light brown and white ; rump and upper tail-coverts pale tawny with narrow brown bars ; primaries rich orange-buff barred with dark brown, secondaries and tertiaries beautifully barred and freckled brown and rufous, entirely buff on inner web ; the tail has the central pair of feathers barred brown and white, the basal half also freckled with white and brown ; the rest of the feathers barred brown and tawny ; ears dark brown edged tawny ; the upper mandible and the lores covered with white bristly feathers which are tipped blackish ; a band of similar greyish-white feathers under the eyes ; ear-coverts and a band behind the ears blackish-brown followed on the sides of the neck by feathers freckled with fawn, white and dark brown ; chin white, throat and neck pale rufous with long central dark brown stripes ; below throat white ; rest of lower plumage buff, breast with large dark brown stripes ; abdomen, flanks and lower tail-coverts with numerous narrow wavy brown bars ; thighs and tarsi unspotted white or pale rufous.

Female. Similar to male.

Locality, habits, etc. Davison says : "Very rare on the Nilgiris ; on two occasions, I have flushed it from under a bush growing on the bank of a dry ravine." Jerdon got it on the same range in dense woods.

Dewar omits it from his 'List of Birds found in and about Madras' but he must have overlooked it, as Cardew obtained it from Chingleput.

"My experience of birds obtained on the plains agrees with that of Davison's as above ; all those I have seen having been flushed from below a thick bush at the side or bottom of a dry nullah "—(*H.R.B.*). It also haunts rocky hills. It feeds on rats, birds, lizards, snakes, crabs and large insects.

Breeding season. January, February and March : occasionally later or earlier.

Nest. It lays its eggs either on the ground under a clump of grass or on the ledge of a rock.

Eggs. 2 to 4 ; oval in shape ; dull white in colour ; average measurement, 53·6″ × 43·8″—(*Fauna of British India*).

(294) Bubo coromandus coromandus (Lath).

THE DUSKY HORNED OWL.

(*Fauna of British India*, 2nd edition, No. 1661.)
(*Fauna of British India*, 1st edition, No. 1169 (part).)

Description—Male. "Length 23″; tail 8″; wing 16″; tarsus 2·5″ bill from gape 1·65″"—(*Fauna of British India*).

"Bill greyish white or pale lavender, the tips and culmen pale yellowish-horny; irides deep yellow (not orange); claws black"—(*Hume*).

"Whole plumage above and below greyish brown with dark shaft-stripes, the feathers finely mottled and vermiculated with whitish; more white on the lower surface which is paler than the upper in consequence; a few white or buff spots on the outer webs of the outer scapulars and on some of the larger and median primary coverts; lores white with black shafts; aigrettes darker than crown; quills and tail brown with pale mottled cross-bands and tips"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. Rare everywhere; Cardew obtained it at Ootacamund, and it has also been obtained in the better wooded districts on the plains. It feeds principally on crows, but also on animals of some size, frogs, lizards and eggs.

"Its call is a deep guttural croak"—(*C.M.I.*).

Davison flushed it twice from under a bush growing on the bank of a dry ravine and on several occasions flushed a large Owl from among rocks which he thinks probably belonged to this species.

Breeding season. In Upper India, Hume says, they generally lay in December and January but he has found nests in February and once early in March.

Nest. It either makes a nest of sticks of its own or takes possession of some Eagle's nest.

"Mr. C. J. W. Taylor writing from Manzeerabad in Mysore remarks:—"I shot a female off her nest a mass of sticks laid between the immense arms of a mango tree; the nest contained one hard-set egg. This was in April 1882"—(*Hume's Nests and Eggs*).

Eggs. Usually 2, sometimes 1; creamy white in colour. Hume mentions having got an egg with indistinct lilac markings. "Average measurement 59·3 × 48·2 mm."—(*Fauna of British India*).

Genus **HUHUA** Hodgson 1836.

"This Genus is distinguished from "*Bubo*" by the important character of the young having a perfectly distinct plumage, an exceptional case amongst Owls. The birds moult from the immature into the adult garb. The present type is further distinguished by having the irides dark brown instead of yellow and by the wing being more rounded; the 4th and 5th quills being longest; the inner claw is very large"—(*Fauna of British India*).

(295) Huhua nipalensis Hodgson.

THE FOREST EAGLE-OWL.

(*Fauna of British India*, 2nd edition, No. 1663.)
(*Fauna of British India*, 1st edition, No. 1170.)

Description—Male. "Length about 24" (21·5 to 27"); wing 17" (15·3 to 19"); tarsus 2·75"; bill from gape 2". Females are generally larger than males, and Himalayan birds than those from Southern India and Ceylon"—(*Fauna of British India.*)

"Bill yellow; irides brown; toes yellow; claws dusky at the end, pale at the base"—(*Fauna of British India.*)

"Lores, cheeks and ear-coverts greyish or brownish white; shafts and tips of lores and ear-coverts blackish brown; long pointed aigrettes blackish brown, the inner webs or sometimes the whole barred with white or buff; upper plumage throughout dark brown, the feathers barred, edged and mottled with buff, least and frequently not at all on the crown, back and smaller wing-coverts, most on the neck, scapulars and larger wing-coverts; sides of neck, outer scapulars and upper tail-coverts buff barred with brown, the scapulars forming a distinct buff band on each side; quills and tail-feathers dark brown with pale bars and tips, more distinct on the secondaries than on the primaries, the pale bars on the inner webs near the base, except on the middle pair of tail-feathers, very broad and nearly or quite white; lower plumage white, often tinged fulvous, the feathers broadly barred with dark brown; the subterminal bar on each feather forming a crescentic or heart-shaped spot"—(*Fauna of British India*).

Female. Similar to male.

Young birds are white or buff with crescentic dark brown bars on all feathers of both the upper and lower surface; the quills and tail-feathers as in adults. Even after a change of plumage (by a moult) the aigrettes are barred throughout at first and the dorsal feathers have more buffy bars and markings than those of older birds"—(*Fauna of British India*).

"Nilgiris, Malabar, Travancore"—(*Fauna of British India*).

Locality, habits, etc. Davison makes the following remarks:—"This grand Owl occurs sparingly on the Nilgiris confining itself to the larger sholas, so that the only time it is seen is when beating for big game, for, even after dusk, it seldom leaves the shelter of the jungle. Usually I found it singly, occasionally in pairs. It is a permanent resident on the Nilgiris. The native shikaris say that it continually kills hares, young jackals and young muntjac."

Major Phythian-Adams writes:—"I shot 4 when beating sholas near Ootacamund in September 1927. It is considered very destructive to small game and a reward is placed on its head by the Nilgiri Game Association. Its flight is slow and heavy and it appears to see fairly well by day." Mr. Stuart Baker saw one bring down a roosting peafowl and another feasting on a big civet cat. He also disturbed one eating the remains of a tiger and one that of a goat. With regard to the note he writes:—"The usual note is a very deep mumble and when, as was often the case, a pair perched on my house-roof at night, the noise sounded just like two old men conversing in very deep tones. It also has a loud caterwaul—a single note very seldom used but very piercing"—(*Fauna of British India*).

"One used to come every evening to the pigeon-house of a friend of mine and take out the birds. It is also known to enter villages at night and take off stray cats"—(*C.M.I.*).

Breeding season. "In Travancore Stewart found it breeding in December and January"—(*Fauna of British India*).

Nest. "It lays.....in some natural hole in a big tree in a hollow between the main boughs, an old eagle's nest or on the ground or in some cave in a cliff or bank"—(*Fauna of British India*).

Eggs. Usually 1; dull white. "Average measurements 61·2 × 49·9 mm."—(*Fauna of British India*).

Genus **OTUS** Pennant 1769.

"The Scops Owls are of small size, and furnished with aigrettes usually of considerable length. The head is rather large, the nostrils round and pierced in the anterior margin of the cere which is slightly prominent. The wings are long but vary much in shape, being far more rounded in some species than in others; the tail is moderate in length and rounded at the ends. The tarsus is feathered more or less completely. The plumage of the young differs from that of the adults.

All species of *Scops* are thoroughly nocturnal and generally make their presence known in the dusk of the evening after nightfall by a peculiar monotonous monosyllabic or dissyllabic call repeated at regular and rather long intervals, generally from inside a bush or tree with thick foliage"—(*Fauna of British India*).

(296) Otus bakkamœna bakkamœna Penn.

THE CEYLON COLLARED SCOPS OWL.

(*Fauna of British India*, 2nd edition, No. 1666.)
(*Fauna of British India*, 1st edition, No. 1178 (part).)

Description—Male. Length 8″; wing 5·5 to 6·4″; tail 2·2″; tarsus 1·2″.

Bill horny; cere yellowish; feet dirty yellow; irides brownish-yellow or dark-brown.

At the base of the upper mandible a large tuft of bristly whitish feathers with dark-brown tips, the feathers in front of the eye whiter and not so bristly; ear tufts, lores and above eye whitish, the former spotted with black; top and sides of head and neck grey minutely peppered with brown, some of the feathers with buff tips and brown spots; occiput and hind neck dark-brown with a few minute buffy spots; ruff white or buff edged dark-brown; upper plumage grey-brown with dark brown shaft-stripes to some of the feathers, also some buffy markings, all with very narrow and close wavy transverse bars of darker brown; the edges of the primary coverts with large whitish-buff spots; quills brown with whitish and buff spots or interrupted bars on the outer webs, and pale brown ones on the inner webs, all freckled towards the tip; chin whitish, the feathers bristly at the tip and curving upwards over the lower mandible; throat and a demicollar extending to the ears pale buff with numerous red-brown narrow bars; plumage below white to rich buff, some of the feathers with narrow dark-brown shaft-stripes and all with very narrow, close, wavy brown

transverse bars; leg-feathers white with the same narrow brown transverse bars; flanks pale rufous with the tips freckled with brown. Some birds are more rufous than this.

Female. Similar to male.

Locality, habits, etc. "South India as far North as the South Konkan and Madras"—(*Fauna of British India*). "Except in some parts of Travancore, where Bourdillon and Stewart found it very common, it seems to be rather a scarce bird"—(*Fauna of British India*).

Nocturnal in habits. It frequents compounds, edges of forests, etc. It has, says Stuart Baker, several notes, one a soft "too-who" and the other "a loud hissing note, expressing rage and a low growl of defiance when disturbed on the nest. Its flight is swift and silent but often dipping. It feeds principally on insects but also on mice, bats and small birds."

Breeding season. "December to March"—(*Fauna of British India*).

Nest. "Holes in trees and buildings"—(*Fauna of British India*).

Eggs. 4 or 5: white and round; "average measurements, 31·8×27·0 mm."—(*Fauna of British India*).

(297) Otus scops rufipennis (Sharpe).

THE SOUTHERN INDIAN SCOPS OWL.

(*Fauna of British India*, 2nd edition, No. 1678.)
(*Fauna of British India*, 1st edition, No. 1173 (part).)

Description—Male. "Wing 122 to 135 mm.; tail 52 to 62 mm.; tarsus 25 to 26 mm.; culmen 17 to 18 mm."—(*Fauna of British India*).

Bill brownish horny, tip of lower mandible yellowish; irides yellow; feet fleshy brown.

Upper plumage ashy more or less tinged with rufous, the shafts black and the whole vermiculated with black and speckled with white; facial disc mixed white and brown; lores white tipped black; wings more rufous, if anything, than the remainder; the outer webs of outer scapulars rufous white tipped with black; wing-coverts spotted with either white or buff; quills barred with brown, the outer webs with white or buff spots; tail barred and vermiculated with brown; lower plumage grey tinged with buff but lighter than back, and whiter on abdomen, all stippled with brown and banded with white interrupted by broad black shaft-streaks, narrower on abdomen than on breast.

Female. Similar to male.

Locality, habits, etc. "West Coast to South Travancore; the Carnatic from Madras Southwards"—(*Fauna of British India*).

This species has been procured by Davison from the Sigur Ghat on the Nilgiris, and Jerdon obtained it at Madras and saw specimens from Malabar and Travancore, but it is not mentioned from the latter place by Ferguson. He (Jerdon) also obtained others from the Eastern Ghats near Nellore and from the Western Ghats. He likens its call to a "low mild hoot." Dewar also mentions it in his List of Birds in and about Madras. This bird is insectivorous.

Eggs. Mr. Daly took eggs on the Shevaroy hills.

Genus **ATHENE** Boie 1822.

"The members of this genus are of small size, the wing rarely, if ever, exceeding 7" in length, and all are more or less spotted with white on the upper surface, never barred. The cere is swollen, and the nostril is a round orifice near the anterior margin. There is no distinct ruff, and the facial disc is scarcely recognizable. The wings are rounded ; the 3rd quill longest (4th exceptionally), the 1st shorter than the 5th and not shorter than the 8th. Tail moderate ; tarsus feathered ; toes clad above with feathers or bristles"—(*Fauna of British India*).

(298) Athene brama brama (Temm.).

THE SOUTHERN SPOTTED OWLET.

Plate XIV.

(*Fauna of British India*, 2nd edition, No. 1683.)
(*Fauna of British India*, 1st edition, No. 1180 (part).)

Description—Male. Length 8 to 9" ; wing 6 to 12" ; tail 2·75 to 3" ; tarsus 1·25" ; bill from gape ·5".

Bill greenish-yellow ; irides bright yellow ; feet dirty yellow, the bristles on toes white ; leg-feathers fulvous-white ; claws plumbeous.

Forehead, lores and supercilium white, upper plumage earthy-brown, each feather with two white spots, small on head and nape, larger on back and wings. Chin white ; lower plumage white broadly barred with brown, the barring decreasing till it becomes obsolete on under tail-coverts.

Female. Similar to male.

Locality, habits, etc. Found abundantly everywhere on the plains except in thick jungle, but does not ascend the hills to any height. It frequents clumps of trees, or single trees if shady enough, roofs of buildings, etc., whence it issues forth in search of food at sunset, perching upon small trees, gates, walls, stumps, in fact, anywhere from whence it can dart down upon its prey which consists of mice, lizards, beetles and insects. Its call may be rendered by the word *witch-oo, witch-wo*, repeated rapidly and often for some length of time ; one bird starts the cry and the others near by take it up, so much so that where the birds are plentiful the noise they make is a perfect nuisance.

It does not mind the sun as I have seen it early on a hot April afternoon sunning itself with outspread wings on the gravel in front of my bungalow and have often seen it seated on the rafters or on a sambhar's antlers in the verandah during the day time from which it used to launch itself out to a neighbouring tamarind tree. Its flight is undulating.

Mr. S. O. Allen notes having seen it hover and when settled it assumes a terrifying attitude, on seeing anybody, sitting up erect and bobbing up and down and glaring at the intruder.

Mr. Stuart Baker has found it catching bats on tne wing and pulling them out of their holes ; and I have seen it hawking termites. Col. Butler records a pair having apparently killed a Rose-ringed Paroquet (*P. k. manillensis*) on its nest and taken possession of the hole.

Jerdon says this Owlet is used by some shikaris to catch small birds, being pegged out and surrounded with bird-limed twigs ; but this seems rather improbable as these Owlets are not usually molested by birds.

Breeding season. February to April.

Nest. In holes of trees and buildings, in roofs of houses, often on the top of the pillars of one's verandah. Sometimes "in holes in banks and rocks"—(*Fauna of British India*).

Eggs. 2 to 4, usually 3 ; white ; "average measurement, 31·6×27 mm."—(*Fauna of British India*).

Genus **GLAUCIDIUM** Boie 1826.

"This genus differs chiefly from *Athene* in having a more rounded wing and the first quill much shorter, it being the shortest of all the primaries ; the 4th is generally the longest, but is occasionally exceeded by the 5th and the 3rd. All the Indian species too are well distinguished by having the upper surface barred instead of spotted. The cere is swollen and the nostrils tubular ; the tarsus feathered and the toes provided above with bristles"—(*Fauna of British India*).

(299) Glaucidium radiatum radiatum (Tickell).

THE JUNGLE OWLET.

(*Fauna of British India*, 2nd edition, No. 1694.)
(*Fauna of British India*, 1st edition, No. 184 (part).)

Description—Male. Length 8" ; wing 5·25" ; tail 2·75" ; tarsus 1". Bill yellowish-horny ; irides bright yellow ; legs yellow.

Above dark-brown barred with close rays of rusty on head and back ; lores and eyebrow white ; lower back whitish ; tail blackish, narrowly barred with white ; wings bright rufous barred dusky brown ; the greater coverts and scapulars with large white spots on the outer webs. moustachial streak, chin and throat, and under tail-coverts white ; rest of lower plumage barred dusky and white except the breast which is barred dusky and rufous.

Female. Similar to male.

Locality, habits, etc. "Specimens from the Nilgiris, possibly obtained at considerable elevations, seem to be of this race"—(*Fauna of British India*).

Found sparingly in deep jungle and thick groves, seldom in gardens. Like *A. c. brama* it is a noisy bird and, according to Jerdon, keeps up its chattering by day as well as by night.

Breeding season. "Over the greater part of its range," it lays in April and early May"—(*Fauna of British India*).

Nest. In holes in trees in forest.

Eggs. 2 to 4, white ; "average measurement, 31·5×6·8 mm."—(*Fauna of British India*).

(300) Glaucidium radiatum malabaricum (Sharpe.)

THE MALABAR JUNGLE-OWLET.

(*Fauna of British India*, 2nd edition, No. 1695.)
(*Fauna of British India*, 1st edition, No. 1184 (part).)

Description. "Differs from the preceding bird in being much darker and much more rufous ; the most Southern birds and are not only much more rufous than any Northern birds but are also darker and richer in colour both above and below ; the least rufous birds, though perhaps but little more rufous than the most rufous specimens from the North, also differ in this respect"—(*Fauna of British India*).

"Wing 120 to 133 mm. ; tail 64 to 70 mm. ; tarsus about 24 to 27 mm. ; culmen,—15 to 16 mm.,—17 to 18 mm."—(*Fauna of British India*).

Locality, habits, etc. "South India"—(*Fauna of British India*).

Habits the same as the last species.

Davison says it "ascends the hills up as high as Coonoor where I shot it. It seems to see well in the day time. It is more common on the lower slopes and at the foot of the hills . . . I have seen 4 or 5 perched on the telegraph wire opposite the bungalow at Seegore. It makes its appearance in the evening, a little later than *brama* and retires, as a rule, earlier, though in a very shady grove of trees or bamboos. I have seen it on the move till quite late. It feeds on locusts, lizards, etc."

Breeding season. "Breeds in Travancore and Southern India in February, March and less often, April"—(*Fauna of British India*).

"Mr. J. Darling, junior, found a nest at Coonoor on 12th March 1870 and Mr. Joe Macpherson took nests in Mysore on 19th and 20th March 1880. A clutch of eggs in my collection were taken by Mr. Stewart in Travancore on 17th January 1907"—(*C.M.I.*).

Nest. Mr. Darling's nest was in a hole in the trunk of a tree, in rather open jungle, the hole was about 6" in diameter and 28" deep ; the eggs were laid on some soft wood-scrapings. Mr. Macpherson's nests were found in holes in trees at heights varying from 12 to 20 feet from the ground.

Genus **NINOX** Hodgson 1837.

"Facial disc quite obsolete ; the wings are longer and more pointed than in *Athene* or *Glaucidium*, the third or fourth quill longest, the first about as long as the seventh. The tail is slightly lengthened and rounded at the end. The cere is swollen with the nostril close to the anterior margin. Tarsus feathered, upper surface of the toes thinly furnished with bristles"—(*Fauna of British India*).

(301) Ninox scutulata hirsuta Temm.

THE SOUTHERN INDIAN HAWK-OWL.

(*Fauna of British India*, 2nd edition, No. 1702.)
(*Fauna of British India*, 1st edition, No. 1187.)

Description—Male. "Wing 188 to 208 mm. ; tail 112 to 119 mm. ; tarsus about 28 mm. ; culmen about 22 mm."—(*Fauna of British India*).

Bill black, yellowish on culmen ; cere greenish ; irides bright yellow ; legs yellow or yellowish-green.

General colour above brown, with a rufous tinge on back ; head, darker than the back and more slaty-brown ; lores, and forehead white with black bristles ; scapulars with white patches on centres of feathers ; primaries brown marked paler ; secondaries with inner webs strongly marked ; tertiaries barred white ; wing-coverts and axillaries white or buff profusely barred with dark brown ; tail grey-brown with whitish tip and fine dark brown bars. Chin white, neck fulvous, streaked with brown, rest of lower plumage white with rich large red brown heart-shaped drops on abdomen and flanks. Under tail-coverts white.

Female. Similar to male.

Locality, habits, etc. "Travancore. Birds from Madras and Malabar are not quite so dark in most cases as Ceylon birds but is certainly nearer to it than to typical *lugubris* and may conveniently be retained with the present form."

Ferguson says it is not uncommon in the Travancore Hills. It is generally found in jungles and thick groves and is inclined to be rather shy. It has various cries. Davison writes that "nearly every night while in the Wynaad and also on the Brahmagerries I heard a *Ninox*."

Breeding season. "In Travancore Bourdillon took eggs in February, March and April but says they may be found a month earlier and a month later"—(*Fauna of British India*).

Nest. Holes in trees.

Eggs. "Probably 3 to 4 ; white : 2 eggs taken by Bourdillon measure 34·3 × 31·5 and 35·3 × 31·0 mm."—(*Fauna of British India*).

Order ACCIPITRES.

"In the *Accipitres*, the bill is strong, the upper mandible considerably longer than the lower, with the culmen much curved so that the end is hooked and the tip perpendicular; the basal portion is covered with a membrane or cere in which the nostrils are pierced. The feet are strong and furnished with powerful claws. A hallux is always present and there is a tufted oil-gland. The spinal feather-tract is well defined on the neck. There are always 11 primaries. The *flexor longus hallucis* leads to the hallux and the *flexor perforans digitorum* to the other three digits, but the two tendons are united by a fibrous vinculum. The ambiens muscle and the femoro-caudal are present, the accessory femoro-caudal, semi-tendinosus and the accessory semitendinosus are absent. The posterior border of the sternum is not notched but there is sometimes a foramen on each side within the border. There are no basipterygoid processes and the palate is desmognathous. Both carotids are present and there are cæca of the intestines. The nest is generally of sticks and is placed on a tree or rock. The young are hatched helpless and covered with down; they remain in the nest a considerable time. The female throughout the order is always larger than the male"—(*Fauna of British India*).

Family PANDIONIDÆ.

". . . Every genus of the *Falconidæ*, as restricted by Blanford has . . . an after-shaft to the feathers and the absence of this character in *Pandion* may suffice to retain it for the present in its family status. It seems to form a link in some respects between the Owls and the true *Falconidæ*"—(*Fauna of British India*).

Genus **PANDION** Savigny.

"Bill moderate with the tip produced and much hooked; festoon variable; nostrils small, narrow, oblique; wings long and pointed; third quill longest, extending beyond the end of the tail which is nearly even. Tarsus short, stout, reticulated without scutation; toes with scutæ above only near the ends, covered with prickly scales beneath; claws rounded beneath, much curved, sub-equal in size"—(*Fauna of British India*).

(302) Pandion haliaëtus haliaëtus (Linn.).

THE OSPREY.

(*Fauna of British India*, 2nd edition, No. 1704.)
(*Fauna of British India*, 1st edition, No. 1189.)

Description—Male. Length 23·2″; wing 18·6″; tail about 9″; tarsus 2·2″; bill from gape 1·65″.

Bill black; cere, gape, base of lower mandible and loral region leaden-blue; irides bright yellow; legs and feet pale greenish.

Head and neck white; forehead and crown and a few of the lanceolate feathers of the nape with brown shaft-streaks and tips; a broad brown band from behind the eye down the side of the neck; upper plumage brown; quill blackish-brown; tail like back, inner webs barred white or pale brown; lower plumage white, except the breast which has some brown feathers and others white with broad brown shaft-streaks.

Female. Similar to male but larger.

"In the young the dark feathers of the dorsal surface are pale-edged, the tail is more closely and more distinctly barred and the breast either unmarked or only slightly spotted with brown"—(*Fauna of British India*).

Locality, habits, etc. Found principally along the coast during the cold weather but may also be seen flying round any large piece of water such as lakes or large rivers where on spying a fish it drops down on it making a great splash, often being quite submerged in the water; on rising it shakes itself and makes off with its booty. It is able to catch fish of considerable size and has been known to be drowned when it failed to extricate its claws from a very large fish. Ferguson says of it (in Travancore): "A cold weather visitor to the lakes near the coast where specimens from time to time may be seen dropping into the water causing a great commotion." Jerdon states that "*Haliaëtus leucogaster*" frequently robs it of its well-earned prey.

Nest. Nests have been found in the Himalayas.

Eggs. Average measurement 2·4″ × 1·75″.

Family ÆGYPIIDÆ.

"Head and neck more or less bare or only clothed with short, stubby down; never any true feathers on crown of head"—(*Sharpe*).

"Vultures have the crop covered with short feathers and generally a more or less distinct elongate ruff round the neck at the end of the naked portion. The bill (except in *Neophron*) is strong, deep and compressed, with the culmen much curved; the tip is always hooked and the cere large and horny. There are 15 cervical vertebræ, or one more than is usual in *Falconidæ*. The wings are long, tail-feathers 12 or 14 with strong shafts that owing to wear always project at the ends. The tarsi are partly feathered, the naked portions covered with granular scales, with larger transverse scutæ on the distal phalanges of the toes; the inner and outer toes are sub-equal and the middle and outer united by a membrane; claws blunt, not much curved"—(*Fauna of British India*).

Genus **SARCOGYPS** Lesson 1832.

"Head and neck bare without any down in adults; a wattle of skin on each side of the neck behind the ear; ruff very small; bare neck extending further down than in *Ægypius*, to which genus the present is very similar"—(*Fauna of British India*).

(303) Sarcogyps calvus (Scop.)

THE BLACK, OR PONDICHERRY VULTURE.

(*Fauna of British India*, 2nd edition, No. 1706.)
(*Fauna of British India*, 1st edition, No. 1191.)

Description—Male. "Length 30 to 33″; wing 22·5 to 24″; tail 9·8 to 11″; tarsus 4·3 to 4·6″; bill from gape 2·6 to 3″"—(*Barnes*).

"Bill black; cere naked; head and neck deep yellowish red, more or less spotted with black; irides red-brown; legs dull red"—(*Barnes*).

"Dark brown-black, lighter on lower back and rump, brownish on scapulars and some of the secondaries; quills black; tail black shaded with brown; crop-patch black; a zone of white downy feathers across

the breast; beneath deep black; inner side of thighs bare, with a patch of white above the joint "—(*Barnes*).

Female. Similar to male.

Locality, habits, etc. Met with on the Nilgiris especially during the cold weather when it may be seen circling at a great height from the ground and at the same time uttering a frequent whistling sort of cry. It has also been obtained on the Palnis. Ferguson writes re: Travancore: "A single specimen of this fine vulture was sent to me alive from Colasagram, a locality close to the hills in South Travancore." Dewar also includes it in his "List of Birds around Madras." Davison found it feeding on the putrid remains of a dog or jackal in a heavily wooded shola where it was impossible for the carcase to have been visible at any height.

Davison writes: "As Vultures count this species is not abundant on the Nilgiris for when perhaps as many as 40 or 50 other Vultures may be congregated near a body only 2 or 3, seldom indeed as many as half a dozen, of this species will be found with the mob. At other times they are met singly or in pairs."

Breeding season. December to March.

Nest. Large structure of sticks situated high up in peepul, banyan or simul trees. Never more than one nest on a tree.

Eggs. 1 only; of a dirty white or greenish-white colour; average measurement 3·23″ × 2·53″.

Genus **GYPS** Savigny 1809.

"The head is narrower and the bill longer than in *Sarcogyps*; the naked neck is longer and there is a well-marked ruff at the base of the naked portion. The nostril is very narrow and vertically (transversely) or obliquely elongate. This genus, too is distinguished from the other Vultures by having 14 tail-feathers "—(*Fauna of British India*).

(304) Gyps indicus indicus (Scop.)

THE INDIAN LONG-BILLED VULTURE.

(*Fauna of British India*, 2nd edition, No. 1710.)
(*Fauna of British India*, 1st edition, No. 1194.)

Description—Male. "Length about 38″; wing 23″; tail 11″; tarsus 3·75″; mid-toe without claw 3·9″; bill from gape 2·8″"—(*Fauna of British India*).

"Bill and cere pale greenish, yellowish horny on culmen; irides brown; bare skin of head and face dusky ashy leaden; legs and feet the same; claws creamy horny "—(*Hume*).

"Short brownish white hair-like feathers thinly sprinkled all round the head and on the nape; upper half of back and sides of neck and all the front with small tufts of white down scattered over them; ruff disintegrated, soft and white; back pale brown, upper wing-coverts still paler, all the feathers palest on their edges; lower back and rump brown with broad white borders to the feathers, sometimes whitish throughout; upper tail-coverts darker brown, pale-edged; larger wing-coverts and scapulars the same; quills and tail-feathers blackish brown; crop generally uniformly dark brown, but sometimes light brown or even white; lower parts whity brown with indistinct broad pale shaft-stripes "—(*Fauna of British India*).

Female. Similar to male.

"The young has the head and nape more thickly clad than in the adult ; a ruff of long lanceolate feathers whitish with brown edges at each side ; upper back, smaller scapulars and wing-coverts dark brown, with narrow whitish shaft-stripes ; lower back and rump whitish ; quills and tail nearly black ; crop brown ; abdomen and under wing-coverts light brown with broad whitish shaft-stripes"—(*Fauna of British India*).

Locality, habits, etc. Davison says it is not very common on the Nilgiris, and, according to Jerdon, "breeds on some of the cliffs on their Northern face and also on the cliffs bounding the valley in which are situated the celebrated caves of Ajunta." This Vulture has also been noted from the Palnis.

Ferguson says, in Travancore : "This is apparently a rare bird ; a live specimen was brought from Nagercoil and this is the only locality where it has been obtained in Travancore."

Breeding season. December to February.

Nest. According to Hume, they always breed in society and the nest, placed on some ledge of the cliff face, consists only of coarse sticks and twigs. When the eggs are first laid there may be some lining of leaves.

Eggs. 1 egg only is laid, greenish-white, or greenish-white blotched and mottled with reddish brown, in some eggs the markings being very rich. Hume gives the average as 3·61″ × 2·72″.

Genus **PSEUDOGYPS** Sharpe 1873.

"This genus is distinguished from *Gyps* by having 12 tail-feathers like other vultures instead of 14"—(*Fauna of British India*).

(305) Pseudogyps bengalensis (Gmel.).

THE INDIAN WHITE-BACKED VULTURE.

(*Fauna of British India*, 2nd edition, No. 1713.)
(*Fauna of British India*, 1st edition, No. 1196.)

Description—Male. "Length about 35″ ; tail 10″ ; wing 23″ ; tarsus 3·75″ ; mid-toe without claw 3·5″ ; bill from gape to point 2·75″"—(*Fauna of British India*).

Cere and lower mandible brown ; upper mandible horny yellow with the tip, margins and near the cere brown ; iris brown ; legs and feet black.

Head and neck blackish brown, covered with brownish yellow hairs, sparse on the sides and giving place to small feathers towards the base of neck. A dirty white ruff behind the neck joining the white downy patch on each side of the crop ; the latter is black. Upper back, tail and primaries brownish black ; lower back, rump, a patch on each side of breast, and inside wings and on the thighs white. Secondaries with the outer webs greyish brown. Lower plumage blackish brown with dirty white shaft-streaks.

Female. Similar to male.

Young. "Head and neck much covered with down, whitish above, brownish and thinner below ; ruff of whitish lanceolate feathers with brown edges ; plumage generally dark brown ; primaries and tail-feathers blackish ; wing-coverts with narrow, breast and abdomen with

broad, whitish shaft-stripes ; no white on back, flanks or wing-lining ; a white down border to the brown crop-patch "—(*Fauna of British India*).

Locality, habits, etc. Common everywhere inland, but we have not noticed it along the sea-coast ; it chiefly frequents the outskirts of towns and villages, feeding on dead animals and garbage thrown on refuse heaps.

Breeding season. Winter months.

Nest. Of sticks, lined with leaves, placed on trees ; usually in company but not invariably so. Jerdon states that it breeds by preference on rocky cliffs but not unfrequently on large trees. "The nest appears to be increased as the young grow older "—(*C.M.I.*).

Eggs. 1 egg only is laid, of a yellowish white colour ; average measurement 3·44″ × 2·51″. Hume gives the average of 68 eggs as 3·26″ × 2·42″.

" The eggs vary a lot in shape from a more or less pear shape to very broad ovals almost spherical, and in colour either dullish white unmarked or speckled all over with light reddish-brown ; one egg is capped with this colour at the thin end others have the markings more confined to the thick end; others again are more or less heavily blotched at the thick end. The colour of the blotches, etc., vary in shade, some being much paler in tone than others "—(*C.M.I.*).

Genus **NEOPHRON** Savigny 1809.

" Bill slender, lengthened, the culmen straight at first, greatly hooked at the tip ; cere very long ; nostrils elongate, horizontal ; crown and sides of head, chin, throat and upper fore-neck naked, neck surrounded by ruff of hackles which extend to the nape and round all the lower part of the neck ; crop-naked ; wings long, pointed, the third quill longest ; tail wedge-shaped. Third and fourth toes much united at the base by a membrane ; claws sharper than in other Vultures "—(*Fauna of British India*).

(306) Neophron percnopterus ginginianus (Lath.).

THE SMALLER WHITE SCAVENGER VULTURE.

(*Fauna of British India*, 2nd edition, No. 1715.)
(*Fauna of British India*, 1st edition, No. 1197.)

Description—Male. Length about 24″ ; wing 18·25″ ; tail 9·5″ ; tarsus 3·1″ ; mid-toe without claw 2·5″ ; bill from gape 2·4″.

Bill fleshy ; irides dark brown ; legs dirty yellow ; cere, facial skin and behind the eye deep ochraceous ; throat and rest of face paler yellow.

Head, except the nape, and throat bare. Plumage dirty white, except the primaries which are black, and the outer webs of the secondaries which are greyish-brown.

Female. Similar to male.

Young. Plumage brown tipped with dirty white ; wing-coverts and tail more broadly tipped than the rest ; back and rump mixed brown and white ; primaries black ; neck and breast blackish, some of the feathers of the latter tipped with dirty white ; remainder of lower plumage browner than the breast and more distinctly tipped ; thigh-coverts paler and broadly tipped with dirty white.

"In young birds, the bill is dark ; the naked parts of head and throat grey ; legs and feet cinereous "—(*Fauna of British India*).

Locality, habits, etc. Very numerous in most places on the hills and plains, but curiously enough we have not seen it along the sea-coast. It haunts the outskirts of cantonments and villages, and is sure to be found in numbers, together with the common Pariah Kite, in military camps : its food consists of human excreta and garbage of any kind.

Breeding season. December to February.

Nest. Of sticks and rubbish, sometimes lined with old rags, papers, etc., placed on cliffs, trees or even buildings.

Egg. 2 usually ; of chalky texture, reddish-white profusely blotched with red-brown. "I have eggs varying from creamy-white with only a few reddish-brown specks at the thick end, uniform brownish-red, deep *café-au-lait* capped with the same colour but deeper in tone, to pinkish-white faintly blotched with brownish-red ; others with the thick end almost wholly rich brownish and the remainder blotched and spotted with the same colour, but much lighter. Average measurement 2·50″ × 1·95″. If a single egg is laid and is taken, the birds will not desert the nest ; I once robbed a nest of an addled egg and the bird sat close by, making a wailing cry "—(*C.M.I.*).

Family FALCONIDÆ.

"They are distinguished from the Osprey by having the body-feathers provided with an after-shaft, and from the Vultures by having the head and neck feathered. Throughout the family there are 12 tail-feathers and 14 cervical vertebræ. Nearly all are carnivorous, a few of the smaller species being insectivorous partly or wholly, and the majority capture living prey ; the hair and feathers of the prey if not removed before eating, are cast up with the bones in the form of pellets. As a rule birds of this family are solitary and all are monogamous "—(*Fauna of British India*).

Sub-family FALCONINÆ.

"Claws sharp ; bill not lengthened ; no bristles on chin "—(*Fauna of British India*).

Genus **FALCO** Linn., 1758.

"The bill is stout and strongly toothed inside the hooked tip, often with a blunt festoon behind the tooth ; the nostril is circular with a centre tubercle ; tarsus about equal to middle toe without claw, or a little shorter, the upper part plumed in front, the naked portion covered with small hexagonal scales ; the toes very long covered with transverse scales above ; claws curved and sharp. The tail is of moderate length, well rounded at the end. The wing in the Peregrine and Shahin . . . is pointed, the 2nd quill longest ; the first exceeding the third ; but in *F. jugger* . . . the first and third quills are sub-equal . . . In the Peregrine and its allies the first primary alone has a notch on the inner web, but the second primary is occasionally notched in *F. jugger*. In these characters of the wing the Hobbies resemble the Peregrine "—(*Fauna of British India*).

(307) Falco peregrinus calidus Lath.

THE EASTERN PEREGRINE FALCON.

(*Fauna of British India*, 2nd edition, No. 1718.)
(*Fauna of British India*, 1st edition, No. 1254.)

Description—Male. Length 16·3″ ; wing 12·5″ ; tail 6″ ; tarsus 2″ ; bill from gape 1·15″ ; mid-toe 2·2″.

Bill bluish, yellow at base and black at tip ; cere and orbits yellow ; irides brown ; legs and feet yellow.

Upper plumage deep bluish-grey, darker on head and broad cheek stripe ; rump and upper tail-coverts lighter. Forehead greyish-white ; primaries blackish-brown barred with white on the inner webs ; secondaries greyer ; tail grey banded with greyish-black and tipped with white ; from chin to breast white slightly tinged rufous ; breast and centre of abdomen the same but with some heart-shaped black spots ; remainder of lower plumage and under wing-coverts the same but barred instead of spotted with black.

Female. Similar to male but larger ; "Length about 19″ ; wing 14·5″ ; tail 7·5″ ; tarsus 2·1″ ; mid-toe without claw 2·25″ ; bill from gape 1·3″."

Young birds are very dark brown above, the feathers edged with rufous, the buff bases of the feathers showing about the nape ; the tail-feathers with about six transversely oval spots on each web forming imperfect cross-bars ; primaries as in adults ; cheek-stripe narrower ; lower parts white, buff or rufescent, spotted except on the throat with broad brown elongate median stripes, becoming broad spots on the flanks."

"After the first moult, Peregrines are brownish grey above and gradually acquire a pure slaty grey back. The spots and bars on the lower parts are much broader at first and grow smaller and narrower with age ; the drops on the breast become narrow lines and ultimately disappear altogether ; the bands fade off the under tail-coverts and in very old birds only small scattered specks remain on the abdomen and triangular markings on the thigh-coverts. The general tint of the lower surface varies from almost white to light rufous"—(*Fauna of British India*).

Locality, habits, etc. Davison saw this species close to Ootacamund so it is found both in the hills and low country, but as a cold weather visitor only. It is met with in the vicinity of the sea-coast, jheels, or rivers where it preys on Duck, Teal and other water-birds as well as on Partridges, etc. Falcons strike their prey with the hind claw which will often rip up the back of a Duck. Jerdon says these birds are trained to strike Egrets, Herons, Storks, Cranes and sometimes Bustards.

Hume remarks that it has been killed in the Wynaad near Sultan's Battery.

Breeding season. It breeds in Europe and Northern Asia principally in March and April ; Layard however found it breeding near Jaffna in Ceylon.

(308) Falco peregrinus peregrinator Sund.

THE SHAHIN FALCON.

(*Fauna of British India*, 2nd edition, No. 1719.)
(*Fauna of British India*, 1st edition, No. 1255.)

Description—Male. "Length 15″ ; wing 11·5″"—(*Fauna of British India*).

Bill light plumbeous, dark on culmen and tips of both mandibles; irides dark brown; cere and orbits pale bluish-yellow; legs chrome-yellow; claws horny.

Head and broad cheek-stripe almost black, some of the nape feathers banded with rufous; remainder of upper plumage slaty, paler on rump; chin to breast white; remainder of lower plumage and lower wing-coverts deep rufous; the flanks are narrowly barred.

Female. Similar to male; length 17·3″; wing 13·15″; tail 7·9″; tarsus 2·2″; bill at gape 1·25″.

"In **young** birds of the year the whole upper plumage is almost black, the feathers at first having rufous edges which soon disappear by wear; there is some rufous on the nape; the tail is marked with transverse oval rufous spots as in the Peregrine but they are more numerous; the chin and throat are pale rufous, unspotted; the breast and abdomen marked with longitudinal drops, but the lower abdomen is sometimes unspotted"—(*Fauna of British India*).

Locality, habits, etc. Occurs sparsely in the Presidency. Davison says it is rare on the Nilgiris he saw one between Neddivattam and Goodalcheri and Ferguson records only one specimen from Travancore, where Jerdon also shot one. As regards its habits, Jerdon's remarks are so interesting that we transcribe part of them :—"Its habitual resorts are high rocky hills in the neighbourhood of jungle and forest land, whether in low or mountainous country, though the latter is always preferred. If a denizen of a forest it watches on some lofty tree at the skirts of a glade, or hovers over it, ready to pounce on any unlucky bird that ventures to cross. In more open country it is necessitated to take a wider circuit in search of its prey and is of course much more on the wing . . . This Falcon destroys large quantities of game, Partridges Quails, etc., and is said to be very partial to Parroquets . . . . The Shahin is usually trained to stoop at Partridge and Florikin (*Otis aurita*) also occasionally at the Stone Plover (*Œdicnemus crepitans*) and the Jungle-fowl." It is considered a superior bird for falconry to the Peregrine.

Mr. Stuart Baker writes some most interesting notes in the *Ibis of* 1917, *pp.* 224 *to* 233 on the breeding of this Falcon in North Cachar and the Khasia Hills. He found that "each pair of Shahins had at least two nesting places and laid sometimes in one nest and sometimes in the other, but we would not find out any hard and fast rule which governed their actions. Sometimes they would breed two years running in one nest, whilst at other times they would use a nest for the one year only. In the same way they would sometimes lay a second clutch in the same nest as that from which the first had been robbed, and sometimes they would go straight to their second eyrie and commence to repair it. One pair of birds had their two nests within about 200 yards of one another and on ledges in the same cliff, but the other pair had their two eyries at least half a mile apart . . . all the Shahin's nests I have seen, altogether eight in number, have been built on ledges of rocks on very precipitous, rugged cliffs and, with one exception, inaccessible except with the aid of ropes. As a rule they were not far from the top of the cliff but almost invariably protected from above by an overhanging ledge, boulder or clump of bushes . . . The nests themselves are as a rule, very large and though each year the birds seem to discard a certain amount of the old material, they add a more than corresponding amount of new, so that a very old nest becomes a bulky affair. One of

the Lailancote nests must have been nearly 3 feet across one way by about 2 feet the other, and measured a good two feet deep on the side next the cliff . . . The birds use a good many pliant twigs, sometimes with the leaves still adhering, as a sort of lining, but the bulk of the nest itself is composed entirely of small sticks from one to two feet in length and about the thickness of a stout lead pencil. A few shorter sticks are also worked into the base of the nest and often old bits of rubbish such as skins, wool, large feathers and roots are also made use of. In the series of eggs in my own collection almost every type of colouration found in Peregrine's eggs is represented except the practically uni-coloured egg with a brick-red ground and scarcely any marking . . . Fifteen eggs average almost exactly 2″ × 1·56″ . . . In the South where there is no real difference between summer and winter they lay in January and February . . . When killing small birds or bats they generally catch their stricken game before it falls to the ground, but Duck or Water-birds of greater weight are recovered from land or from the water into which they may chance to fall and are thence dragged to some convenient spot where they make a meal. I have seen the Shahin stoop at and kill both Jungle-fowl and Kalij Pheasants, and once saw one making a meal of a Javanese Owl (*Ketupa javanensis*) but whether it had killed it or not there was no proof. It certainly does not *always* kill its own food for I have seen one feeding on a Duck killed the previous day and missed by the beaters, but undoubtedly under ordinary circumstances it will not feed on anything it has not itself taken."

Breeding season. "January and February"—(*Stuart Baker*).

Nest. A large mass of sticks placed on the ledge of some large inaccessible cliff. Jerdon found an eyrie on the Nilgiris.

Eggs. The usual number appears to be 3 or 4; "they are brownish yellow to brick-red in colour, speckled and blotched with reddish brown, and they measure about 2″ × 1·63"—(*Fauna of British India*).

(309) Falco jugger Gray.

THE LAGGAR FALCON.

(*Fauna of British India*, 2nd edition, No. 1721.)
(*Fauna of British India*, 1st edition, No. 1257.)

Description—Male. Length 15·5 to 17″; wing 12·5 to 13″; tail 6·5 to 7·5″; tarsus 2″; bill from gape ·9″.

"Upper mandible bluish, tip slaty; lower mandible yellow, tip slaty; cere and legs yellow; irides brown; orbits yellow.

"Forehead and short supercilium white with dark shafts. Head and nape rufous with brown shaft-stripes. A stripe under the eye, the ear-coverts, moustachial stripe, hind neck and sides of neck, blackish-brown. Back, rump and upper tail-coverts ashy tinged brown, some of the feathers with narrow dark shaft-stripes. Wing-coverts brown, margined paler. Quills blackish brown with numerous large white spots on the inner webs; primary coverts grey edged brown and tipped white. Tail dusky ashy, the central feathers obsoletely barred pale rufous; the others barred pale rufescent white and tipped whitish. Plumage below white with red-brown elongate drops on the abdomen; sides of body and thigh-coverts almost entirely red-brown.

Female. "Similar to male: length about 18″; wing 14″; tail 8″; tarsus 2″; mid-toe without claw 1·8″; bill from gape 1·25″.

"**Young** birds are brown almost throughout; the chin and throat white, and some white on the forehead, sides of head, breast and lower tail-coverts; buff instead of white on quills and inner webs of tail-feathers. There is a gradual disappearance of the brown on the lower parts with successive moults"—(*Fauna of British India*).

"In the young, the cere is greenish-grey; legs and feet pale plumbeous to dull greenish-grey"—(*Hume*).

Locality, habits, etc. Blanford records it from Southern Madras, but Davison did not obtain it on the Nilgiris, nor did Ferguson obtain it in Travancore. Hume records it from Gudalupet in S.W. Mysore. We again quote Jerdon regarding its habits:—Whilst the Bhyri prefers the sea-coast and the neighbourhood of lakes, rivers and wet cultivation, and the Shahin delights in hilly and wooded regions, the Laggar on the contrary, frequents open dry plains and the vicinity of cultivation. . . . . In a wild state it preys on a great variety of small birds, often snatching up a chicken even in the midst of a cantonment. It is trained to hunt Crows, Paddy-birds, Night-herons, Partridges and Florikins, and, it is said, has been trained to kill the Heron (*A. cinerea*) . . . Laggars as well as Shahins, are always caught after they have left the nest, and have had some instruction by their parents, our native falconers considering them better than when taken from the nest."

Breeding season. January to March.

Nest. A stick nest sometimes lined with leaves, sometimes not, usually placed on a tree, but occasionally on a cliff. We have often found them in possession of the nests of Fishing-Eagles.

Eggs. 3 or 4; broad ovals in shape and glossless. The ground-colour varies from yellow-brown to red-brown, speckled and blotched either with a darker shade of the same colour, or with brick or blood-red. "I have one egg so densely freckled with deep brick-red that little of the ground-colour is visible"—(*C.M.I.*). Hume gives the average of 98 eggs as 2·01″ × 1·57″.

(310) Falco severus rufipedoides Hodgs.

THE INDIAN HOBBY.

(*Fauna of British India*, 2nd edition, No. 1729.)
(*Fauna of British India*, 1st edition, No. 1261 (part).)

Description—Male. Length 11″; wing 8·5″; tail 4·5″; tarsus 1·1″; bill from gape ·7″.

Bill plumbeous; cere, eyelids and legs reddish-yellow, claws horny; irides dark brown.

Head and neck including cheek-stripe black; remainder of upper plumage dark slaty; wings with large rufous spots on the inner webs; tail deep grey barred with black; chin, throat and sides of neck buffy-white, remainder of lower plumage deep rusty-red.

Female. Similar to male. Length about 11·5″; wing 9·8″; tail 4·75″; tarsus 1·35″; mid-toe without claw 1·35″; bill from gape ·9″.

"**Young** birds are brownish-black above, with light rufous edges, broadest on the secondaries, upper tail-coverts and tail feathers; a few rufous feathers scattered over the nape; breast, abdomen and under-wing-coverts deep rufous with black spots"—(*Fauna of British India*).

Locality, habits, etc. "The Hobby will kill birds as big as itself, and is a very bold little hunter, striking and swooping like the larger Hawks"—(*Stuart Baker*).

Davison thought he saw this species frequenting the rocks near Pykara on the Nilgiris. Mr. Ferguson says, writing of Travancore in the *Bombay Natural History Society Journal*, that it may be seen on the hills and occasionally in the low country in the cold season. Mr. T. F. Bourdillon writing to the same Journal, says :—"Though I have never taken the eggs, I have little doubt that the Indian Hobby breeds with us. A pair of birds one year frequented a piece of forest on a very steep slope, and though I was unable to find the nest at the time I afterwards found what I believe was their nest on a tree overhanging a precipice."

Breeding season. "The breeding season as with nearly all the birds of prey is early and probably extends from January to March."

Nest. "The eggs are deposited in the nests of other birds, repaired and lined afresh by the Hobbies themselves built on trees on the outskirts of heavy forest"—(*Fauna of British India*).

Eggs. Mr. Morris has three eggs taken in Travancore on March 7th, 1918. (*The Oologists Record, Vol. VI, No. 3, p. 55*). He gives the colour as :—"White ground colour sparingly marked with yellowish brown. Stuart Baker gives the measurements of three eggs as 41·4 × 30·2, 40·2 × 29·0 and 40·8 × 31·0 m.m,. respectively"—(*Fauna of British India*).

(311) Falco chiquera chiquera Daud.

THE RED-HEADED MERLIN.

(*Fauna of British India*, 2nd edition, No. 1730.)
(*Fauna of British India*, 1st edition, No. 1264.)

Description—Male. Length 11 to 12″; wing 8″; tail 4·75 to 5″.

Bill yellow, tip black ; cere and orbital skin bright yellow ; irides dark brown ; legs and feet orange-yellow, claws black.

Head, nape, neck and sides of neck, and a thin cheek-stripe rufous, remainder of upper plumage pale bluish grey ; tail pale grey with a broad black terminal bar and tipped white, cross-barred with dusky beneath ; plumage below white, unspotted on chin and throat, breast with a few black streaks ; flanks, vent and thighs barred with grey ; quills dusky with inner webs barred dusky and white.

Female. Similar to male but slightly larger.

Young birds have the head, nape and cheek-stripe dark rufous with dark central lines ; the plumage above pale grey with narrow cross-bars and markings ; tail as in the adult but barred dusky ; plumage beneath white, slightly tinged with rufous and with some streaks on neck and breast and bars on abdomen and thighs.

Locality, habits, etc. Hume says it has occurred at the base of the Nilgiris on the Bangalore Road ; Dewar records it from Madras ; it is, however, not given from Travancore by Bourdillon. We again pillage Jerdon for an account of its habits. He says :—It frequents gardens, groves of trees and even large single trees in the open country, whence it sallies forth sometimes circling aloft but more generally, especially in

the heat of the day, gliding with inconceivable rapidity along some hedgerow, bund of a tank, or across some field, and pouncing suddenly upon some Lark, Sparrow or Wag-tail. It very often hunts in pairs and I have now and then seen it hover like a Kestrel for a few seconds. It preys chiefly on small birds, especially the Social larks (*Coryphidea calandrella*), Sparrows and the Small ringed Plovers (*Charadrius*), also not infrequently on bats, which I have seen it seize on the wing just at dusk. It has a shrill angry scream, and is very courageous, driving away Crows, Kites and even the Wokhab (*Aquila fusca*) from the vicinity of its nest or perch." It is sometimes flown at the Roller (*Coracias indica*) which it follows most perseveringly.

Breeding season. January to May.

Nest. Of sticks lined with grass or roots, placed high up in a large tree.

Eggs. 4, brownish-red, either densely freckled or blotched with a darker red, and the average size, according to Hume, is 1·66″ × 1·27″.

Genus **ERYTHROPUS** Brehm 1828.

"The bill is intermediate in size and strength between *Falco* and *Cerchneis* and is notched as in *Falco*; the middle toe is fairly long, a little shorter than the tarsus and the lateral toes are about equal. The wing is long and pointed, the second primary longest and the first longer than the third; the tail is rather long and rounded but not so long and strongly graduated as in the Kestrels. Colour of sexes dissimilar"—(*Fauna of British India*).

(312) **Erythropus amurensis** (Radde).

THE EASTERN RED-LEGGED FALCON.

(*Fauna of British India*, 2nd edition, No. 1739.)
(*Fauna of British India*, 1st edition, No. 1262.)

Description—Male. Length 11·5″; wing 9″; tail 5″; tarsus 1·1″; mid-toe 1″; bill from gape 0·75″.

"Bill fleshy red with a dusky tip; cere deep orange-red; orbital skin orange-yellow; legs deep orange-red; claws flesh-coloured"—(*Jerdon*).

"Irides hazel"—(*Gurney*).

Adult. Upper plumage dark slaty, darker on head and back; cheeks brownish black; wings brownish with a sort of silvery tinge; chin and throat whitish; remainder of lower plumage ashy; vent, thigh-coverts and under tail-coverts rusty red.

Adult females are a little larger than the males on an average.

Above slaty grey, brownish on the head, nape and upper back, paler on the rump and tail; feathers of the head and nape dark-shafted, all others barred with black bands, especially on the rump and tail; sub-terminal-band on the tail broader; a cheek-stripe, feathers below the eye, and a band running back from it black; primaries blackish with oval white spots forming bars on the inner webs, except near the tips; lower parts to the abdomen including the ear-coverts creamy white or pale rufous; breast with elongate black spots that pass into

arrow-heads or heart-shaped markings and bars on the flanks and upper abdomen ; lower abdomen and lower tail-coverts rufous, not spotted ; wing-lining white with brown spots ; axillaries barred white and dark brown.

"**Young** birds are like the female, but the head is much browner and the feathers of the mantle have broad rufous borders ; there is also an imperfect nuchal collar"—(*Fauna of British India*).

Mr. Stuart Baker writing on the birds of North Cachar (*B.N.H.S. Journal, Vol. XI, page 404*) says :—"I should think adult birds probably take some time to arrive at their complete mature plumage. When they come through these hills a few males are still in the female garb, but the majority have put on that of the male with the exception of a few wing-quills which are still barred like those of the female ; again, the younger birds have the striæ on the lower plumage much more marked than in the older birds, these latter having their shaft-streaks almost invisible. One young bird, obtained in October, 1892, has the shaft-streaks on the flanks widened out considerably and developed at the end into narrow drops ; there is a wide sub-terminal bar of dull black on the tail and the light edgings to the under tail-coverts are very conspicuous. The coloration of these feathers varies considerably, but the depth of the rufous seems to have no connection with the age of the bird. A party of five of these birds was seen in early May, and one, which was obtained, turned out to be a young male, the whole of the lower plumage being like that of the adult male, but the feathers with broad striæ ending in drops."

Locality, habits, etc. "Jerdon obtained this species on the Nilgiris and Dewar includes it in his "List of Birds found in and around Madras." This Kestrel flies in flocks and when migrating is seen in great numbers. It is insectivorous. Mr. Stuart Baker gives an interesting account in the aforementioned Journal about the catching of these birds by the Cacharis. He says :—"When I first saw and obtained these birds I offered a rupee a head for any the natives might get and the next morning some sixty were brought in and I found that short of thousands, there would be no limit to the supply. The Cacharis go out at night to the roosting place—generally a stretch of country covered with small solitary bamboo—with lanterns, torches, etc., shake the bamboos and catch the flustered and frightened birds as they fall to the ground. Each bamboo forms a resting place for 20 birds and upwards and out of these some half a dozen or so are captured and thrust into baskets prepared for the purpose. These are then sent to market and sold as pigeons for two pice. Hindus and all eat these birds and seem quite happy about their being pigeons.

Breeding season. Breeds in China in June.

Genus **CERCHNEIS** Boie 1826.

"The wing is short and rounded, the second and third primaries sub-equal ; the tail is long and well graduated ; the feet are smaller and weaker than in *Erythropus* . . . ; the middle toe without claw equals two-thirds to three-quarters the length of the tarsus and the outer and inner toes are about the same in length"—(*Fauna of British India*).

(313) Cerchneis tinnunculus tinnunculus (Linn.).

THE EUROPEAN KESTREL.

(*Fauna of British India*, 2nd edition, No. 1740.)
(*Fauna of British India*, 1st edition, No. 1265 (part).)

Description—Male. "Wing 230 to 259 m.m.; tail 153 to 175 m.m.; tarsus about 36 to 39 m.m.; culmen 17 to 18 m.m."

"Iris brown; bill slaty-blue, the tip black, the gape, base and cere yellow; orbital skin yellow; legs yellow to orange-yellow; claws black."

"Lores and forehead white or creamy-white; crown, nape and the sides of the neck ashy-grey with fine black shaft-lines; back, scapulars and wing-coverts bright brick-red, spotted, sparsely on the back, with black rather arrow-shaped spots; rump and upper tail-coverts paler grey; tail grey with a narrow white tip and broad subterminal band of black; wing-quills and primary greater-coverts dark brown, more or less edged with white, the quills broadly barred with white on the inner webs except at the tips; a black patch next the eye in front running into a cheek-stripe; ear-coverts and cheeks mixed grey and fulvous, more white on the ear-coverts; lower plumage pale buff to vinous-fawn, paler and immaculate on the chin and throat; streaked with black on the breast and spotted with black on the abdomen and flanks; under wing-coverts and axillaries white barred and spotted with black."

Female. "Wing 243 to 267 m.m.; tail 162 to 175 m.m."

"Whole upper parts pale rufous, bleaching to sandy-rufous, the head streaked with black and the other parts banded, the subterminal band on the tail being very broad and the tip white; wing-quills as in the male; lower parts as in the male, but the streaks and spots more numerous and more brown, less black; typically also the lower parts are paler and more dingy in tone.

In very old females the rump and tail sometimes become tinged with grey."

Locality, habits, etc. In winter it "less commonly extends throughout India to Ceylon."

"The kestrel is only a winter visitor to India, arriving in September and October, leaving in March and early April.

Breeding season. Breeds in Europe "from the middle of April to the end of May"—(*Fauna of British India*).

(314) Cerchneis tinnunculus japonicus (Temm. and Schleg.).

THE JAPANESE KESTREL.

(*Fauna of British India*, 2nd edition, No. 1743.)
(*Fauna of British India*, 1st edition, No. 1265 (part).)

Description—Male. "Wing 244 to 259 m.m.; tail 152 to 168 m.m."

"This is rather darker than the typical one."

Female. "Wing 243 to 268 m.m. ; tail 157 to 166 m.m."

Locality, habits, etc. "Birds answering to this description crop up here and there throughout the winter ranges of the various kestrels . . . "—(*Fauna of British India*).

This species may possibly occur sometimes within one area.

Breeding season. "Breeds certainly in Ladak "—(*Fauna of British India*).

(315) Cerchneis tinnunculus objurgatus Stuart Baker.

THE INDIAN KESTREL.

(*Fauna of British India*, 2nd edition, No. 1744.)
(*Fauna of British India*, 1st edition, No. 1265 (part).)

Description—Male. "Wing 225 to 240 m.m. ; tail 147 to 159 mm. ; culmen 16 to 17 m.m."

"Differs from the other races in the very brick-red colour of the plumage of the male . . . the underparts are very rufous."

Female. "Wing 234 to 255 m.m. ; tail 155 to 169 m.m."—(*Fauna of British India*).

The colour of the soft parts in both sexes are the same as in the typical race.

Differs from the other races "in the very rich and red plumage of the female . . . the underparts are very rufous "—(*Fauna of British India*).

Locality, habits, etc. Resident in Southern India. It keeps to the hills during the breeding season, but afterwards is found in the plains as well. It principally frequents cultivated lands and has the habit, like other Kestrels, of hovering over a spot and then dropping down on its luckless prey which consists of rats, mice, lizards (especially grasshoppers and locusts), frogs and occasionally small birds ; this hovering is accomplished by a rapid beating of the wings.

Breeding season. "The Indian Kestrel lays in February, March and April. Cardew also recording eggs as early as January in the Nilgiris. It is known to breed freely in these hills between 4,000 and 7,500 feet, the summits, it certainly breeds in Travancore during these same months. It has long been known to breed about the Gairsoppa Falls"—(*Fauna of British India*).

It also breeds "in the hill-ranges of Mysore and Southern India including the Nelliampathy Hills "—(*Stuart Baker*).

Nest. "Nests taken have all been in holes and crevices or on ledges of cliffs, with the exception of a twice-occupied nest found by Darling which was built on the top of a dead stump of a tree about 14 feet from the ground "—(*Fauna of British India*).

Eggs. Major E. G. Phythian Adams writes : "I have taken several nests on the Nilgiri plateau in March and April. The normal clutch appears to be 3 and the eggs are sometimes placed on the bare ground in a rock cavity without any attempt at lining." "I have seen no eggs of this race, nor are there any in the Hume collection in the British Museum "—(*Fauna of British India*).

Darling who took four eggs describes them as "having a dirty white ground, speckled and blotched all over with brownish red" (*Oates in Hume's Nests and Eggs, Vol. III, p. 197–8*).

(316) Cerchneis naumanni pekinensis (Swinh.).

THE CHINESE LESSER KESTREL.

(*Fauna of British India*, 2nd edition, No. 1745.)
(*Fauna of British India*, 1st edition, No. 1266.)

Description—Male. "Length about 13"; wing 9"; tail 5·75"; tarsus 1·2"; mid-toe without claw ·9"; bill from gape ·8". There appears to be no constant difference between the sexes in size."

"Bill bluish horny, paler at the base; cere dark yellow; irides deep brown; legs and feet bright yellow, sometimes with an orange tinge; claws whitish or yellowish horny."

Adult "brown, nape, sides of head and neck, lower back, rump and upper tail-coverts together with the greater and median and sometimes parts of the smaller wing-coverts, ashy grey: ear-coverts whitish; back, scapulars and a varying proportion of the smaller and median wing-coverts brick-red with a vinous tinge; quills black, their inner webs except near the tip, white, as is the wing-lining; tail above grey like the rump with a broad black subterminal band and a white tip, whitish beneath; lower surface of body pale to deep rufous, with small rounded black spots on the breast and flank; these disappear with age."

"**Female** and young male similar to those of *C.a. alaudarius* but easily distinguished by their pale whitish claws. The tail in young males becomes grey by moult before the head or wing-coverts assume the ashy colour"—(*Fauna of British India*).

Breeding season. Jerdon says he found it breeding on the Nilgiris on some cliffs in May and June, but Davison thinks he is in error in saying so.

Locality, habits, etc. In habits this species is apparently very similar to the preceding one, but it is said to be sometimes seen in flocks. It feeds on insects and small birds. We give it in case it may be found.

Nest. Similar to *C.a. alaudarius*, built on rocks, sometimes on buildings or even in hollows of trees.

Eggs. Very similar to *C.a. alaudarius*, but smaller; average measurement 1·4" × 1·2"

Genus **AQUILA** Brisson 1760.

"The bill is strong and slightly lengthened, curved from the cere; the margin of the upper mandible straight or with a very slight festoon; wings long, the 4th and 5th quills longest; tail moderate, slightly rounded or nearly even; tarsus feathered to the toes; claws curved, strong and sharp; the hind toe and claw powerful"—(*Fauna of British India*).

(317) Aquila nipalensis nipalensis (Hodgs).

THE EASTERN STEPPE-EAGLE.

(*Fauna of British India*, 2nd edition, No. 1748.)
(*Fauna of British India*, 1st edition, No. 1202.)

Description—Male. "Length about 30″; wing 22″; tail 11·5″; tarsus 4″; bill from gape 2·8″; mid-toe without claw 2·5.″"

"Iris hazel to dark brown; bill black; cere deep yellow; legs and feet dull yellow or greenish-yellow to bright yellow, claws black."

"Whole plumage brown, varying from greyish-brown to deep umber-brown, bleached and worn birds being very pale. Wing-quills black or almost so; longest scapulars the same; in most birds there is a patch of buff feathers centred darker on the nape, tail blackish-brown, tipped paler, possibly immaculate in very old birds but nearly always showing traces of cross-bars of grey brown."

Female. Similar to male, but rather larger wing 23·4″; tail 12·5″.

Young. "Young birds are paler than adults and much more heavily barred and marked. The secondaries and greater coverts have broad tips of buff or whitish forming two well-defined wing-bars; in some birds, probably those of the year, the upper feathers have obscure dark bars and pale tips to the feathers of the upper plumage and occasionally the feathers of the breast and abdomen are marked with streaks or arrow-heads of dark brown"—(*Fauna of British India*).

Locality, habits, etc. It is found in winter as far South as North Travancore—(*Stewart*).

It is said to keep to open country and feed on small mammals, birds and also reptiles. It is a shy bird, according to Davison, perching on the tops of large single trees.

Breeding season. Breeds in Guzerat in December—(*Fauna of British India*).

(318) Aquila clanga Pall.

THE GREATER SPOTTED EAGLE.

(*Fauna of British India*, 2nd edition, No. 1750.)
(*Fauna of British India*, 1st edition, No. 1205.)

Description—Male. Length about 26″; wing 19·5″; tail 10·5″; tarsus 4″; bill from gape 2·5″.

"Bill bluish-grey, dusky at tip; cere, gape and feet orange-yellow; irides brown (*Hume*)"; "nostrils round and large; plumage soft"—(*Fauna of British India*).

"Dark almost blackish-brown, with a slight purplish gloss on the mantle; primary quills black; tail unbarred but washed with grey towards the end above; head and neck all round paler, the tips and sometimes broad shaft-stripes to the lanceolate feathers of the crown and nape lighter brown; feathers on tarsus and upper and lower tail-coverts mixed with whitish and sometimes chiefly white; base of all feathers, including wing and tail feathers white"—(*Fauna of British India*).

Young birds are also dark brown and differ chiefly from adults in having the upper back and smaller wing-coverts marked with elongate paler greyish brown spots ; these spots are largest and whitish on the smaller scapulars and median coverts ; longer scapulars, larger coverts and secondaries with large buff tips ; lower back and rump pale brown, with dark edges to the feathers ; upper tail-coverts whitish ; tail black, grey or mottled towards the end and pale tipped ; lower plumage with light brown shaft-stripes varying in breadth and tint ; vent and lower tail-coverts buff. Some birds pale brown beneath.

Female. Similar to male, but length 27·5″ ; wing 20·5″ ; tail 11·5″.

Locality, habits, etc. Jerdon says it is tolerably common in the Carnatic and on the Malabar Coast and prefers the neighbourhood or cultivation especially of wet paddy-fields, or the vicinity of tanks and marshes in a well-wooded country.

Breeding season. According to Hume this bird breeds on large trees in Northern and Central India from April to June.

Eggs. It lays a single egg which is dull white spotted with very pale greenish-brown and blotched with pale grey mostly at the large end. "An egg in my collection measures 2·5″ × 1·95″"—(*C.M.I.*).

(319) Aquila pomarina hastata (Less.).

THE SMALL INDIAN SPOTTED EAGLE.

(*Fauna of British India*, 2nd edition, No. 1751.)
(*Fauna of British India*, 1st edition, No. 1206.)

Description—Male. "Length 25″ ; wing 18·25″ ; tail 9″ ; bill at gape 2·25″—(*Jerdon*).

"Bill slaty black at base ; cere, gape and eye-lids pale dull olive-yellow ; irides brown ; feet yellow"—(*Jerdon*).

Upper plumage brown, the feathers edged paler ; head with dark shaft-streaks ; in some specimens there is a purplish gloss on the upper plumage ; quills blackish-brown ; lower plumage lighter than upper ; breast feathers with dark shafts. In some specimens, presumably very old birds, the lower plumage is much like the upper.

Female. Similar to male, but measures "length 26·5″ ; wing 19″ ; tail 9·5″ ; tarsus 4″"—(*Jerdon*).

Young birds are of a much lighter brown and the feathers of the head are tipped with buff spots ; tertiaries browny-white barred with brown ; lower plumage with rich buff shaft-streaks ; lower tail-coverts buff.

Locality, habits, etc. Evidently rare in the South of India, where Jerdon met with it once or twice only. Mr. J. Davidson reports having met with it and found its nest in the Tumkur District. The bird is said to rob other birds' nests notably those of *Sturnopastor* ; and is also reported to be in the habit of removing its own eggs from its nest if disturbed (*vide* Mr. Whymper's letter in Vol. XVIII, No. 1 of the *Bombay Natural History Society's Journal*, and Mr. J. Davidson's letter in *Vol. XVIII, No. 3, idem*). "Uncommon in Travancore and Madras"—(*Fauna of British India*).

Breeding season. April to June.

Nest. "Nest of sticks and placed usually in a high tree. I found the remains of some frogs in one nest"—(*C.M.I.*).

Eggs. It lays 2 eggs ; white, either clouded with underlying purple or sparsely spotted and blotched with reddish-brown, often denser at the small end. Average measurement 2·5″ × 1·98″.

Genus **HIERAËTUS** Kaup., 1845.

"This genus has a moderately strong bill, much hooked at the end, and with a prominent festoon to the upper mandible ; the nostrils are elliptical and oblique ; wing long, 4th quill longest ; primaries exceeding secondaries by far more than the length of the tarsus ; tail nearly square, more than half the length of the wing ; tarsi feathered ; toes long ; outer toe (without claw) a little longer than inner ; claws large, sharp, well-curved ; inner and hind claw both large, the latter the larger"—(*Fauna of British India*).

(320) Hieraëtus fasciatus fasciatus (Vieill.).

BONELLI'S EAGLE.

(*Fauna of British India*, 2nd edition, No. 1752.)
(*Fauna of British India*, 1st edition, No. 1207.)

Description—Male. "Length 27″ ; wing 19″ ; tail 10″ ; tarsus 3·7″ ; bill from gape 2·15″"—(*Fauna of British India*).

"Bill bluish grey, black towards the tip ; cere and gape dingy yellow ; irides bright yellow or brownish-yellow ; feet pale dingy whitish-brown with a yellow tinge"—(*Hume*).

"Upper parts dark umber-brown, bases of the feathers white ; feathers of head and mantle inconspicuously dark-shafted ; lores whitish, eyebrow streaked with white ; sides of face white ; the cheeks and ear-coverts streaked with brown ; quills black mottled with white on inner webs towards the base ; upper tail-coverts with whitish margins ; tail-feathers dark grey above, whitish below, with imperfect black cross-bands and a broad black terminal one, the inner webs mottled with white, the extreme tip whitish ; lower parts white with black shaft-stripes varying in breadth ; wing lining blackish-brown except near the edge of the wing all round where the feathers are partly white ; thigh-coverts and lower abdomen whitey-brown or pale-brown, still with black streaks ; under tail-coverts with pale rufous brown cross-bars ; some old birds are buff or tawny beneath instead of white and not infrequently the thighs and abdomen are darker brown"—(*Fauna of British India*).

Female. Similar to male, but length 29″ ; wing 20″ ; tail 11″.

"**Young** birds are paler above and have pale edges to the crown and nape feathers, and the latter are sometimes rufous ; the sides of the head and neck and the lower parts including the wing-lining light rufous or rufous buff with narrow dark stripes ; the quills and tail banded almost throughout, the latter white at the base ; no terminal band to the tail"—(*Fauna of British India*).

Locality, habits, etc. Ferguson says it is an occasional winter visitor to Travancore. Jerdon observed it on the Nilgiris and on the crest of the Western Ghats. Dewar includes it in his "List of Birds found in and about Madras." Cardew also obtained it at Ootacamund.

Davison wrote that it was not very rare on the Nilgiris and its slopes and he had also seen it in the plains-country at the foot of the hills.

These birds kill various game birds and pigeons, also small mammals. Jerdon gives the following interesting account of how, he was informed, they caught pigeons.

"On the pigeons taking flight one of the eagles pounced down from a vast height on the flock but directing its swoop rather under the pigeons than directly at them. Its mate watching the moment when, alarmed by the first swoop, the pigeons rose in confusion pounced unerringly on one of them and carried it off, and the other Eagle having risen again also made another, and this time fatal, stoop."

Breeding season. Jerdon knew of an eyrie on the Eastern slope of the Nilgiris, and says it breeds on high rocky cliffs. Miss Cockburn took its eggs in December from a nest on a precipitous cliff at Kotagiri. It usually builds on cliffs but not invariably, as its nest has also been taken on trees. It also breeds in Travancore.

Nest. The nest is of stick lined with green leaves.

Eggs. 1 or 2, white either unspotted or faintly blotched with reddish-brown. The average measurement according to Hume is 2·78″ × 2·1″.

(321) Hieraëtus pennatus (Gmel.).

THE BOOTED EAGLE.

(*Fauna of British India*, 2nd edition, No. 1753.)
(*Fauna of British India*, 1st edition, No. 1208.)

Description—Male. "Length 29″; wing 15″; tail 8·5″; tarsus 2·4″; bill from gape 1·4″"—(*Fauna of British India*).

The length as given by Blanford, 29″, is evidently a printer's error and should be 20″.

Bill pale blue, tip dark slaty; cere and gape yellow, deeper and purer on the latter; irides light brownish-red; legs yellow.

"Head-feathers lanceolate, tawny rufous with deep black-brown shaft-streaks; forehead and lores white; a narrow black supercilium; eyelids buff; below the eyelids there is a black streak which joins another from below the gape and runs below the ear-coverts; the latter are brown interspersed with black; a white patch on the shoulders concealed in the skin; scapulars and coverts brown edged with whitish-brown; wings blackish-brown; tail brown tipped with white and with indistinct dark bars; lower plumage dark brown with black shaft-stripes, lighter on feathered portion of the tarsus. The light variety has "the underparts buffy-white with black longitudinal streaks often fringed with ferrugineous; these are thickly marked on the chin, more thinly on the throat and breast, generally disappearing on the abdomen and replaced by faint rufous bars on the thigh-coverts and vent in very old birds; a few black spots beneath the wings"—(*Fauna of British India*).

According to Blanford, the dark plumage is the immature one and the light variety with the white underparts the adult, but according to Jerdon, the latter is the young plumage.

Female. "Similar to male, but length 21·5″; wing 15·75″; tail 9″"—(*Fauna of British India*).

Locality, habits, etc. According to Jerdon it is found all over India and Hume says it is not uncommon in the Wynaad. Dewar reports it from Madras and Ferguson says of Travancore "An occasional winter visitor. The Museum possesses only one specimen shot in Trivandrum in February." Jerdon says it prefers groves of trees, gardens and cultivated land. It occasionally pounces from its perch on the top of a tree but generally circles in the air and stoops at squirrels, rats, doves, pigeons, chickens, etc. It generally seizes its prey on the ground, now and then on the wing.

Breeding season. Miss Cockburn took a nest at Kotagiri in December.

Nest. Mr. Theobald took its nest at Hozur in the district of Salem at the end of February; it was high up on a banyan tree and was made of dry twigs without any lining; it contained two eggs which appears to be the number usually laid. Lord Lilford, however, says that the nests invariably contain fresh twigs with green leaves adhering to them.

Eggs. "An egg in my collection is dull white much stained with yellowish brown and measures 2·15″ × 1·75″"—(*C.M.I.*).

Genus **LOPHOTRIORCHIS** Sharpe 1874.

"This genus although resembling *Spizaëtus* in the plumage of the young and in the crest, is distinguished by its longer wings with the primaries projecting beyond the secondaries by more than the length of the tarsus, by its shorter tail and much longer toes and more powerful claws, the claw of the third toe being longer than the culmen beyond the cere. The adult coloration too is peculiar, black above, and the abdomen chestnut"—(*Fauna of British India*).

(322) **Lophotriorchis kieneri** (de Sparre).

THE RUFOUS-BELLIED HAWK-EAGLE.

(*Fauna of British India*, 2nd edition, No. 1754.)
(*Fauna of British India*, 1st edition, No. 1209.)

Description—Male. "Length about 21″; wing 14″; tail 8·25″; tarsus 2·8′; bill from gape 1·4″."

"Bill black, plumbeous at base; cere and feet yellow; irides dark brown. The crest is about 2·5″ long, not pointed."

"Upper parts and sides of head and neck black and glossy; quills dark brown; tail-feathers brownish, barred darker; the quills and tail-feathers are light ashy grey beneath with dark bars, except at the ends of the quills. The tail has a broad sub-terminal black band; chin, throat and breast white with a few lanceolate black shaft-stripes on the breast. The white passes into the ferrugineous chestnut with black shaft-lines of the abdomen, lower tail-coverts, thigh-coverts and wing-lining. Sometimes, the chin and throat and breast are tinged with ferrugineous red."

Female. Similar to male, but "length about 24″; wing 16″; tail 9·5″; tarsus 3″; bill from gape 1·5″."

Young birds "are brown above; some of the feathers darker than others and many of them with pale edges; pure white below; the tail barred throughout. In young birds, the ear-coverts are rufous brown with black streaks"—(*Fauna of British India*).

Locality, habits, etc. Mr. Ferguson writes of this species in Travancore :—

"A rare bird. Mr. F. W. Bourdillon had one given him by a friend who shot it at an elevation of 2,200 feet while in the act of swooping at a chicken."

Mr. Bourdillon further says :—"Not long after obtaining this specimen an Eagle flew past me while I was riding, which from its deep chestnut-coloured belly, I have no doubt, belonged to this same species." Mr. Kinloch also obtained it on the Anamalais.

Stewart apparently did not find it rare in Travancore. Stuart Baker has interesting notes as follows :—

"This Eagle is a bird of the forest, both evergreen and deciduous, being found from the broken country at the foot-hills up to about 5,000 feet in the mountains. In Travancore, it is most common between 1,500 and 3,000 feet. It is a most courageous bird and very much like the Falcons in flight and in manner of stooping and killing its prey. It feeds much on game and especially on spurfowl, jungle-fowl and pheasants, stooping to them when they are running along the ground or actually squatting among grass or cover. I saw one swoop at something in thin jasmine undergrowth in an evergreen forest and found it had killed a fine Kalij cock pheasant, splitting its back open and almost and tearing off its head. It is extraordinarily quick in its movements and dashes through thick tree growth in a headlong manner without coming to grief. The only cry I have heard is a plaintive scream not unlike that of a Kite, for which I first mistook it"—(*Fauna of British India*).

Breeding season. We again quote Stuart Baker *in extenso*.

"The Rufous-bellied Hawk-Eagle undoubtedly breeds wherever found, but it is a rare bird everywhere except in Travancore, and Stewart is the only naturalist who has taken eggs.

Nest. He describes the nest as a typical Eagle's nest, a massive structure of sticks placed high up in some tall tree standing in dense forest. Each pair of Eagles seems to possess a very large area for breeding purposes and the majority of pairs have two alternative nests, sometimes using one and sometimes the other but sticking to the two for very many years in succession. Both birds assist in incubation and one is always present at the nest and, so fierce and pugnacious are they, it is impossible to take eggs or young until the birds have either been killed or well peppered with small shot, wounds from which they seem to recover very quickly.

Eggs. There is only one egg laid and this is placed on a lining of green leaves which, sometimes at all events, are replaced by a fresh supply when withered. The eggs are dull grey-white and are nearly always slightly marked with flocks or small blotches of light red, white in a few instances, the markings are larger and bolder and have also underlying marks of lavender and blue-grey, giving the egg quite

handsome appearance. Sixteen eggs average 61·2 × 48·1 mm. They lay from the middle of December to the middle of March"—(*Fauna of British India*).

Mr. Kinloch also took a nest with a single young one on the Anamalai hills in December 1906.

Genus **ICTINAËTUS** Jerdon 1843.

"Bill rather small, the edge of the upper mandible almost or quite straight; nostrils oval, nearly round, oblique; wing long, 5th quill longest, the feathers broad; tail long, slightly rounded; tarsus feathered. The foot is very remarkable—the toes are short, the inner toe thicker than the middle toe and nearly as long; outer toe very short, all the claws much less curved than in other Eagles and inner claw longest, longer even than the hind claw. Plumage in adults, black throughout"—(*Fauna of British India*).

(323) Ictinaëtus malayensis perniger Hodgs.

THE INDIAN BLACK EAGLE.

(*Fauna of British India*, 2nd edition, No. 1755.)
(*Fauna of British India*, 1st edition, No. 1210.)

Description—Male. "Length 27"; wing 21·5"; tail 13"; according to Jerdon, length 27·4"; wing 22"; tail 14""—(*Fauna of British India*).

"Bill greenish horny, black at tip; cere, gape and feet deep yellow; irides dark brown"—(*Jerdon*).

Brownish black, rather paler below than above; lores whitish; tail blackish-brown with greyish bars.

Young birds "are browner and some have the head more or less buff or pale tawny, especially on the sides; the feathers of the crown, hind neck and sides of neck, in some, with tawny terminal spots; the feathers of the lower parts with long drops or broad median stripes of pale ochraceous brown; in one specimen they are ochraceous with black shaft-stripes and edges. These specimens however appear strangely rare. Probably the young are often similar to the adult, or else the immature plumage is quickly lost."

Female. Similar to male, but "length 31"; wing 24"; tail 14"; tarsus 3·5"; bill from gape 2"."

Locality, habits, etc. "The West coast of India from Kanara to Cape Comorin . . . "

"This magnificent eagle is entirely a bird of forests and generally those which are evergreen. It is true it may be seen on rare occasions hawking on the outskirts of these but for the most part it keeps well to their interior. It feeds often on worms, frogs, lizards and large insects and has the reputation of being a confirmed robber of eggs and young birds. It, however, also attacks nobler prey and I have seen it kill pheasants, jungle-fowl and wood-partridges, which, in spite of its long straight hind claw, it seems to rip up along the back as effectively as do the short-clawed eagles. Its flight is generally deliberate and easy but it is capable of immense speed and is wonderfully active through heavy forest. The only call I have heard is a plaintive squeal, and, when

attacking disturbers of its nest, a series of harsh croaks and discordant cries "—(*Fauna of British India*).

"It swallows young birds whole, I found two young green pigeons in its crop in that state "—(*C.M.I.*).

Breeding season. "Most eggs are laid between November and March "—(*Fauna of British India*).

Mr. J. P. Norris, Jr., however, mentions a clutch of 2 taken in Travancore on October 9, 1913—(*Oolsgists Record, Vol. VI, No. 2, p.* 40).

As usual Stuart Baker has an interesting note on the nidification which we quote ".

"The Indian Black Eagle breeds over all its range from the level of the foot hills up to at least 6,000 feet. Every pair of birds has alternate nesting-sites. Sometimes a mile or more apart and if one nest is robbed will then resort to the other but otherwise occupy one or the other indifferently."

Nest. "The nests vary considerably; one taken by myself was a compact neat nest, not more than 24 inches across and less than a foot deep. Other nests are more than double this size and Stewart records them over four feet in diameter. They are always built very high up on big forest-trees and almost invariably in dense evergreen forest, though in Travancore they also resort to deciduous forest. The birds are probably the fiercest of all the Eagles in defence of nest and eggs and it is practically impossible to take eggs or young unless the female is shot and killed or driven away by severe blows. They return again and again to the assault and are most determined birds."

Eggs. "As a rule, only one egg is laid but occasionally two. They are the most handsome of all Eagles' eggs and also of the most varied description. The ground-colour is white or nearly so, in a few cases only with a warm pink tinge though in some eggs the ground is almost covered with finest of pale brick-red fuckles. In these eggs there are generally only a few grey-brown cloudings and blotches. In other eggs the markings consist of large bold blotches of deep brown and reddish-brown; in a third type they consist of deep grey blotches and clouds, whilst in yet a fourth there are primary blotches of deep brown and purple-red, with others underlying them of grey, pale purple and lavender. Sixteen eggs average 62·7 × 49·9 mm."—(*Fauna of British India*).

Ferguson wrote from Travancore:—"Breeds on cliffs at elevations of 2,000 feet and upwards." Bourdillon gave the number of eggs as from 1 to 3.

Genus **SPIZAËTUS** Vieillot 1816.

"Bill short, high at the base; culmen compressed, much curved; a prominent festoon to the margin of the upper mandible; nostrils rounded; wings short and rounded; 5th quill longest; the primaries exceeding the secondaries by less than the length of the tarsus in the closed wing. Tail rather long, nearly square. Tarsus long, slender, feathered throughout, toes large but not long, unequal, outer toe without claw longer than inner toe similarly measured; claws strong, unequal, well-curved; hind claw, longest; a crest generally present"—(*Fauna of British India*).

(324) Spizaëtus cirrhatus cirrhatus (Gmel.)

THE INDIAN CRESTED HAWK-EAGLE.

(*Fauna of British India*, 2nd edition, No. 1756.)
(*Fauna of British India*, 1st edition, No. 1211 (part).)

Description—Male. Length about 26″; wing 16″; tail 11″.

"Bill dark plumbeous, black at the tip; cere dark leaden in adults, yellow in young birds; irides leaden grey, pale straw colour or golden yellow; feet yellow; the feathers of the tarsus do not extend quite to the toes."

"Feathers of head and neck above, and at the sides blackish brown with pale or rufous edges; occipital crest 4 to 6 inches long, black, and except in very old birds, tipped white; upper parts generally umber-brown, not uniform, some feathers having darker centres or shafts and paler borders; quills brown above, light grey or white below with blackish bars and tips, inner webs white towards the base; tail brown above, light grey beneath, usually with five blackish cross-bars, more rarely four, the first concealed by the coverts, the last broadest followed by a white tip; pale interspaces as a rule broader than dark bars and the last pale interspace much broader than the others; chin and throat white streaked with black, the black streaks generally forming three longitudinal stripes, one median and two lateral; breast white with large spots, elongate, black and generally fringed with rufous; abdomen and lower tail-coverts umber-brown; thighs generally more rufous and tarsus whitish, the feathers dark-shafted as a rule throughout, especially on the legs; smaller under wing-coverts dull rufous, brown-shafted; greater lower wing-coverts white with brown cross-bands; axillaries greyish brown with dark shafts."

Young birds "have the head and neck rufous buff to buffy white generally but not always with dark centres or shaft-stripes to the feathers which in some very young birds have white tips; feathers of upper plumage brown, generally pale-edged; quills and tail with more dark bands than in adults, there being 7 on the tail including the sub-terminal one; lower parts white or buff or pale rufous, generally with a few rufous brown spots, darker at the shafts; as a rule the flanks, lower abdomen, thigh-coverts, lower tail-coverts, and tarsal feathers are banded with pale rufous and white; tracing of this banding are often found in older birds"—(*Fauna of British India.*)

Female. Similar to male, but "length 29″; wing 17″; tail 12″; tarsus 4″; bill from gape 1·8″"—(*Fauna of British India*).

Locality, habits, etc. Jerdon says it is found throughout Southern India. Ferguson says in Travancore it is common in the low country, less so in the hills. About its habits, Jerdon says:—"It is generally seen seated on the top of a high tree where it watches for hares, partridges, young peafowl, jungle fowl, etc., on which it pounces."

Mr. A. P. Kinloch says it is very common on the Nelliampatti Hills. The South Travancore bird belongs to the next sub-species.

Breeding season. "December to the end of April"—(*Fauna of British India.*)

Nest. "The nest is a large untidy structure of sticks and branches, always well lined with green leaves, most often those of the mango, a tree very often selected for nesting purposes, though any large tree will

do. They are always placed high up in stout forks or in masses of branches near the very top of the tree.

Eggs. The egg seems always to be a single one, two never having been found. The colour is grey-white or white, often quite unmarked, less often with a few small reddish blotches at one end. Thirty-five eggs average 67·3 × 51·9 mm."—(*Fauna of British India*).

Mr. Stuart Baker writes: "I have numerous spotted eggs in my collection, though, except from the South of India, it is rare to get anything but pure white eggs. Davidson took one spotted egg in Kanara."

(325) Spizaëtus cirrhatus ceylanensis (Gmel.)

THE CEYLON CRESTED HAWK-EAGLE.

(*Fauna of British India*, 2nd edition, No. 1757.)
(*Fauna of British India*, 1st edition, No. 1211 (part).)

Description—Male. "Length 23·5"; wing 14·5"; tail 9·75"; tarsus 3·6"; mid-toe without claw 2"; bill from gape 1·65"—(*W. E. Wait*).

Blanford gives tail 9" to 10·5"; wing 13·5" to 15·2"—(*Fauna of British India*).

"Colours of soft parts as in typical form."

"Only differs from the preceding race in its smaller size"—(*Fauna of British India*).

Female. Similar to but larger than the male.

Locality, habits, etc. South of Travancore. Wait writing from Ceylon says:—"A woodland species, usually met with on the edge of heavy jungle, in park country, or in chenas and scrub jungle through which larger trees are scattered. It rarely soars for any prolonged period, but is usually seen perched on the top of a high tree. It feeds mainly on lizards, but also kills small mammals and birds, and on occasions is very destructive to poultry"—(*Birds of Ceylon*).

Breeding season. "Stewart, who has taken many eggs of this Eagle, records their breeding season as being from the end of November to the end of March.

Nest and eggs. Nests and eggs are like those of the preceding bird, the latter only differing in being smaller. Twenty-four average 61·3 × 49·8 mm. . . . like the Indian Hawk-Eagle, this bird puts up no defence for young or nest but like that bird also is extremely difficult to drive away. Stewart has taken three eggs in one season from the same nest and then left the birds still in possession"—(*Fauna of British India*).

(326) Spizaëtus nipalensis kelaarti Legge.

LEGGE'S HAWK-EAGLE.

(*Fauna of British India*, 2nd edition, No. 1762.)
(*Fauna of British India*, 1st edition, No. 1214.)

Description—Male. "Rather smaller than females."

"Bill black, paler at the base; cere blackish; iris yellow; feet lemon yellow."

"Feathers of the head and hind-neck black with pale edges, which are broader and on the hind-neck; the long crest black, tipped with

white ; wing-coverts pale brown, darker at the ends ; wing-quills brown above, pale grey below with dark cross-bars and narrow, white tips ; chin, throat and fore-neck creamy white, with a broad, dark stripe down the centre and a less clearly defined stripe down each side ; rest of lower parts, including the legs and tail-coverts, pale brown with broad, white cross bars, the bars on the thighs are narrower ; tarsus pale brown with white tip to the feathers "—(*W. E. Wait*).

Female. Similar to male.

"Length about 31" ; wing 18" ; tail 12·5" ; tarsus 4·5" ; mid-toe without claw 2·8" ; bill from gape 2".

Young. "Young birds are paler. The head and neck feathers are tawny white with drop-shaped marks of rufous-brown ; there is a good deal of white on the wing-coverts ; the sides of the head and neck, the throat, and fore-neck are almost unmarked, creamy white ; the breast and abdomen are very pale-brown with white cross bars "—(*W. E. Wait*).

Locality, habits, etc. "Travancore and the Malabar coast into the Nilgiris and hill-ranges of Mysore "—(*Fauna of British India*). It is said to be rather a sky bird and Wait writes that it is very fond of poultry. Stuart Baker says "Its flight is very swift and powerful, but like others of the genus it generally pounces on its prey by pursuit from a perch on a tree and not by a swoop when soaring above."

Breeding season. Stewart took many nests in Travancore from December to early March.

Nest. "He found them nesting between 1,000 and next 4,000 feet, building great structures of branches high up in lofty trees, both in deciduous and evergreen fresh forest. Like other forms of the genus, this Eagle often kept two nests going but even when the first eggs were regularly taken they continued sometimes to lay in the same nest and that for three or four years running. At other times they went off to the second nest and laid in that.

Eggs. The eggs are white tinged with grey or yellowish and sometimes very sparingly speckled with light red. Twenty-two eggs average 69·1 × 54·6 mm. . . . " (*Fauna of British India*).

Only one egg is laid.

Genus **CIRCAËTUS** Vieillot 1816.

"Head large ; bill moderate, much hooked, culmen rounded ; nostrils oval, oblique, overhung by bristles from the lores ; wings long, third and fourth quills longest ; primaries much exceeding secondaries ; tail rather long ; tarsi naked, except near their upper extremities, clad with small rounded or sub-hexagonal imbricate scales all round. Toes short ; mid-toe without its claw about half the length of the tarsus, inner and outer toes without claws sub-equal ; claws short, not much curved, sub-equal "—(*Fauna of British India*).

(327) Circaëtus gallicus (Gmel.)

THE SHORT-TOED EAGLE.

(*Fauna of British India*, 2nd edition, No. 1764.)
(*Fauna of British India*, 1st edition, No. 1216.)

Description—Male. Length 25·75" to 27" ; wing 20" ; tail 10·5" to 11·5" ; tarsus 3·75" ; bill from gape 2·4".

Bill pale leaden or greyish-blue, black at tip ; irides deep yellow ; legs pale dirty yellow ; claws black.

Plumage above earthy-brown, darker centred and with dark mesial stripes ; a good deal of white shows through the feathers of the head, neck and nape owing to these feathers being of that colour on their basal half ; quills blackish-brown, pale-shafted ; the secondaries and greater wing-coverts narrowly tipped white ; tail brown with dark bands margined and tipped white ; the inner webs of some feathers almost entirely white ; beneath white streaked with brown on chin, throat and breast, the brown on the latter and on sides of neck almost obscuring the white ; all the feathers with dark longitudinal shaft-stripes ; abdomen, vent and under tail-coverts also white, but spotted with paler brown ; eyelids white ; a narrow black supercilium.

Female. Similar to male but somewhat larger.

Young birds differ from adults in being paler brown and showing more white.

Locality, habits, etc. Keeps to cultivated land. Jerdon says : "It may often be seen seated on a low tree, or sometimes even on a bowrie-pole whence it occasionally darts on its quarry, but it generally circles in the air, taking a long and lofty flight, now and then flying heavily along the ground like a Harrier. I have frequently seen it hover in the air like a Kestrel and drop down on its prey like a stone afterwards. It is rather a noisy bird, frequently uttering a wild plaintive scream. I have seen several together occasionally, but it is usually solitary. Its chief food is snakes and lizards, but it will eat anything, rats, weakling birds, crabs, frogs, centipedes and large insects. I have seen one strike at a wounded hare and it will occasionally carry off a wounded teal or duck."

Breeding season and eggs. It usually breeds on trees, but occasionally also does so on cliffs from January to May. A single egg is laid which is white and measures 2·9″ × 2·35″.

Genus **SPILORNIS** G. R. Grey 1840.

"This genus is distinguished from *Circaëtus* by having a broad nuchal crest covering the whole nape, and by peculiar colorations, brown above and below in adults, with numerous rounded white spots or ocelli on the lower parts. The bill is rather elongate and well hooked at the end, the festoon on the edge of the upper mandible small or wanting ; nostrils oval, oblique ; lores nearly naked. The wings are short and rounded, the fourth and fifth quills longest ; tarsus, toes and claws as in *Circaëtus* "—(*Fauna of British India*).

(328) Spilornis cheela albidus (Temm.)

THE LESSER SERPENT-EAGLE.

(*Fauna of British India*, 2nd edition, No. 1766.)
(*Fauna of British India*, 1st edition, No. 1217 (part).)

Description—Male. "Length 25″ ; wing 17″ ; tail 12·25″ ; bill from gape 1·8″ ; tarsus 3·75″ "—(*Stray Feathers, Vol. IV. p.* 358).

Bill horny, paler beneath ; cere and orbits deep yellow ; iris bright yellow ; legs dirty yellow brown and crest black, basal portion of

feather white more or less showing through blackish-brown on neck and shoulders ; the feathers of shoulders and sides of neck narrowly tipped ; remainder of upper plumage dark brown ; quills blackish-brown with broad dusky bars, inner webs mottled with white, primary coverts and secondaries tipped white ; tail brown with two pale bands speckled with white ; chin and throat grey or grey-brown ; the remainder of lower plumage reddish-brown with no striations on the breast ; abdomen, vent and under tail-coverts and thighs with numerous white spots or ocelli, bordered above and below with brown ; lining of wings light reddish-brown, with ocelli similar to those on the abdomen.

Female. Similar to male but larger.

Locality, habits, etc. "Practically all India South of the Himalayas" only found in the plains of Travancore—(*Fauna of British India*).

Found both in forest land though not always keeping to it. It has a loud querulous cry which it utters while soaring. Their food consists of lizards, frog, snakes, etc. Mr. Stuart Baker writing about the Northern Indian bird the habits of both are said to be the same, says :—"They feed much on snakes and will attack those of great size. The rat-snake, even when as big as 7 or 8 feet, are tackled and killed with ease and they seem to destroy poisonous snakes with as little fear as the harmless ones. When no snakes are to be found they will eat birds of all kinds up to the size of the largest pheasants, partridges and ducks and also grubs and the larger insects."—(*Fauna of British India*).

Bourdillon says it is a shy bird but does sometimes make an attempt on the fowl-yard.

Breeding season. "Stewart found this Eagle breeding in some numbers in the Plains of Travancore from December to March"—(*Fauna of British India*).

Nest. Of sticks sometimes lined with leaves but not always so, situated high up on a tree.

Eggs. 1, white or yellowish white with grey or lavender secondary markings and with red-brown surface blotches often confined to the broad end. "Thirty eggs average 65·7 × 50·9 mm"—(*Fauna of British India*).

(329) Spilornis cheela spilogaster (Blyth.)

THE CEYLON SERPENT-EAGLE.

(*Fauna of British India*, 2nd edition, No. 1769.)
(*Fauna of British India*, 1st edition, No. 1217 (part.)

Description—Male. "Length about 23" ; wing 15" ; tail 9·5" ; tarsus 3·25" ; mid-toe without claw 1·8" ; bill from gape 1·7""—(*W. E. Wait*).

"Smaller than the preceding form ; upper parts brown but with a stronger purple-grey tinge than in any of the Northern forms ; throat very grey ; breast browner than in the other races and immaculate . . . . . "—(*Fauna of British India*).

"Lower parts earthy brown, lighter in some birds than in others ; chin and throat rather greyer, the whole undersurface from the breast down marked with roundish white spots, which are edged with darker brown ; on the vent, thighs, and lower tail-coverts these spots change to bars"—(*W. E. Wait*).

Young. "Head-feathers conspicuously tipped with white ; throat and cheeks blackish "—(*Legge*).

Female. Similar but a little larger than male. "Length 24" ; wing 15·5" "—(*W. E. Wait*).

Locality, habits, etc. "South Travancore "—(*Fauna of British India*).

"According to Stewart this small form is resident in the wetter evergreen forests at the lowest elevations and sea-level, whereas *albidus* is confined to the higher and dryer ranges where the forest is almost deciduous . . . It feeds on snakes but also very often on bull-frogs, gliding on to these from a perch in a deeply-shaded tree and, though its nest may be far from water, its daily hunting look-out is of necessity over some pool, lake or river "—(*Fauna of British India*).

Breeding season. Probably lays during the same time of the year as the preceding form. Ten clutches of eggs in the collection of Mr. J. P. Norris, Jr., taken in Travancore were found during February and on the 1st March—(*Oologists Record, Vol. VI, No. 3, p.* 49).

"Stewart remarks that this bird breeds in far denser forest than does *S.c. albidus* and whilst that bird nearly always makes its nest on a tree near water, the Ceylon Serpent-Eagle builds on trees far away from it "—(*Fauna of British India*).

Nest. "The nest is a loose structure of twigs, scantily lined with green leaves, and placed in a tall tree.

The eggs number 1 or 2, and are dirty white with rusty red stains and blotches. They measure about 2·50" × 1·95" "—(*W. E. Wait*).

Eggs. Stuart Baker gives the average of twenty-two eggs as 62·8 × 49·4 mm.

Genus **BUTASTUR** Hodgson 1843.

"In *Butastur*, the size is small, scarcely exceeding that of a Crow ; the bill is compressed and the culmen curved from the base. The commissure generally has a festoon, sometimes a well-marked one ; the nostrils are oval and oblique. The wings are long, reaching nearly to end of the tail which is slightly rounded. The third quill is longest ; the fourth is nearly equal to it ; the second and fifth considerably shorter and not very different in length ; the first four emarginate inside. Tarsus naked without transverse shields, covered with imbricate scales that are rather larger in front ; toes short. There is no difference in size between the sexes "—(*Fauna of British India*).

(330) Butastur teesa (Frankl.)

THE WHITE-EYED BUZZARD-EAGLE.

(*Fauna of British India*, 2nd edition, No. 1774.)
(*Fauna of British India*, 1st edition, No. 1220.)

Description—Male. Length 16·2" ; wing 12" ; tail 7·1" ; tarsus 2·5" ; bill from gape 1·3".

Bill black, base fleshy ; cere and gape deep yellow ; lores and orbits paler yellow ; iris pure white ; legs and feet dull palish yellow ; claws black.

Forehead, lores and some feathers on lower eyelid and nuchal-patch white ; remainder of upper plumage deep brown with brownish black

streaks ; wing-coverts light brown with dark shafts ; quills pale-brown tipped and barred on inner webs with brownish-black, portion of inner webs white ; upper tail-coverts rufous-brown with very fine shaft-streaks ; tail rufous banded with blackish-brown, fainter in some specimens than in others ; chin and throat white or fulvous with one mesian and two outer blackish-brown stripes ; lower plumage brown with fine dark shaft-streaks and also spotted with white, the white predominating on abdomen, under-tail and thigh-coverts where it forms the main colour and is banded with brown.

Female. Similar to male, but larger.

Young. "In the young the feathers of the crown and nape have rufous or buff edges, or the head is buff or white with dark shaft-stripes on the crown. There is a broad buff or white supercilium ; the ear-coverts are partly or wholly brown ; wing-coverts much mixed with white ; and the lower parts are white or buff with dark shaft-stripes on the throat, breast and upper abdomen. Gular stripes wanting or very narrow. The passage into the adult plumage is gradual, in one stage arrow-head markings replace the stripes on the lower plumage" —(*Fauna of British India*).

Locality, habits, etc. A permanent resident on the plains, though somewhat locally distributed. It ascends the hills to some height and is found in open cultivated districts and scrub jungle. Its food consists of small mammals, lizards, crabs and occasionally birds.

"Rare in the wetter and more heavily-forested parts, such as Malabar"—(*Fauna of British India*).

Breeding season. March to May.

Nest. Of twigs placed in a tree.

Eggs. 2 to 4, white, of chalky texture, sometimes blotched with red. Average measurement 1·73″ × 1·39″.

Genus **HALIAËTUS** Savigny 1809.

"Bill stout ; culmen straight at the base, then greatly curved ; festoon generally well marked but variable ; nostrils rounded ; wings long, third quill generally longest, fourth and fifth but little shorter. Tail rounded or cuneate at the end. Tarsus short, of moderate length, its upper third feathered in front, middle third or more scutate in front. Toes scutate above ; claws moderate in size, not very unequal, grooved beneath"—(*Fauna of British India*).

(331) **Haliaëtus leucogaster** (Gmel.)

THE WHITE-BELLIED SEA-EAGLE.

(*Fauna of British India*, 2nd edition, No. 1778.)
(*Fauna of British India*, 1st edition, No. 1224.)

Description—Male. Length 28″ to 30″ ; wing 24″ ; tail 11″ ; tarsus 4″ ; bill from gape 2·5″.

Bill horny above, blackish below ; lower mandible tipped horny ; irides brown or brownish-yellow ; legs whitish.

Shoulders and wings dark grey or ashy-brown ; quills and base of tail blackish, the latter broadly tipped white; the remainder of plumage pure white.

Female. Similar to male but larger.

Young. "Brown above, many of the feathers with fulvous edges, broadest and whitish on the head ; ear-coverts dark ; lower parts fulvous or rufous white more or less mixed with brown, the upper breast all brown; tail white or whitish, with the terminal portion brown, but pale tipped"—(*Fauna of British India*).

Locality, habits, etc. Found chiefly on the sea-coast where it subsists on snakes, fish, crabs, etc. It is said to harry the Osprey and rob it of its food, but this fact is rather doubtful.

"Occasionally they will kill domestic fowls and other birds, though this is rare, while any carrion lying about is not despised. Their call is a very loud clanging cry of many notes, audible at a great distance, especially in the mornings and evenings when they are most noisy"—(*Fauna of British India*).

Breeding season. "December to March . . . Bulkley took an egg on the Malabar Coast in August possibly a second laying. The same nest is used year after year, merely patched and mended with a few more sticks when necessary.

Nest. Major E. G. Phythian Adams in *epistola* says:—"A pair have nested for many years in a high casuarina in the Fort at Cannanore. I took the eggs (2) in October 1921. The nest was a huge mass of sticks and as far as I could judge from below at least 4 feet across. It was blown down in the severe monsoon of 1924 but the birds built a new (and smaller) nest in an adjacent tree."

Eggs. 2 ; pure white "with an inner membrane of very deep green. Twenty-two eggs, average 72·2 × 53·8 mm."—(*Fauna of British India.*)

Genus **ICHTHYOPHAGUS** Lesson 1843.

"Bill shorter than in *Haliaëtus* ; culmen arched from cere, festoon prominent, nostrils oval ; wings rounded, 4th and 5th quills longest ; tail moderate, slightly rounded. Tarsus feathered in front for one-third of its length or rather more, the rest covered in front and behind with large rectangular scutæ, the sides reticulated ; the toes with broad scales above and pointed scales beneath ; the outer toe partially reversible, but not completely as in the Osprey ; claws strong, much curved, rounded beneath"—(*Fauna of British India*).

(332) Ichthyophagus ichthyaëtus ichthyaëtus (Horsf).

THE LARGE GREY-HEADED FISHING-EAGLE.

(*Fauna of British India*, 2nd edition, No. 1780.)
(*Fauna of British India*, 1st edition, No. 1226.)

Description—Male. "Length 27 to 29" ; wing of the one of 29" is 19" ; tail 8·5" ; tarsus 3·5"—(*Fauna of British India*).

Bill and cere dark brown ; base of bill plumbeous ; gape plumbeous-blue ; irides pale yellow ; legs and feet china white.

Head and neck grey ; a few black shaft-streaks on head ; crown brownish ; remainder of upper plumage brown, darker on the wings ; tail white with a broad dark band at tip ; lower plumage from base of neck to abdomen brown, lighter than back ; abdomen white.

Female. Similar to male.

"**Young** birds are light brown with pale edges to the feathers, those of the head, neck, upper back, and lower parts with whitish shaft-stripes ; the quills are barred and the basal portion of the tail mottled brown and white"—(*Fauna of British India*).

Locality, habits, etc. Blanford says it is found throughout the greater part of the Peninsula of India, in suitable places . . . rare to the South. It haunts . . . and rivers where it preys on fish, or when obtainable a wounded bird. Stuart Baker found the remains of a 12 lb. fish killed by this bird and has also seen the remains of jungle-fowl, squirrels, and chickens near its nest. It also eats carrion and reptiles. Its call is very loud and deep.

Breeding season. November to February.

Nest. A large nest of sticks placed in a big tree like a *simul*, often near a village, but invariably on a tree in the vicinity of water.

Eggs. 2 or 4 ; dead white. They measure 2·8″ × 2·15″.

(333) Ichthyophagus ichthyaëtus plumbiceps Stuart Baker.

THE CEYLON GREY-HEADED FISHING-EAGLE.

(*Fauna of British India*, 2nd edition, No. 1781.)
(*Fauna of British India*, 1st edition, No. 1226 (part).)

Description. "Similar, except in size, to the preceding bird, though perhaps, as Legge points out, rather less cinereous-brown above in most adult birds"—(*Fauna of British India*).

"Males : length 24·5″ ; wing 17·25″ ; tail 9·75″ ; tarsus 3·5″ ; mid-toe without claw 2·3″ ; bill from gape 1·85″.

Females rather larger : length 27″ ; wing 18″"—(*W. E. Wait*).

Locality, habits, etc. "Whether birds in South Travancore are of this or the preceding race there is at present no material to show"—(*Fauna of British India*). "The habits are the same as for the preceding species."

Breeding season. "About Christmas time" (in Ceylon)—(*W. E. Wait*).

Nest. Same as the last bird.

Eggs. 2 ; "Greyish white in colour and measuring about 2·68″ × 2·09″"—(*W. E. Wait*).

Genus **HALIASTUR** Selby 1840.

"Bill rather large, compressed, slightly curved towards the base but sharply bent over near the tip ; festoon distinct ; nostril a broad rounded oval, the longer axis oblique ; wings very long, extending beyond the end of the tail, fourth primary longest ; tail of moderate length, slightly rounded at the end ; tarsi short, feathered above, naked portion with broad transverse scutæ in front and hexagonal scales behind and at the sides. Toes covered with transverse scutæ above, rough and pointed scales beneath, lateral toes unequal ; claws well-developed and curved"—(*Fauna of British India*).

(334) Haliastur indus indus (Bodd.).

THE BRAHMINY KITE.

(*Fauna of British India*, 2nd edition, No. 1784.)
(*Fauna of British India*, 1st edition, No. 1228.)

Description—Male. Length 17 to 21″; wing 14 to 16·5″; tail 6·5 to 7·5″; tarsus 2 to 2·25″; bill from gape 1·5″.

Bill pale bluish with the tip whitish; cere white or yellowish-white; irides yellow or yellow-brown. Legs and feet whitish-yellow.

Head, nape, chin and throat pale greyish with dark brown shaft-stripes; neck all round and from the breast to middle of abdomen, white with dark brown medial stripes; rest of plumage chestnut, darker on back and scapulars the feathers dark-shafted and some margined with grey; quills with terminal portion black; the basal portion chestnut with short, obsolete blackish bars; primary coverts chestnut tipped black; tail tipped paler.

Female. Similar to male.

Young birds vary a good deal in colouration and appear to undergo several moults before arriving at the adult plumage. Typically they have the bill pale plumbeous, irides brown and legs pale lemon-yellow. The head, nape and neck pale rufous-brown, dark-shafted, some feathers margined rufescent, those of the hind neck with a pale rufescent stripe on each side of the central one; back, rump and upper tail-coverts dusky brown tinged rusty and with black shaft-stripes; mantle and scapulars rich rufous or chestnut, with black shaft-stripes; primaries black; outer secondaries pale rufous on the outer webs, dusky on the inner interiorly; rest of secondaries and the tertiaries dull black; primary and greater coverts dusky blackish, edged whiter on the webs; inner lesser and median coverts rich chestnut with black shaft-stripes; beneath pale ashy-brown, with whitish margins and dark shafts; centre of lower surface of primaries white, forming a conspicuous bar when the bird is viewed on the wing from below.

Locality, habits, etc. Common on the plains especially along the sea-coast, where, in company with the next species, it haunts the harbours and fishing villages feeding chiefly on fish, crabs, etc. Occasionally seen as high as the summit of the Nilgiris where we have seen it hawking over the lake at Ootacamund. It is a terrible foe to young chickens. During the day-time this bird is generally solitary, each one keeping to itself and searching for its food singly, but at night at some seasons of the year at any rate, the Brahminies apparently flock to a common roosting-place, as mentioned by Mr. Foulkes in *Vol. XVI, No. 4 of the Bombay Natural History Society Journal.*

Major E. G. Phythian Adams writes that he has often seen these Kites carrying off wounded snipe.

Davison says it is commoner in the Wynaad than on the Nilgiris.

Breeding season. January to March.

Nest. A large platform of sticks usually placed high up in the thick fork of some tall tree, sometimes among the leaves of a cocoanut tree.

Eggs. 2 to 4; vary considerably in colour, some being pure white, others slightly stippled with deep brown, others blotched with brown

of a lighter shade ; some with a rufous-brown cap at the thick end and occasionally with the same at the thin end, and one egg I have, is largely blotched with purplish-grey and has also some yellowish-brown blotches confined to the thick end. Length 2″ ; breadth 1·63″—(*C.M.I.*).

Genus **MILVUS** Cuvier 1800.

"The bill is rather weak, the culmen straight at the base, then curved ; the festoon generally small, the cere well developed and the nostril oval and oblique. Wings long and pointed but not extending quite to the end of the tail ; third and fourth quill longest ; tarsus short, feathered for about half its length ; the naked lower portion with broad shields in front, reticulated behind and at the sides ; toes short, scutilate above, lateral toes uneven ; claws moderate, middle claw dilated on the inside "—(*Fauna of British India*).

(335) Milvus migrans govinda Sykes.

THE COMMON PARIAH KITE.

(*Fauna of British India*, 2nd edition, No. 1787.)
(*Fauna of British India*, 1st edition, No. 1229.)

Description—Male. Length about 21″ ; wing 16·5 to 16·75″ ; tail 9·5 to 10″ ; tarsus 2 to 2·5″ ; bill from gape 1·5″ to 1·75″.

Barnes gives the length as 22 to 25″ ; wing 17 to 19″ ; tail 11 to 13·75″. These dimensions appear to be rather exaggerated.

Bill black with the basal portion of both mandibles and cere yellowish white ; irides brown ; legs and feet pale yellow, claws black.

The plumage of adult birds varies considerably but typically the forehead is light rufous, the occiput dark brown, the remainder of the head and neck tawny, the feathers with narrow dark shaft-stripes ; upper plumage dark brown, some dark-shafted ; tail obsoletely banded darker ; ear-coverts dark brown ; wings dark brown, the secondaries and tertiaries banded white on the inner webs ; chin, throat and foreneck pale rufous with darker shaft-stripes ; lower plumage dark brown, each feather with a broad mesial dark stripe with a tawny stripe on each side of it ; vent, in some, unstriped pale rufous.

Female. Similar to male.

Young birds have the base of the mandibles pale bluish and the cere whitish ; legs lemon-yellow. Head and nape brown ; hind neck yellow-brown, all feathers with dark shaft-stripes ; back and upper plumage deep brown with blackish shaft-stripes, the feathers white at their bases which colour shows through in places, especially on the rump ; tail dusky grey with dark bars, pale tipped ; wings as in the adult ; chin and throat pale yellow-brown with dark shafts ; lower plumage dark brown as in the adults.

Locality, habits, etc. This Kite is so common everywhere, even as a visitor to the hills, that a lengthy description of its habit would seem almost superfluous. It is found in large numbers in every village and cantonment whether inland or on the coast ; every barrack and camp is

infested with it, especially at meal hours when hundreds may be seen circling round the cook and mess houses or tents, on the look-out for scraps and refuse. It is at such times that one notices the extraordinary boldness of these birds. They often swoop down one after another at a camp table, and take off scraps from the plates of the diners; the accuracy too with which they swoop down and pick up scraps off the ground or with which they catch in their claws anything thrown up in the air is amazing; should one Kite make off with a morsel, the rest of the crowd at once gives chase with much screaming and, clawing, the tit-bit changing hands, or, one should say claws many times before it is finally devoured. This Kite is not such a fish-eater as the Brahminy, but prefers refuse in the shape of meat, bread, etc.; it is also partial to lizards, chickens, ducklings, young pigeons, in fact, any small or injured bird or animal.

During the non-breeding season it has the habit of congregating at night for roosting purposes and we have often seen it repairing in scores at sun-down to the favourite tree; another habit it has, which is really more vulture-like than kite-like, is of sitting on the roof of a house or branch of a tree in the early morning with outstretched wings, Presumably for the purpose of drying its feathers; this latter habit was evidently noticed by the ancients, as one occasionally sees representations of these kites in this attitude, depicted upon the mural decorations of temples.

"On the 27th February 1922 I was surprised to see one of these Kites building its nest in a tall Eucalyptus tree in a Badaga village not far from Ootacamund; till then I was unaware that the Pariah Kite breeds on the tops of the Hills"—(*H.R.B.*) Mr. Remington writing to the *Bombay Natural History Society's Journal* from Rajputana says:—"Yesterday I saw here a Common Pariah Kite (*M. govinda*) sitting on the edge of what appeared to be a large nest built in an Indian cork tree (*Millingtonia hortensis*) and as it refused to move although several stones were thrown at it I climbed the tree to see if the nest contained any eggs. To my surprise I found that the nest contained no eggs but a regular larder containing several dead squirrels, paroquets, crows and some old bones, all in various stages of decomposition, showing that the bodies had been placed there at various times. We had been shooting squirrels, parrots, etc., lately as they had been a nuisance."

The late Mr. Dodsworth writing to the same Journal states that he saw a pair of Kites with a similar larder in Calcutta.

Breeding season. Ranges from early in September to end of March, and we are inclined to think that some birds rear two broods in the season.

Nest. A large clumsy structure of sticks, rags, etc., built in the fork of a tree or at the junction of a branch with the trunk.

Eggs. 2 to 4; white, very occasionally without any colouring generally blotched, spotted and smudged with reddish-brown, some times all over the shell, at other times at the large end, and again at other times at the small end only. Average measurement 2·16′ × 1·64."

Genus **ELANUS** Savigny 1810.

"Bill, small, wide at the base, compressed towards the end; culmen curved sharply from the cere; festoon distinct; nostrils oval, nearly

horizontal, protected by long loral bristles ; wings long and pointed, exceeding the tail when closed ; second quill longest ; tail moderately long, square at the end. Tarsi short and stout, feathered in front for more than half their length, naked parts reticulated throughout. Toes strong, reticulated above except close to the claws. Lateral toes subequal in length ; middle claw keeled, the others rounded beneath "—(*Fauna of British India.*)

(336) Elanus cœruleus vociferus (Lath.)

THE BLACK-WINGED KITE.

(*Fauna of British India*, 2nd edition, No. 1789.)
(*Fauna of British India*, 1st edition, No. 1232.)

Description—Male. Length 13″ ; wing 10·7″ ; tail 5″ ; tarsus 1·3″ ; bill from gape 1·1″.

Bill and claws black ; cere and gape pale yellow ; irides crimson ; legs and feet deep yellow. In the young, the irides are yellow.

Forehead, lores, except immediately in front of eye, a streak over the narrow supercilium, and whole of lower plumage white ; remainder of upper plumage grey ; feathers in front of the eye, a narrow supercilium bordering behind the eye, the median and lesser wing-coverts, black; median tail-feathers and the outer web of next pair light grey ; remainder of tail white.

Female. Similar to male.

Very young birds have the head rufous-fulvous with dark centres to the feathers ; back the same colour but much tinged with grey and with broad buffy-white tips. Wings grey tipped with white, the shoulders browner than in adults ; tail-feathers tipped with white ; the breast-feathers tinged with fulvous.

Locality, habits, etc. It occurs locally, but is not common. Davison obtained it at Neddivatam and below Kotagiri. Ferguson considers it only a winter visitor to Travancore. It frequents cultivated country and is generally seen in the vicinity of grassy nalas. It has a habit of hovering like a Kestrel and dropping down on its prey which consists chiefly of insects and small mammals such as rats, etc., it does not invariably catch its prey like this, but sometimes swoops at it from a perch, its usual custom being to hawk close to the ground. "I have seen it fairly often in the cold season hawking over the swamps around Ootacamund "—(*H.R.B.*).

A. M. Primrose saw a pair at Poda Padi at the foot of the South Wynaad Hills.

Breeding season. This varies in different parts of the country and nests may be found at any time throughout the year. This species has sometimes two broods in the year, and apparently retires to the better wooded districts to rear them, for in the Deccan where the bird is exceedingly common during the cold weather not one is to be seen from March to October.

Nest. "Of twigs, either lined or not, the lining being composed of grass ; a favourite site for them to build is on babul trees."

Eggs. "3 or 4 ; the colour varies a great deal, the same clutch often holding eggs of a totally different colour. One clutch of 4 eggs I have are as follows :—First egg white slightly tinged with yellow ; second

egg the same ground-colour but densely blotched with brownish-red so as to almost obliterate it ; third egg same ground-colour but densely freckled all over with brownish-red, and the small end with some much deeper reddish-brown blotches ; fourth egg ground-colour white, blotched and stippled with blood-red, nearly half the egg at the large end densely marked with that colour, the markings being confluent. Another clutch of 4, is as follows :—First egg, ground-colour yellowish brown rather sparsely blotched and smeared with the same colour, but of a much deeper shade ; second egg, ground-colour brownish-red without any markings ; third egg, ground-colour yellowish-white with a broad zone in the middle of yellowish-brown and some more or less confluent blotches of the same colour at the large end ; fourth egg, ground-colour pure white, nearly half the large end being densely marked with deep brownish-red, these markings being confluent, the rest of the egg has one or two minute blotches of light brownish-red. Another egg I have is pure white with only a few reddish-brown specks and blotches near the large end. The eggs vary little in size, some being slightly more elongate than others. Hume gives the average of a large number as 1·53 × 1·21″—(*C.M.I.*).

Genus **CIRCUS** Lacépède 1806.

"General form slender ; bill moderate or weak, compressed, the culmen curving from the margin of the cere to the hooked tip ; the margin of the upper mandible slightly festooned ; nostrils large, oval, in the anterior part of the cere, overhung and partly concealed by the bristles of the lores. A ruff of small closely-set feathers, much more conspicuous in some species than in others, extends across the throat and up each side of the neck behind the ear-coverts. Wings long and pointed ; tail long, even at the tip or rounded. Tarsi long and slender, feathered at the base only, with transverse shields in front and smaller polygonal scales behind ; toes moderate ; claws much curved and sharp"—(*Fauna of British India*).

(337) **Circus macrourus** (S. G. Gmel.)

THE PALE HARRIER.

(*Fauna of British India*, 2nd edition, No. 1790.)
(*Fauna of British India*, 1st edition, No. 1233.)

Description—Male. Length 17·5 to 18·5″ ; wing 13·5 to 14″ ; tail 8·5 to 10″ ; tarsus 2·8″ ; bill from gape 1·15″.

Bill black ; irides bright yellow ; legs yellow ; claws black ; lores with close, dark brown hair-like feathers ; a small patch of similar feathers at the base of the lower mandible.

Head, neck and shoulders pale grey washed with brown, the former also with dark shafts, and the latter with darkish margins ; back darker grey, tinged brown ; rump pale grey with narrow white tips to the feathers ; wing-coverts grey washed with brown, the primary coverts with fairly broad tips ; the first two quills grey on the outer web, dusky brown at tip and on the inner web for the terminal two-thirds, white for the basal third ; remaining quills blackish brown ; secondaries

grey on outer webs with brown shafts and narrow white tips, and white freckled with grey-brown on inner webs; the two central tail-feathers grey washed with brown, the remainder banded grey and white, all with white shafts; chin, cheeks and ear-coverts white tinged yellowish or creamy; remainder of lower plumage white, tinged dull yellowish on the abdomen.

Female. "Length 19·5"; wing 14·5"; tail 10"; tarsus 2·9"."—(*Fauna of British India*).

Upper plumage brown, the feathers of the head and neck edged with rufous-buff; an indistinct supercilium buff; lores and eye-lids white; ruff white with broad brown centres to the feathers; wings dark brown; lesser coverts margined with rufous-buff; tail-coverts white with dark shaft-stripes and oval drops along the centre; tail has the centre feathers grey, the others pale rufous, all banded with dark brown; lower plumage white with broad brown shaft-stripes which become narrower on the abdomen.

"**Young birds** resemble the female above, except that the feathers have at first rufous edges throughout; there is a white nuchal patch with brown shaft-stripes, and the ruff is unstreaked buff and very conspicuous; the upper tail-coverts are white; the lower parts throughout are rufous buff with faint shaft-stripes. There is a gradual passage from this plumage into that of the adult; nearly adult males are often found with patches of brown on the crown and brown shaft-stripes on the breast. Iris, in young, is brown."—(*Fauna of British India*).

Locality, habits, etc. A cold weather visitor to the hills and plains from October to April. It is to be seen flying slowly over grass-lands and swamps which it quarters regularly, now and then stopping and dropping down on its prey which consists of insects, reptiles, small mammals and sometimes birds, as Davison saw one carry off a Myna from a flock that was on the ground—the Myna was inconvenienced by a blind eye—; he also found in the stomach of one the remains of a young Bush-quail (*Cryptoplectron erythrorhynchus*). This bird seldom perches on a tree, generally on the ground or on a stone.

Davison says it frequents by preference the cultivated lands about the Badaga villages.

Breeding season. Breeds in Europe.

(338) Circus pygargus (Linn.)

MONTAGU'S HARRIER.

(*Fauna of British India*, 2nd edition, No. 1791.)
(*Fauna of British India*, 1st edition, No. 1234.)

Description—Male. "Length 17"; wing 15"; tail 9"; tarsus 2·3"." "Bill black; cere greenish yellow; iris yellow; legs and feet yellow"—(*Fauna of British India*).

Upper plumage and lower parts to abdomen dark bluish-grey, marked with brown on the back; upper tail-coverts banded with white; first six primaries black tipped with grey, the grey gradually increasing on the inside feathers; secondaries grey with a black bar; edge of wing and under wing-coverts white, some marked with grey; axillaries white

with chestnut bars, some elongate and forming drops; abdomen, vent and under tail-coverts tinged with grey.

Female. "Length 19″; wing 15·9″; tail 9·25″; tarsus 2·4″; iris brownish yellow."

"Females resemble those of *C. macrourus* but the ruff is very indistinct and the upper parts are rather darker, and the edges of the head and neck-feathers and of the wing-coverts more rufous; the general colour of the lower parts is buff or dull rufous with rufous brown shaft stripes."

"The young of *C. pygargus* are distinguished by the ruff being indistinct and streaked throughout in place of the conspicuous buff ruff of *C. macrourus*; the lower surface too is darker and more distinctly streaked. At all ages *C. pygargus* may be recognized by its short tarsus and by the notch or emargination on the outer web of the second primary being about an inch beyond the ends of greater coverts, whilst in *C. macrourus* the notch is close to them"—(*Fauna of British India.*)

Locality, habits, etc. Similar to the last species.

Breeding season. "Breeds in Spain, in May"—(*H. E. Dresser*).

(339) Circus cyaneus cyaneus (Linn.)

THE HEN-HARRIER.

(*Fauna of British India*, 2nd edition, No. 1792.)
(*Fauna of British India*, 1st edition, No. 1235.)

Description—Male. "Length 18″; tail 9″; wing 13″; tarsus 2·75″."

"Bill black; cere yellow; iris yellow; legs and feet yellow."

"Similar to *C. macrourus*, except that the ashy grey of the upper plumage is somewhat darker and extends over the chin, throat, and upper breast, there is a distinct white nuchal patch with brown shaft-stripes, the terminal half of the first six primaries is black, and the upper tail-coverts are pure white."

Female. "Length 21″; tail 10·5″; wing 15″; tarsus 3″."

"Colour of soft parts same as in male but the iris is brown in the young female."

"The rufous markings on the wing-coverts, especially the greater, are better-defined spots than in the species already dealt with; the upper tail-coverts are pure white; the nuchal spot very definite; the ruff of buff feathers well developed with dark streaks; the forehead and feathers round the eye are dull browny-white."

Young. "Young birds have the lower parts buff or pale rufous, with distinct broad shaft-stripes, and the ruff, though distinct is always striated"—(*Fauna of British India*).

Locality, habits, etc. We are very doubtful as to including this species but do so because Stuart Baker gives distribution as, "Winter to . . . India." In the first edition it was only given as far south as the Central Provinces.

(340) Circus melanoleucus (Forst.)

THE PIED-HARRIER.

(*Fauna of British Inida*, 2nd edition, No. 1793.)
(*Fauna of British India*, 1st edition, No. 1236.)

Description—Male. Length 17 to 18″; wing 13·4 to 14″; tail 8 to 10″; tarsus about 3″.

Bill and cere black ; irides yellow ; legs yellow, claws black.

Head, neck, back, scapulars, greater wing-coverts, chin, throat, breast and primaries black, mixed with white on the hind neck and median coverts ; shoulders white ; primary and lesser wing-coverts, secondaries and some of the tertiaries grey with dark shafts, remainder of the tertiaries brown edged white ; rump and upper tail-coverts banded grey and white ; tail grey, brown-shafted, the outer feathers margined white ; beneath from the breast pure white.

Female. "Length 18·5″; wing 14·5″; tail 9″; tarsus 3·2″; bill from gape 1·2″."

"From *macrourus and pygargus* it can be separated by a presence of a notch on the fifth primary ; the coverts along the forearm are white with rufous-brown centres ; the median wing-coverts have grey or white spots and marks ; greater coverts dusky grey with broad bands of dark-brown, the feathers of the head and ruff are white or pale buff, the feathers with broad brown lanceolate centres ; lower plumage white to pale fulvous or rufous, streaked with brown ; upper tail-coverts white, marked with light brown."

Young birds "are darker brown above with dark rufous edges to the feathers of the head and neck ; the nuchal patch is almost invariably present in marked degree; the lower parts are dark brownish-rufous, with dark-brown streaks on breast and flanks, the ruff is very well marked "—(*Fauna of British India*).

Locality, habits, etc. Uncommon on the Nilgiris, frequenting the plains more than the hills. It is more partial to swamps than any of the preceding species and may be seen gliding over grass lands and dropping suddenly on a grasshopper or some such small creature.

A. M. Primrose writes to the *Journal of the Bombay Natural History Society* : "Same remarks apply as to *C. macrourus* ; if anything it may be met with a little more frequently, or perhaps its marked plumage catches the eye quicker (?) "

Breeding season. "Breeds on the Amur in April and May..... It is practically certain that odd pairs . . . breed in the N. Cachar Hills "—(*Fauna of British India*).

(341) Circus æruginosus æruginosus (Linn.).

THE MARSH-HARRIER.

(*Fauna of British India*, 2nd edition, No. 1794.)
(*Fauna of British India*, 1st edition, No. 1237.)

Description—Male. Length 19 to 21″ ; wing 16″ ; tail 9″ ; tarsus 3·4′ to 4″; bill from gape 1·6″.

Bill plumbeous-black ; cere yellowish-green ; base from nostril to lores plumbeous-black ; irides yellow ; legs and feet yellow ; claws black.

Head, neck and breast pale rufous, with dark brown shaft-streaks, which are broader on the breast ; remainder of upper plumage dark brown ; primary and greater coverts silvery grey ; the lesser ones whitish, remainder brown ; first six primaries black, remainder silvery grey ; tertiaries and scapulars deep brown ; upper tail-coverts mixed rufous, white and brown ; tail grey ; lower plumage from breast reddish-brown with dark stripes.

Female. "Length 22·5" ; wing 16·5" ; tail 9·75 ; tarsus 3·5" "—(*Fauna of British India*).

Irides brown. From forehead to crown, chin and throat rich buff with fine brown shaft-streaks ; remainder of upper plumage dark brown ; upper tail-coverts rufous ; a buff patch on the head, not always present.

A female I shot during the cold weather on the Malabar Coast had the whole head, chin and throat, and a broad moustachial stripe almost pure white with narrow brown shaft-stripes on some of the feathers—(*H.R.B.*).

Young birds are dark brown with a buff nuchal-patch with brown streaks.

Locality, habits, etc. Common on the hills and plains, usually frequenting swamps and paddy-fields in search of frogs, fish, insects, rats, etc. Sir A. Cardew records the Marsh-Harrier from Ootacamund and we have found it abundant on the West Coast. Mr. Dewar however does not include it in his list of "Birds found around Madras." These birds show great boldness in search of food and frequently carry off a wounded snipe or teal.

Breeding season. "April and May"—(*H. E. Dresser*).

Nest. The usual Harrier's nest of grass, placed in reeds on the ground. Mr. Rhodes Morgan of the Forest Department took one in the Kurnool district on the banks of the Kistna.

Eggs. 4 or 5 ; white, or close speckled and blotched with brown ; they measure 2" × 1·5".

Genus **BUTEO** Cuvier 1800.

"In the Genus *Buteo* the bill is small or moderate, the culmen is curved from the cere, the commissure nearly straight, the festoon being only slightly developed ; the nostrils are oval and oblique ; the wings ample and long, the 3rd, 4th and 5th quills sub-equal, the 4th generally a little the longest ; the first four quills deeply notched on the inner web ; tail moderately long, rounded at the end ; tarsus long, partly or wholly feathered in front, naked and more or less covered with transverse scutellæ behind ; toes short, lateral toes and claws very unequal"—(*Fauna of British India*).

(342) **Buteo vulpinus** (Gloger).

THE DESERT-BUZZARD.

(*Fauna of British India*, 2nd edition, No. 1798.)
(*Fauna of British India*, 1st edition, No. 1241 (part).)

Description—Male. "Wing 350 to 377 mm. ; tail 180 to 191 mm. ; tarsus 68 to 72 mm. ; culmen 29 to 31 mm."

"Iris yellow to hazel; bill dark lead-colour, lighter on the base and gape, cere yellow, legs and feet yellow. The feathering on the tarsus varies. Normally only the upper frontal third is covered, occasionally half. The naked portion is scutellated in front, rarely reticulated."

"Above brown, the feathers edged rufous except on the rump and upper tail-coverts: the head more rufous; tail rufous with pale edge to the tip, the shafts of the feathers white, a dark sub-terminal band and generally one or two more bands showing on the outer tail-feathers; wing-coverts like the back; primaries blackish-brown, white below the notch on the inner webs, the inner primaries also showing blackish cross-bars on these parts; lower parts rufous, the chin paler and streaked with dark brown; the remaining under parts showing pale bars and spots except on the thigh-coverts, which are practically uniform"

Female. Similar to but larger than male; "wing 378 to 392 mm.; tail 182 to 201 mm.; tarsus 68 to 73 mm.; culmen 30 to 31 mm."

"**Younger birds** have the lower parts whitish, very pale buff or creamy; the feathers of the chin to breast with black shafts and the whole much marked and barred irregularly with light rufous-brown; thighs normally all rufous-brown.

Some individuals are less rufous in general tone and have the tail much browner"—(*Fauna of British India*).

Locality, habits, etc. A cold weather visitor. Found on the Nilgiris where Cardew and Davison obtained specimens at Ootacamund. Ferguson says he has seen these birds on the grass-lands at Ponmudi in Travancore. It affects high open country; both Davison and Jerdon found it near swamps. It feeds on frogs, lizards, mice, etc.

Breeding season. From March to June in Kashmir, etc.

(343) Buteo burmanicus Oates.

THE JAPANESE DESERT-BUZZARD.

(*Fauna of British India*, 2nd edition, No. 1799.)
(*Fauna of British India*, 1st edition, No. 1241 (part).)

Description—Male. "Wing 374 to 379 mm.; tail 198 to 209 mm; tarsus 63 to 65 mm.; culmen 29 mm."

"Iris brown; bill slaty-brown to plumbeous-black; the base rather paler; cere yellow; legs and feet yellow; claws black. The feathering on the tarsus varies; in most birds it covers half, or rather more than half, the front but in some Himalayan specimens it covers the entire tarsus to the base of the toes"—(*Fauna of British India*).

Female. Similar to male but larger.

"Wing 389 to 454 mm.; tail 225 to 248 mm.; tarsus 69 to 74 mm culmen 29 to 36 mm."

Young. "Young birds are paler brown above and the feathers have broader and paler buff or whitish edges and, in addition, are much barred and marked with white on the bases and inner webs; the lores, forehead and a supercilium are white or pale buff; lower plumage white, pale buff or rufous, the breast, flanks and sometimes the abdomen streaked with dark-brown; the thigh coverts are dark-brown or rufous-

brown, barred with whitish, buff or pale rufous; under tail-coverts pure white; tail paler and more rufous than in the adult and more mottled and barred with brown, the bars numbering as many as a dozen, the terminal six well-marked, the basal six broken and indistinct."

Locality, habits, etc. "In winter south to India, Burma, Ceylon"—(*Fauna of British India*).

Either or both these Buzzards may occur in one area. "Its habits are much the same as those of other Buzzards but it is less restricted to open country and is sometimes found in the outskirts of forest and in well-wooded districts"—(*Fauna of British India*).

Genus **ASTUR** Lacépède 1801.

"The genus *Astur* has a short, stout bill curving sharply from the cere, with a large festoon; the nostril is moderate in size and oval. The wing is short and rounded, extending to about the middle of the long tail. Usually the 4th quill is longest, occasionally the 3rd or 5th, the three not differing greatly in length. Tarsus long, stout and scutellate in front and behind, reticulate on the sides, only the upper part covered with feathers; toes and claws moderate; the bill from the gape measuring ½ to ⅝ths the length of the tarsus and about two-thirds the length of the outer toe. The plumage is grey or brown above, spotted beneath in the young, transversely barred in adults"—(*Fauna of British India*).

(344) **Astur badius badius** (Gmel.)

THE CEYLON SHIKRA.

(*Fauna of British India*, 2nd edition, No. 1802.)
(*Fauna of British India*, 1st edition, No. 1244 (part).)

Description—Male. Length 12″; tail 5·5″; tarsus 2″; bill from gape 0·75″.

"Wing 6·75″"—(*W. E. Wait*).

Bill bluish, cere and legs yellow; irides orange.

Above uniform pale grey tinged pale rufous on nape and sides of neck; the nape and the coverts variegated with white; wings blackish, barred white on the inner webs; the tail has the outer feathers unbarred, the central ones very faintly, the remainder darkly barred; a faint dusky chin-stripe; chin, throat, vent and thighs white or pale reddish white; rest of lower plumage white with close transverse bars of pale rufous.

Female. Similar to male, but larger and browner above and deeper rufous barred below.

"Length 13·50″; wing 7·5″; tail 6·5″; tarsus 2″; mid-toe without claw 1·25″; bill from gape ·75″"—(*W. E. Wait*).

"**Young birds** are brown above, the feathers at first with rufous edges, their white bars conspicuous on the head and nape; all the tail-feathers are barred, the bars on the outer feathers narrower and rather more numerous; the lower parts are white with large elongate brown spots, largest on the breast, and there is generally a median brown stripe on the throat"—(*Fauna of British India*).

THE SHIKRA
(*Astur badius dussumieri*).
One-third Nat. Size.

THE PURPLE MOORHEN
(*Porphyrio poliocephalus poliocephalus*).
One-quarter Nat. Size.

Locality, habits, etc. Travancore.

A bird of open country or light forest. It feeds on insects, lizards, small birds, etc.

Breeding season. "Stewart found it breeding in the rubber-lands and open country "—(*Fauna of British India*).

Nest and Eggs. "Bourdillon and Stewart took eggs in February, March and May. The nest, self-built, is made of twigs and small sticks high up in a big tree measuring a foot or less in diameter and only three or four inches deep. The eggs 2 to 4 in number, are a pale skim-milk blue fading to white in time "—(*Fauna of British India*). "Average size 1·55 by 1·22″ "—(*W.E. Wait*).

(345) Astur badius dussumieri (Temm.)

THE INDIAN SHIKRA.

(*Fauna of British India*, 2nd edition, No. 1803.)
(*Fauna of British India*, 1st edition, No. 1244 (part).)

Description—Male. "Length about 12·5″; wing 7″."

"Similar to the typical form but rather larger, a trifle paler and distinctly more ashy, less grey above; on an average, also, the barring underneath is paler."

Female. "Length about 14″; tail 7″; wing 8·25″; tarsus 2″; bill from gape 0·8″."

Locality, habits, etc. "The whole of India, except Travancore "—(*Fauna of British India*).

The habits are similar to the preceding bird. They are trained to hawk small birds and even pond herons and are thrown from the hand. I have kept several of these birds for this purpose—(*C.M.I.*).

Breeding season. March and April.

Nest. Similar to that of the last bird.

Eggs. 3 or 4, pale bluish-white averaging about 1·48″ × 1·21″.

(346) Astur trivirgatus trivirgatus (Temm.).

THE CRESTED GOSHAWK.

(*Fauna of British India*, 2nd edition, No. 1809.)
(*Fauna of British India*, 1st edition, No. 1246 (part).)

Description—Male. "Length about 14″; wing 7·5″ "—(*W. E. Wait*).

Bill blackish-slate; cere and eyelids greenish-yellow; gape and ring round the eyes purer yellow; irides golden-yellow; legs and feet deep yellow.

Upper parts dark brown tinged with ashy; head and crest darker, almost black; sides of head dark ashy; upper tail-coverts tipped white; quills and tail banded with dark brown; lower parts white; chin and throat with a median and two outer blackish streaks and the breast with broad pale rufous-brown centres to the feathers; abdomen broadly, and thigh-coverts narrowly barred with the same colour; under tail-coverts white.

Female. Similar to male. "Length about 15·5"; wing 8"; tail 7"; tarsus 2·25"; mid-toe without claw 1·25"; bill from gape 1·1"."—(*W. E. Wait*).

Young birds have the upper plumage brown margined with whitish; the head has a streaked appearance on account of the buffy white bases of the feathers showing through; the lower plumage has brown oval drops on it, but the thigh-coverts are barred as in the adult.

Locality, habits, etc. "Travancore, North to Khandesh, Nilgiris and other hill-ranges of Mysore and Southern India."

"This Goshawk is a purely forest bird and is found alike in the plains and up to 3,500 feet in Ceylon and perhaps higher than this in the hills of Southern India. In Travancore it seems most common between 1,500 and 3,000 feet . . . It lives principally on frogs and lizards, . . . small mammals and birds"—(*Fauna of British India*).

Sir A. Cardew records it from Ootacamund.

Breeding season. March and April (S. Travancore).

Nest and Eggs. Mr. Bourdillon gives such an interesting note in the *Bombay Natural History Society Journal* that we transcribe it in full:—"It breeds in our forests (Travancore) at elevations of 1,500 to 2,000 feet above the sea-level. I have twice taken their nests. On the first occasion I observed a bird fly off a nest about 30 feet from the ground, and as I had no cooly with me and the tree was not a difficult one, I went up to the nest myself. The nest was a framework of sticks, larger at the bottom and gradually decreasing in size, with a lining of leaves, the last additions, which were the leaves of the iron-wood tree (*Mexia ferrea*), being quite fresh. It measured 18 inches in diameter and contained two slightly set eggs. These were of a rough texture and when held up to the light seemed to have a slightly greenish tinge. The ground colour was white and they had a very few light brown marks, but as a rule seemed like magnified specimens of *Butastur teesa*. This was in March. The second nest, which I found in April, contained a couple of young birds, and it is to be noted that the colour of their eyes was a fine dark brown, contrasting with those of adult birds which are light yellow."

Nests are usually situated at a height "between forty and a hundred feet but Stewart also found nests occasionally on saplings within about twenty feet from the ground"—(*Fauna of British India*).

Genus **ACCIPITER** Brisson 1760.

"This genus . . . is separated from *Astur* on account of the much greater length and slenderness of the tarsi and toes. The middle toe is especially long, projecting far beyond the others. The bill from the gape is about one-third the length of the tarsus and about one-half the middle toe with the claw"—(*Fauna of British India*).

(347) Accipiter nisus nisosimilis (Tickell).

THE ASIATIC SPARROW-HAWK.

(*Fauna of British India*, 2nd edition, No. 1811.)
(*Fauna of British India*, 1st edition, No. 1247 (part).)

Description—Male. Length 12·5"; wing 8"; tail 6"; tarsus 2·25".

Bill dusky, paler at the gape; irides bright yellow; legs ochre-yellow.

Upper plumage grey tinged brown, the feathers centred darker; eye-brows and nape white; wings ashy banded brown and with large white spots on the inner webs; shafts brown; central tail-feathers ashy, the rest brown with dark bars and some feathers tipped white; chin and throat white, the shafts dark; plumage below white with numerous close bars of reddish ochre and dusky brown, more reddish on breast and sides; under tail-coverts pure white.

Female. Somewhat similar to male but is paler and browner above, has narrower markings and is whiter below; length 15·5″; wing 9·5″; tail 7·5″.

Young birds "are brown above, the feathers with rufous edges at first; the white very conspicuous on the nape and supercilia; lower parts white, buff, or brownish buff; feathers of the crest, abdomen and lower tail-coverts with dark shafts and spade or heart-shaped rufous brown spots with dark edges; these spots pass into bars"—(*Fauna of British India*).

Locality, habits, etc. This, the Asiatic Sparrow-Hawk, is a common winter visitor to the hills, but is met with less commonly on the plains, where it frequents open country. "Lately when out shooting near Ootacamund, I saw one of these birds stoop at a snipe which I had flushed and which had again settled down about a 100 yards from me; this may have been more out of cursedness than an actual attempt to capture the snipe; anyway the stoop was unsuccessful"—(*H.R.B.*).

Major E. G. Phythian Adams writes:—"I have several times seen these hawks carry off wounded snipe on the Nilgiris, on one occasion a snipe which had been flushed but not fired at was killed by a sparrow-hawk."

Breeding season. "North and Central Asia to Japan"—(*Fauna of British India*).

(348) Accipiter virgatus besra Jerdon.

THE SOUTHERN BESRA SPARROW-HAWK.

(*Fauna of British India*, 2nd edition, No. 1813.)
(*Fauna of British India*, 1st edition, No. 1248.)

Description—Male. "Length about 10·5″; wing 6·25″; tail 5″; tarsus 2″; mid-toe without claw 1·25″; bill from gape ·62″"—(*W. E. Wait*).

Bill plumbeous, blackish at tip; cere lemon-yellow; irides yellow; legs and feet greenish-yellow, the soles more orange coloured.

Upper plumage dark slaty; sides of the head dusky tinged rufescent; quills browner than the upper plumage and barred dark brown; tail grey with four dark bands on the median feathers and six narrower and oblique ones on the others; chin and throat white with a dark median stripe; rest of lower plumage barred rufescent and white, the white on the breast being narrow, and there being some black shafts; vent and under tail-coverts white.

Female. "Length about 13·5″; wing 7·5″; mid-toe 1·4″; bill from gape ·7″"—(*W. E. Wait*).

"Above dark-brown, the crown still darker; the scapulars, wings and tail barred with blackish and marked with white as in the male; sides

of head and neck brown; chin and throat white with broad mesial and lateral streaks of dark-brown; upper breast and flanks rufous-brown, the feathers edged with white, making these parts look streaky, lower breast to vent and thigh-coverts white barred with rufous-brown, the edges of these bars darker; under tail-coverts white; axillaries and under wing-coverts white barred with black."

Locality, habits, etc. "South India. Common in Travancore and the Malabar Coast, apparently rare elsewhere"—(*Fauna of British India*).

It is a forest bird seldom leaving it any distance. It feeds on lizards, insects and also small birds and mammals and is sometimes kept to fly at partridges, quail, snipe, doves, etc.

Breeding season. "January to April in Travancore."

Nest. "They generally, if not always, use old nests of other birds, repairing, building them up and adding good linings of green leaves and smaller twigs. The tree selected for the nest is nearly always a high tree in dense forest but occasionally Stewart has taken nests on trees in rubber-clearings.

Eggs. "The normal clutch is three or four and very rarely five, whilst on the other hand two only are sometimes incubated. The eggs are like those of other Sparrow-Hawks but are on an average very lightly marked and are very bright, clean-looking eggs, the blue tint in the ground-colour absent or very faint, whilst the blotches are very bold and dark and often with underlying clouds of grey. Forty eggs average 36·5 × 29·8 mm."—(*Fauna of British India*).

Genus **PERNIS** Cuvier 1817.

The bill is weak, rather elongate, not much hooked at the end, and with a small festoon or none; nostrils long, narrow and oblique, the upper margins membranous. Wings long, third and fourth quills sub-equal and longest, fifth very little shorter. Tail moderately long, slightly rounded. Tarsus, short, stout, plumed half-way down in front, the naked portion covered all round with small sub-hexagonal non-imbricate scales; toes long, covered above with bony transverse shields, all divided except the last two or three; claws long, slightly curved, middle claw somewhat dilated on the inner side"—(*Fauna of British India*).

(349) **Pernis ptilorhynchus ruficollis** Lesson.

THE INDIAN CRESTED HONEY-BUZZARD.

(*Fauna of British India*, 2nd edition, No. 1819.)
(*Fauna of British India*, 1st edition, No. 1249 (part).)

Description—Male. "Length 25″; wing 16″"—(*Fauna of British India*).

Bill black, base of lower mandible plumbeous; cere brown; irides reddish-brown or golden-yellow; legs and feet yellow.

Adult-upper plumage dark brown, nuchal crest darker; lores, around the eyes and for a short distance behind it, the cheeks and chin with closely-set, small plumbeous-grey feathers; primaries whitish-brown inside, barred and tipped with black; tail black broadly banded and tipped with ashy-brown.

Female. Similar to male "length about 26″; wing 16·5″; tail 10·5″; tarsus 2″; mid-toe without claw 2″; bill from gape 1·65″"—(*W. E. Wait*).

Immature plumage.—Lores, cheeks and sides of head brownish-ashy; rest of upper plumage brown, varying in depth of colour according to age, the feathers margined paler and with blackish shaft-stripes ; a good deal of white shows through on the nape and hind neck, the feathers here being of that colour for their basal half ; quills dark brown, paler on inner webs where they are banded with dark brown and white ; tail banded dark and light brown, tipped blackish brown, and mottled white at the base ; chin and throat fulvous, with patches of white showing through, and with traces of the three dark longitudinal stripes, all the feathers with dark shaft-stripes ; remainder of lower plumage pale rufous-brown with dark shafts, the feathers of the breast white for their basal half, those of the abdomen, vent and thighs banded with white.

Nearly fledged nestling.—Head dark rufous-brown with black shaft-streaks; remainder of upper plumage brown, more or less tinged with rufous especially on the margins ; wings, some of the coverts and the tail tipped with white, and the former and latter banded with greyish-brown ; lower parts rufescent-brown with broad, dark brown shaft-streaks on the breast, narrower on throat, abdomen, thigh-coverts and under tail-coverts ; bill black, base bluish-white ; gape, cere and legs yellow ; irides dark brown.

Locality, habits, etc. Davison says it is found on the lower slopes of the Nilgiris and Ferguson considers it a rare winter visitor to Travancore. Often seen about gardens, mango-groves, etc. Its flight is straight but not fast and it seldom goes any distance though it is rarely allowed to settle for long, being mobbed by Babblers and other birds which seem, unaware that it is harmless. It feeds on bees and wasps, honey (swallowing comb and all) and also reptiles.

"One of these birds created a panic in the centre of Ootacamund by striking at a honey-comb suspended from the branch of a large tree, the bees of course angrily flying about in all directions and forcing the passers by, some of whom were badly stung, to take refuge in shops and houses"—(*H.R.B.*).

Breeding season. January and February in Travancore.

Nest. Composed of twigs placed in the fork of a tree usually fairly high up from the ground.

Eggs. 1 or 2; they are very handsome and vary greatly in colour, some being extremely richly coloured, others almost white ; sometimes eggs of quite different colours are obtained in the same nest. In one clutch of two, one egg is dull buff-brown, blotched and clouded with the same colour but of a deeper shade, without any bold markings ; the other has a yellowy-white ground boldly blotched with rufous-brown, the blotches confluent and forming a cap at the large end ; another clutch has the ground-colour white, one egg being stippled and smudged with dull reddish-brown, the other has a cap of reddish-brown at the small end and a few blotches of the same colour near this, the thick end having only a few spots and specks. Another egg has the ground-colour pinkish white and is minutely stippled all over with reddish-brown interspersed here and there with a few blotches ; yet another egg has a reddish-brown ground-colour deeply blotched with blood-red. Average measurement 2·14″ × 1·72″—(*C.M.I.*).

Genus **BAZA** Hodgson 1836.

"There is a long nuchal crest of but few feathers; the bill is stout, the culmen well curved and the cutting edge of the upper mandible furnished in adults with two teeth or projecting angles on each side (in young birds the tooth is often single). The cere is small; nostrils narrow, slightly oblique, with the upper border membranous. Wings moderate, the third and fourth quills longest. Tail extending beyond the closed wings, square at the end. Feathers on anterior part of flanks very long, covering the sides of the abdomen. Tarsus short, feathered in front for half its length or rather more, naked part reticulated, toes scutellate above middle toe about as long as the tarsus; outer toes subequal"—(*Fauna of British India*).

(350) Baza leuphotes leuphotes (Dum.).

THE INDIAN BLACK-CRESTED BAZA.

(*Fauna of British India*, 2nd edition, No. 1822.)
(*Fauna of British India*, 1st edition, No. 1251 (part).)

Description—Male. "Length 13"; wing 9·25"; tail 5·25"; tarsus 1·1"; mid-toe without claw 1·1"; bill from gape 1""—(*W. E. Wait*).

"Bill plumbeous; legs dirty greenish; irides brown"—(*A. M. Primrose*).

Head and neck including long nuchal crest and all upper plumage, abdomen, thigh-coverts and lower tail-coverts, glossy black; scapulars internally tipped chestnut; outer webs of tertiaries white forming a broad band; outer webs of inner and outer secondaries chestnut; a broad white band on the breast followed by a chestnut one, with some black feathers, bordering the white gorget, sometimes forming a narrow band; remainder of lower plumage with the exception of the black portions, buff banded with chestnut.

Female. Similar to male but rather larger "wing 9·9"."

"In **younger birds,** there is more ferrugineous red and rather more white on the scapulars and quills; the upper surface and throat are duller black, the dark pectoral band beneath the white gorget is mostly ferrugineous red, and the red bands on the long feathers of the flanks are faint or wanting"—(*Fauna of British India*).

Locality, habits, etc. "It is found in Travancore and Jerdon shot one near Nellore. It is essentially a forest bird and is rather shy, those I saw in Assam would not allow me to come within shot. It feeds on insects and lizards and also according to Stuart Baker bats, mice, shrew and tree-frogs"—(*C.M.I.*)

Breeding season. "In February, March and April in Travancore, whilst Stewart also took one nest with eggs on the 4th of July in that Province.

Nest. "The nest which is placed on either small saplings or lofty trees, is well and compactly made of small twigs lined with grass or fibre, with an over-layer of green leaves. The tree selected seems to be always one in deep forest and, in preference, one near water.

Eggs. The eggs, 2 or 3 in number, are grey-white, generally much stained with tan-yellow. Twenty-four average 37·4 × 31·1 mm."—(*Fauna of British India*).

(351) Baza jerdoni ceylonensis Legge.

LEGGE'S BAZA.

(*Fauna of British India*, 2nd edition, No. 1825.)
(*Fauna of British India*, 1st edition, No. 1253.)

Description. "Length to front of cere (from skin) 16·5″; culmen 1·0″; total length 17·5″; wing 11·7″; tail 7·5″; tarsus 1·5″; mid-toe 1·35″; its claw straight 0·65″; inner toe 1·0″; claw straight 1·6″; bill to gape, 1·2″; iris yellow; bill blackish leaden; lower mandible palish at base; cere dusky plumbeous (?) tarsi and feet yellow; claws plumbeous."

"A second specimen, probably a female, has the wing 12″. It is not fully mature, having some of the scapulars edged white, while the tertials are more deeply tinted than the above"—(*Legge, S. F., Vol. IV, p.* 247).

"Lores blackish; head brownish tawny; over the centre of the forehead and crown the feathers are black, the rufous colour being confined to the edges; occipital crest (1¾″ in length) black, conspicuously tipped with white; the feathers of the hind neck deeply edged with rufous tawny, the centre parts being black which overcomes the pale edges on the lower portion; back, scapulars, rump, upper tail-coverts, primary and lesser wing-coverts, blackish brown, the latter the deepest and with a cinereous tinge; upper tail-coverts paler than the back; median and greater wing-coverts pale or fulvous brown, quills black; the outer webs curved by smoky grey bars, the corresponding band on the inner web being brown; tertials and secondaries tipped with white; tail dark smoky grey with greyish white tip and four blackish bars, the terminal one about 1½ inches in depth; cheek and ear-coverts slaty grey with dark shafts, the dark feathers of the occiput passing round to meet the latter region; chin and throat buff with a broad mesial black streak; sides and lower part of the neck with the upper edge of pectoral region tawny cinerous, the feathers with brownish shafts; below this the under surface, under tail and under wing-coverts are white with broad rufescent brown, dark margined brown the chest, flanks and outer surface of thighs; the under tail-coverts and under-wing are spotted with pale rufescent; the light portions of the quills and tail are white beneath"—(*Legge, S. F., Vol. IV, p. 248*).

Young birds. "(Nestlings) have pale rufous imperfect bands on the lower breast and abdomen. Bill blackish leaden; cere brownish black; irides orange; legs and feet dull dirty white"—(*Blyth*).

"Length 16·5″; tail 8″; wing 12″"—(*Fauna of British India*).

Locality, habits, etc. "Travancore. There is also a juvenile specimen from the Wynaad in the British Museum."

"Stewart says that the Baza is rare in Travancore and difficult to locate. The habits he describes as much the same as those of other Bazas"

Breeding season. "Breed from February to April most eggs being laid in March"—(*Fauna of British India*).

Nest. Stewart is the only person who has ever taken this bird's eggs. He describes the nests "as well-made structures of smellish sticks and twigs, sometimes lined with grass and roots and nearly

always finished off with green leaves. It may be placed either in a small sapling some twenty or twenty-five feet from the ground or in some forest giant five times as high as that. They seem to have a preference for trees near the edge of forest glades and openings, such as the banks of streams.

Eggs. "The eggs number two or three and are an unspotted grey white, nearly always considerably stained and occasionally the whole surface a rich buffy-red. Twenty-four eggs average 44·1 × 36·3 mm."—(*Fauna of British India*).

Order COLUMBÆ.

"The principal external characters of the order are the following :—The upper mandible consists of two parts ; the tip which is swollen, hard and convex, and the basal portion which is soft, being covered by skin in which the longitudinal slit-like nostrils open. Toes always four in number and on the same level ; no web between the toes, but the sole is considerably expanded in the more typically arboreal forms and much narrower in those that seek their food on the ground. After-shaft rudimentary or wanting. Spinal feather-tract well defined on the neck and forked in the interscapular region. Primaries 11 ; fifth secondary wanting (aquincubital). The number of the tail-feathers varies. The palate is schizognathous, the nasals schizorhinal ; basipterygoid processes present (except in the extinct *Dodo*). Cervical vertebrae 15. The sternum has generally two deep notches on each side of the posterior margin. Furcula 'U'-shaped. Deep planter tendons as in *Gallinae*. The ambiens muscle, as in Parrots, is sometimes present, sometimes absent ; the femoro-caudal, semitendinosus and accessory semitendinosus are always present, and the accessory femoro-caudal in all except the Australian genus *Lopholaemus*. The oil-gland is nude or wanting ; caeca and gall-bladder are present in some genera, absent in others. Both carotids are present"—(*Fauna of British India*).

Family COLUMBIDÆ.

Sub-Family TRERONINÆ.

"No ambiens muscle, oil-gland or intestinal caeca ; tarsus shorter than middle toe without claw ; 14 tail feathers ; general coloration light green ; a conspicuous yellow band on the greater wing-coverts"—(*Fauna of British India*).

Genus **CROCOPUS** Bonaparte 1854.

"The bill is short, the soft basal portion nearly as long as the horny terminal part ; tip well curved ; wings long and pointed, the first three primaries acuminate ; the quills with inner margin deeply sinuate about the middle of its length. Tail nearly square, or the middle feathers rather shorter than the outer ; under tail-coverts about three-quarters the length of the rectrices. Sexes alike or nearly so"—(*Fauna of British India*).

(352) **Crocopus phœnicopterus chlorogaster** (Blyth.)

THE SOUTHERN GREEN PIGEON.

(*Fauna of British India*, 2nd edition, No. 1828.)
(*Fauna of British India*, 1st edition, No. 1272.)

Description—Male. Length 13″ ; wing 7·5″ ; tail 4·5″ ; tarsus ·8″ ; bill from gape 1″.

Bill whitish, tinged blue at the base ; irides 2 rings pink to crimson ; legs waxy yellow. "Iris blue and lilac"—(*E. G. Phythian Adams*).

Head, cheeks, a broad band across the shoulders and the tail above ashy ; neck yellow-green : rest of upper plumage green with a lilac patch on the shoulders ; wings black-edged pale yellow, with a broad pale yellow bar on the coverts ; plumage below ashy-green mixed with yellow on the abdomen and flanks ; vent striped green and white ; feathers of tibia bright yellow ; under tail-coverts maroon, broadly tipped white ; tail below black on the basal half, greyish-white on the terminal half.

Female. Similar to male.

Locality, habits, etc. A resident of the plains frequenting, in large flocks, well-wooded localities, more especially groves of the Banyan tree (*Ficus indicus*), upon the fruit of which it chiefly feeds.

Mr. A. P. Kinloch writing from the Nelliampathy Hills says :—"On the Nelliampathy Hills the Southern Green Pigeon comes up from the plains towards the beginning of October. In November and December they are everywhere. Towards the middle of January they start disappearing, presumably to the plains and they gradually diminish in numbers till the middle of February when the last stragglers depart. Occasionally a few birds remain till the burst of the South-west monsoon and breed here. They have a habit of perching, in couples or small parties on dead or leafless trees, more especially in the evening but also occasionally at midday."

Breeding season. March to June.

Nest. Usual platform of sticks.

Eggs. 2 ; oval, glossy white, measuring 1·2″ × ·96″.

Genus **DENDROPHASSA** Gloger 1842.

"This genus differs from *Crocopus* in having the primaries blunt and not strongly attenuated ; the third primary is always strongly scalloped in the centre of the inner web ; the ramphotheca is always remote from the forehead, generally occupying not more than half the length of the bill ; the tail is very slightly graduated. Sexes not alike"—(*Fauna of British India*).

(353) Dendrophassa pompadora affinis (Jerdon).

THE GREY-FRONTED GREEN PIGEON.

(*Fauna of British India*, 2nd edition, No. 1831.)
(*Fauna of British India*, 1st edition, No. 1274.)

Description—Male. "Length about 10·75″ ; wing 5·75″ ; tail 3·6″ ; tarsus ·8″ ; bill from gape ·9″—(*Fauna of British India*).

"Horny portion of bill bluish white ; rest of the bill bluish green ; irides, outer ring pink, inner bright pale blue ; legs and feet lake pink ; claws bluish white."—(*Davison*).

"Forehead pale ashy or whitish grey ; mantle and wing-coverts maroon ; the rest of the upper parts with the lores, eyebrows, face and ear-coverts green ; wing-coverts broadly edged with bright yellow and the wing-feathers more or less marked with deep ashy on the inner

webs; beneath green, yellowish on the throat and neck, and mixed with pale yellow on the vent and thigh-coverts; under tail-coverts cinnamon "—*(Jerdon).*

Female. "Differs in wanting the maroon colour and in the under tail-coverts being mingled greenish, ashy and white "—*(Jerdon).*

Locality, habits, etc. Davison writing in *Stray Feathers* says this species does not ascend the hills but Mr. Ferguson says :—" In Travancore it is common in forest both in the low country and on the hills at low elevations ; in the hot months it ascends them up to 3,000 feet. Jerdon obtained it on the Eastern Ghats, and Sir A. Cardew on the Nilgiris at 3,000 ft. In habits it resembles the other members of the genus but, according to Jerdon, does not generally associate in such large flocks.

Breeding season. Mr. A. P. Kinloch writes from the Nelliampathy Hills :—" Becomes increasingly common as the previous species becomes rare. Extremely common in February and March but also goes down before the burst of the South-West Monsoons." Major E. G. Phythian Adams writes :—" I have seen it occasionally at Masnigudi at the foot of the Nilgiris on the north side, but it is not common."

Nest. Mr. T. F. Bourdillon took its nest in February in Travancore at an elevation of 2,400 ft. It was placed in a bushy tree, and was the usual platform of sticks as made by all green pigeons.

Eggs. The egg which was white measured 1·10″×·85″.

(354) Dendrophassa bicincta bicincta (Jerdon).

THE INDIAN ORANGE-BREASTED GREEN PIGEON.

(*Fauna of British India*, 2nd edition, No. 1834.)
(*Fauna of British India*, 1st edition, No. 1278 (part).)

Description—Male. "Length about 10·5″; tail 3·75″; wing 6·25″; tarsus ·85″; bill from gape ·95″.

" Iris with two rings, the inner ring bright ultramarine to deep blue, the outer pink to crimson ; bill pale blue or pale green the basal half darker and brighter ; legs and feet coral red to deep crimson-red, the soles pale and the claws horny-brown; eyelids and orbital skin bright lavender-blue "—(*Fauna of British India*).

Above green, more yellow on forehead, sides of head, chin and throat ; occiput, nape and hind neck bluish grey ; the upper tail-coverts with a reddish tinge; quills black with a yellow wing-band and the primaries and secondaries margined with yellow ; tail grey with a broad black band except on the middle feathers, below black broadly tipped grey; a lilac band next the green throat and crossing part of the breast; remainder of breast orange ; remainder of lower plumage yellow-green like the chin and throat, greener on the flanks, and pure yellow on the thighs and vent; lower tail-coverts cinnamon.

Female. Differs from male in wanting the lilac and orange on the lower plumage, the whole of which is yellowish-green much brighter than in the male ; under tail-coverts buff, the outer webs more richly coloured. Females are slightly smaller than males.

Locality, habits, etc. "The Malabar Coast, perhaps excluding the South of Travancore, whence the birds are very small and nearer *leggei*"—(*Fauna of British India*).

Jerdon obtained it once East of Nellore. These birds, like the other species of this genus, are found in flocks, often in considerable numbers and feed solely on fruit. Their flight is swift and their call, a whistle, is very soft and melodious. All Green Pigeons are difficult to see when quietly settled on a tree and it is only when feeding that they can be noticed. We have many times when shooting sitting birds for the pot had a shot at a pair which were close together and have dropped three or four, the others having been quite invisible on the tree.

Breeding season. "March to August"—(*Fauna of British India*).

Nest. The usual flimsy structure of sticks placed on a tree often also in bamboos and in cane palms standing in water.

Eggs. 2; pure white, glossy, average measurement 1·1″ × ·89″.

(355) Dendrophassa bicincta leggei (Hartert).

THE CEYLON ORANGE-BREASTED GREEN PIGEON.

(*Fauna of British India*, 2nd edition, No. 1835.)
(*Fauna of British India*, 1st edition, No. 1278 (part).)

"Length 10·5″; wing 5·6″; tail 3·7″; tarsus ·75″; bill from gape ·8″"—(*W. E. Wait*).

Description—Male. "Sex for sex like the typical form but decidedly smaller. Perhaps also Ceylon birds are rather darker and brighter than those from the continent of India"—(*Fauna of British India*).

Locality, habits, etc. "Birds from South Travancore are very small and seem referable to this race. Stewart obtained many but there are unfortunately no specimens from Travancore in the British Museum" (*Fauna of British India*).

Sub-family DUCULINÆ.

"Ambiens and oil-gland present, no caeca; tarsus shorter than middle toe; 14 tail-feathers; size large, exceeding that of common Pigeons"—(*Fauna of British India*).

Genus **DUCULA** Hodgson 1836.

"This differs from *Muscadivora* in having the inner primaries obliquely truncated at the end so that the outer web projects beyond the shaft, in the tail being somewhat longer with a broad pale band at the end, and in the absence of any green on the back, wings and tail which are rufous brown in the Indian species"—(*Fauna of British India*).

(356) Ducula badia cuprea (Jerdon).

JERDON'S IMPERIAL PIGEON.

(*Fauna of British India*, 2nd edition, No. 1845.)
(*Fauna of British India*, 1st edition, No. 1288.)

Description—Male. Length ·17″; wing 8·25″; tail 7·25″; tarsus 1″; bill from gape 1·37″.

Bill dull pink, darker at the tip; edges of eyelids and orbital patch pinkish-purple; irides brown; legs and feet dull pinkish-purple or lake-red.

Head, neck and lower plumage, except chin, throat and lower portion of abdomen, lilac ; remainder of upper plumage dull greyish-brown; lower back and rump dark grey; tail blackish, the terminal portion brownish-grey or grey; quills brownish-black; chin and throat white ; lower abdomen much tinged with buff; under tail-coverts buff.

Female. Similar to male.

Locality, habits, etc. "I first noticed this Pigeon when on the march from Seringapatam to Cannanore during the cold weather; we had halted for the day at Wotacolly, in Coorg, on the summit of the Western Ghats, and in the evening when strolling down the road which is cut through dense jungle, on the look-out for Jungle-fowl or Spurfowl, I heard an occasional loud booming noise which sounded to me like *who-whoo, who-whoo.* I attempted to stalk up to the tree, a veritable giant of the forest, whence the sound proceeded, but the crackling of the dry leaves and twigs prevented a silent approach ; I, however, caught sight of a dozen or so large Pigeons leaving the tree and these recommenced booming when they had alighted on another. Later on in the evening I was successful in shooting one of the birds ; it had been feeding on the walnut-like fruit of some tree (possibly wild nutmegs) of which its crop contained four. I sent one of the nuts to the Bombay Natural History Society, but unfortnately they were unable to identify it ; what amazed me was the extraordinary large size of the nuts—it seemed incredible that the bird could have swallowed them. I saw and heard these Pigeons almost to the foot of the Western slopes, but did not observe them at all on the Eastern side of the Ghats "—(*H.R.B.*).

They are also found on the slopes of the Nilgiris. In Travancore Mr. Ferguson says they are found only in the hills where they are common. Jerdon writes :—" During the hot weather, from the middle of April to the first week in June when the rains almost invariably commence on the Malabar Coast, large numbers of this pigeon descend from the neighbouring mountainous regions of Coorg and Wynaad to a large salt swamp in the neighbourhood of Cannanore and there eat the buds of *Aricennia* and other shrubs and plants that affect salt and brackish swamps ".*

Davison says he always found them in small flocks and that they swallow the wild nutmeg with the mace on, the latter being digested and the nutmeg with its large outer shell voided.

Mr. A. P. Kinloch found them very common on the Nelliampathy Hills and they are also found in Mysore.

Breeding season. Mr. T. F. Bourdillon writing of the breeding of this species in Travancore says :—" It has two broods in the year, but lays only one egg at a time. These two breeding seasons are in April and again in November. I have seen a bird building in the latter month and I have had the young bird brought to me in January.

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* " I have lived some years at various times at Cannanore but have never seen or heard of these salt swamps, nor could I get any information concerning them from the natives "—(*H.R.B.*).

Nest. The nest is a loose structure of twigs without any lining and exactly resembling a Wood Pigeon. I was so fortunate as to find a nest at an elevation of 4,000 feet above sea-level, and 20 feet from the ground, placed in the mass of a tangled Irul (*Beesha travancorica*). The bird was sitting and returned to look at the nest, so we had a full view of her.

Eggs. Besides this I have had an egg sent me which had been taken at an equally high elevation. The egg is white and rather glossy ; it is small for the size of the bird, being only 1·38″ × 1·0″."

Genus **MUSCADIVORA** Selby 1835.

"Differs principally from *Ducula* in not having any of the primaries truncated and in having the upper plumage strongly glossed with green. The bill is much like that of *Ducula*, slender and long with a long cere or soft basal portion and a short horny tip or rhampotheca. Sexes alike"—(*Fauna of British India*).

(357) Muscadivora ænea pusilla (Blyth).

THE CEYLON GREEN IMPERIAL PIGEON.

(*Fauna of British India*, 2nd edition, No. 1848.)
(*Fauna of British India*, 1st edition, No. 1284 (part).)

Description—Male. "Length 16″ ; wing 8·25″ ; tail 5·5″ ; tarsus 1″ ; bill from gape 1·3″."

"Bill greyish-green ; bluish at tip and dull red by the rostrils ; iris deep red ; legs and feet dull lake-red"—(*W. E. Wait*).

Forehead white ; rest of head and nape pale grey tinged with pink ; neck grey with a darker demi-collar ; quills dull blackish-brown ; remainder of upper plumage bronze-green ; Central tail-feathers green, remainder dull blackish-brown ; chin and lower base of bill white ; plumage below greyish with a vinous tinge ; under tail-coverts maroon.

Female. Similar to male.

Locality, habits, etc. Although in the rest of its habitat this species inhabits the hills and plains alike we can only find it recorded from the latter in our Presidency. It is a forest bird, seen generally singly or in small parties, but occasionally these parties congregate into flocks. We have found it a wary bird when on the wing or when settled on a tree. The note is very deep and may be heard at some distance. The size of the fruit these birds can swallow is marvellous—they swallow with ease large *jamoons* ; they drink at about 8 o'clock in the morning and again in the afternoon. Their flesh is much superior to that of the other pigeons. Jerdon says :—"In the hot weather it visits the salt swamps on the Malabar Coast, in numbers, along with *D. cuprea* to feed on the buds of *Aricennia* and other trees of similar habit."

Mr. Stuart Baker says it is common in Travancore and Malabar. Mr. A. P. Kinloch writes from the Nelliampathy Hills ;—"Rare and only occurs towards the foot of the Southern slopes ; probably common in the immense forests of the Nelliampathy valley." "In East and Central Madras its habitat has not yet been properly worked out."—(*Fauna of British India*).

Breeding season. "In Travancore February to April, whilst Stewart also found eggs in June"—(*Fauna of British India*).

Nest. The usual flimsy structure of sticks and twigs placed in a tree or bamboo.

Eggs. One egg is laid, white. "Five eggs average 43·4 × 33 mm."—(*Fauna of British India.*)

Sub-Family PHABINÆ.

"Ambiens and oil-gland present; no caeca; tarsus moderate; 12 tail-feathers; wing-coverts and back only metallic green; no neck-hackles"—(*Fauna of British India*).

Genus **CHALCOPHAPS** Gould 1843.

"The bill is slender; the wings moderately long with the 2nd and 3rd quills longest; tail of 12 feathers, is considerably shorter than the wing, slightly rounded; the tarsus slender and bare, about equal to the middle toe in length, and the feet adapted for ground habits. Sexes differing in plumage"—(*Fauna of British India*).

(358) Chalcophaps indica indica (Linn.).

THE INDIAN EMERALD DOVE.

(*Fauna of British India*, 2nd edition, No. 1852.)
(*Fauna of British India*, 1st edition, No. 1291 (part).)

Description—Male. Length 10·5″; wing 5·5″; tail 3·7″; tarsus 1″; bill from gape ·9″.

Bill coral; irides brown; legs dull purplish-pink.

Forehead and supercilium white. Head and naps ashy; back and wings dark shining green; tail black, the outer feathers white. Hind-neck, neck and breast plum-coloured, paler on abdomen, passing into ashy on vent and under tail-coverts, the longest feathers of the latter being blackish. A white bar on the shoulders, and the lining of the wings rufous.

Female. Similar to male except that the forehead is ashy white instead of white, the head and nape vinous-brown, the supercilium is narrower and there is no shoulder-spot; the upper tail-coverts are reddish brown and the lower parts are browner.

"**Young** birds are at first dull brown above with very little green and are barred rufous and dark brown beneath"—(*Fauna of British India*).

Locality, habits, etc. Occurs on the Western Ghats and on the Nilgiris as high as Coonoor and Neddivattam but is more common lower down. Mr. Ferguson says in Travancore it is common on the hills at all elevations during the dry weather; at other times they confine themselves to the lower slopes. It is a forest-loving species and is often seen on roads leading through jungles in the morning and evening. It is said not to be shy but we have found it rather difficult to approach and it is wonderful how swiftly it can dodge through the jungle on being disturbed. Its call is a prolonged plaintive 'coo'. Its food consists chiefly of seeds.

The late Mr. A. P. Kinloch found it very common on the Nelliampathy Hills and Major E. G. Phythian Adams has found it as high as 7,500 feet at Pirmund in the Kundahs.

Breeding season. According to Mr. Stuart Baker "in Southern India and Ceylon, January and February appear to be the two principal breeding months . . . In all parts of its range, however, the Emerald Dove breeds more or less over a great portion of the year and the majority of birds undoubtedly have two broods and many have probably three."

Nest. This, for a Dove, is a comparatively neat structure of roots, grass or twigs and is placed in a thick bush or tree at no great height from the ground.

Eggs. 2, creamy white or very pale *cafe-au-lait* colour, and measure 1·1″ × ·82″.

Sub-family COLUMBINÆ.

"Ambiens, oil-gland and cæca present; tarsus variable; 12 tail-feathers; no neck-hackles"—(*Fauna of British India*).

Genus **COLUMBA** Linn., 1758.

"In this genus the tails are short or moderate, the tips of the wings reaching to, or almost to, the end of the tail; the tarsis are bare and the feet well fitted for walking; the nostrils are narrow and obliquely set in the swollen cere; the wings are long and pointed, the first or second primaries being longest, or rather rounded, the first quill being about equal to the fourth"—(*Fauna of British India*).

(359) **Columba livia intermedia** Strick.

THE INDIAN BLUE ROCK-PIGEON.

(*Fauna of British India*, 2nd edition, No. 1856.)
(*Fauna of British India*, 1st edition, No. 1292 (part).)

Description—Male. Length 12″ to 13″; wing 7·75 to 9″; tail 4 to 5″; tarsus 1″; bill from gape 0·9″.

Bill black, white at base above; irides orange; legs reddish-pink.

General plumage bluish-slaty, darkest on head, throat and breast; feathers of neck all round brightly glossed with green; back and wing-coverts grey edged dusky; primaries and secondaries dusky, the latter and the greater coverts with a broad black band forming the wing-bars; upper tail-coverts like the back but darker; tail grey, broadly tipped with black.

Female. Similar to male.

Locality, habits, etc. A common permanent resident on the plains and found, though less commonly, on the hills. Ferguson says in South Travancore 'it ascends the hills during the day to 2,500 feet elevation returning to roost in the low country, and that there is a large colony on a rock that rises out of the sea at Cape Comorin. It generally associates in large flocks which do a good deal of damage to the crops. It is essentially a grain and seed-eater for which reason its flesh is much

closer and harder and not nearly so succulent as that of Green Pigeons which are fruit-eaters. Blue-rocks inhabit cliffs and caverns, wells, temples and old buildings where they afford good sport as they dash out.

"Ascends the hills of Southern India up to 4,000 feet or higher"—(*Fauna of British India*).

Breeding season. Practically during every month in the year. "They breed in countless thousands, whilst on the cliffs above the Gairsoppa Falls they are almost and equally numerous.

Nest. The nests which are verminous piles of all sorts of rubbish . . . are often packed close together"—(*Fauna of British India*).

Eggs. 2, white; average measurement 1·50″ × 1·10″.
"I have taken 3 eggs from a nest"—(*C.M.I.*).

(360) Columba elphinstonii Sykes.

THE NILGIRI WOOD-PIGEON.

(*Fauna of British India*, 2nd edition, No. 1862.)
(*Fauna of British India*, 1st edition, No. 1299.)

Description—Male. Length about 16″; wing 8 to 8·5″; tail 5·75 to 6″. Bill and orbits deep red, the former tipped with yellow; irides ochre-yellow; legs dull pinky-red.

Head and nape ashy with green reflections; neck and sides of neck black, each feather with a small white tip; back and upper tail-coverts copper with green reflections; wings copper-brown; primaries and tail dusky black; throat albescent; rest of lower plumage ashy glossed with green on breast, paler on vent and under tail-coverts.

Locality, habits, etc. A permanent resident of the deep sholas on the Nilgiris where it is driven out when beating for Jungle-fowl, etc. Davison found it very numerous in the forests near Neddivattam in March. Ferguson says it is common at the summit of the hills in South Travancore and at Pirmad, also on the High Range. Jerdon says. "On the Nilgiris it frequents the sholas and dense woods, singly or in small parties of five or six, feeding on various fruits and buds and occasionally on small snails, to procure which it descends to the mossy banks, and I have now and then seen it on the ground outside a wood. I frequently found some small *Bulimi* in the crops of those I examined."

The late Mr. A. P. Kinloch writing from the Nelliampathy Hills said:—"Much rarer than the Imperial Pigeon, but found sparsely in the hills." Major E. G. Phythian Adams writes:—"The occurrence in any numbers in the Nilgiris seems to depend largely on the crop of red berries on which it principally feeds. In 1925 when the trees were fruiting freely there were large flocks of these Pigeons all over the Nilgiri plateau in September. This year (1927) owing to an absence of fruit there are very few."

Breeding season. March to June on the Nilgiris at over 5,000 feet elevation. A nest was taken in May on the Palnis. It also breeds in the Shevaroys and the higher ranges of Travancore.

Nest. The usual stick platform on a high tree in dense forest.

Mr. Stuart Baker says :—" These Wood Pigeons make their nests either in tall, thickly foliaged bushes or in small saplings, more often under than over 15 feet from the ground . . . All writers agree that they only make their nests in the interior of very thick forests and are consequently difficult to find, nor even the parent birds render any assistance in disclosing the place in which its nest is located."

Eggs. 1; very similar to those of *C. l. intermedia*, but, if anything, larger. " Measures 1·5″ × 1·1″"—(*Fauna of British India*).

Genus **STREPTOPELIA** Bonaparte 1854.

" Head small, bill slender, the horny apex of the upper mandible much softer than the soft basal portion. Wing long, pointed, 2nd or 3rd quill longest. Tail rather long but not exceeding the wing in length, rounded or somewhat graduated. Tarsus longer than middle toe. Foot formed for walking, soles of toes narrow. Sexes similar "—(*Fauna of British India*).

(361) Streptopelia orientalis ferrago (Evers.)

THE NORTHERN INDIAN RUFOUS TURTLE-DOVE.

(*Fauna of British India*, 2nd edition, No. 1871.)
(*Fauna of British India*, 1st edition, No. 1305.)

Description—Male. Length 13″ ; wing 7·25″ ; tail 5·25″ ; tarsus 1″.

Bill pale horny, dusky at tip ; irides light orange ; legs purple.

Head and nape ashy, paler on forehead and lores, feathers tinged rufous ; neck vinous-rufous ; mantle ashy, tinged rufous so as to almost conceal the ashy colouring ; a broad demicollar of black, margined grey ; back, rump and upper tail-coverts ashy ; wing-coverts and scapulars black, broadly margined and tipped with light rufous ; quills blackish-brown, the secondaries edged white near the tips ; primary and secondary coverts bluish-ashy ; tail blackish-brown, all but the central pair of feathers broadly tipped white ; chin and throat cream-white ; remainder of lower plumage vinous, abdomen and vent and under tail-coverts pure white.

Female. Similar to male.

Young is more rufous-brown above, tinged ashy on head, neck and mantle, the scapulars and wing-coverts being tipped with white and margined rufous ; below the plumage is vinous-ashy becoming white on abdomen and vent ; sides of body pure grey.

Locality, habits, etc. Davison shot a specimen at Manantoddy in the Wynaad and saw some others near Muddur in Mysore.

" In Winter these Doves are found over practically the whole of . . . South India "—(*Fauna of British India*).

These birds sometimes are found in large numbers, especially in the paddy-fields after the rice has been cut. They give quite good sport and are excellent table birds—(*C.M.I.*).

(362) Streptopelia chinensis suratensis (Gmel.)

THE INDIAN SPOTTED DOVE.

(*Fauna of British India*, 2nd edition, No. 1873.)
(*Fauna of British India*, 1st edition, No. 1307.)

Description—Male. Length 12″; wing 5·75″; tail 5·5″; tarsus ·85″; bill from gape ·85″.

Bill black; irides pinkish-red; legs dark purplish-red.

Head and neck vinaceous-ashy, purer ashy on forehead; lower neck blackish-brown, each feather with two white spots at the tip; these feathers are curiously divided at their tips as if a triangular piece had been snipped out of each. Back brown with two rufous spots at the tip of each feather; upper tail-coverts darker; wings like the back, but the spots are much larger and more isabelline in colour; edge of wings fine purplish-grey; chin white; throat and breast vinaceous, paler on the flanks and passing into white on the vent and under tail-coverts which have a light reddish stripe down the centre, and a dusky spot at the tip.

Female. Similar to male.

Locality, habits, etc. Common alike on hills and plains frequenting gardens cultivated lands and open scrub jungle.

Mr. A. P. Kinloch says it does not occur on the Nelliampathy Hills. They are quite good to eat.

Breeding season. March to July or later. According to Sir A. Cardew it nests in the Nilgiris from February to September.—(*Stuart Baker* in his "*Indian Pigeons and Doves*").

Nest. The usual fragile platform of sticks and twigs placed in any suitable bush or small tree.

They have been found nesting on the same tree as Laggar Falcons, etc.

Eggs. 2, white; some very oval and others broad ovals; the former measure 1·05″ × ·80″, the latter 1·1″ × ·90″.

(363) Streptopelia chinensis ceylonensis (Reich.).

THE CEYLON SPOTTED DOVE.

(*Fauna of British India*, 2nd edition, No. 1876.)
(*Fauna of British India*, 1st edition, No. 1307 (part).)

Description—Male. Length 11·25″; wing 5″; tail 5·25″; tarsus ·85″; bill from gape ·7″ "—(*W. E. Wait*).

"Differs from the Indian Spotted Dove in its much smaller size" —(*Fauna of British India*).

Locality, habits, etc. "Birds from South Travancore are near *S. c. ceylonensis*," (*Fauna of British India*).

Habits the same as those of the preceding bird.

(364) Streptopelia senegalensis cambaiensis (Gmel).

THE INDIAN LITTLE BROWN DOVE.

(*Fauna of British India*, 2nd edition, No. 1877.)
(*Fauna of British India*, 1st edition, No. 1309 (part).)

Description—Male. Length 10 to 10·5″; wing 4·75″ to 5″; tail 4·5 to 4·75″; tarsus ·62″; bill from gape ·62″.

Bill blackish; irides dark brown; legs purplish-red.

Head and neck pinkish-vinaceous; a large black patch on each side of the neck, the feathers of which are tipped dull reddish; upper plumage brown; central tail-feathers like the back, the remainder black at base, grey or white at the end; primaries-dark brown edged light; wing-coverts, but not the scapulars, french-grey; face, chin, throat and breast pinkish vinaceous, paler on abdomen and passing into white on vent and under tail-coverts.

Female. Similar to male.

Locality, habits, etc. Abundant everywhere on the plains frequenting the more open cultivated districts, cantonments, gardens, etc.

Breeding season. Practically the whole year round, but nests are perhaps more often found after the monsoons.

Nest. The usual Dove structure; the cactus hedges surrounding villages, etc., appear to be the favourite building site. They have also been known to build on a lamp bracket on a veranda there is an illustration of such a one in the *Bombay Nat. History Society's Journal, Vol.* XXV, *page* 507; in the corner rope of a tent, on the tops of veranda pillars; on the ground; etc., etc.

Eggs. 2; white; average measurement 1″ × ·8″.

(365) Streptopelia decaocto decaocto (Friv.).

THE INDIAN RING-DOVE.

(*Fauna of British India*, 2nd edition, No. 1879.)
(*Fauna of British India*, 1st edition, No. 1310 (part).)

Description—Male. Length 13″; wing 6·5″; tail 5″; tarsus 1″; bill from gape ·87″.

Bill black; irides red; legs purple or purplish-red.

Head pale vinous-grey, the feathers becoming more vinaceous on nape, hindneck and sides of neck; a black collar on nape edged above and below with white; upper plumage grey-brown, obsoletely barred with slightly darker colour; edges of wing-coverts paler; edges of primary-coverts french-grey; the primaries dusky, narrowly margined and tipped with white; central tail-feathers concolorous with back; the remainder greyish-black for their basal portion, white for the terminal portion, the white increasing in size towards the outer feathers; beneath uniform vinaceous-ashy: white on the chin, and grey on the vent and under tail-coverts.

Female. Similar to male.

Locality, habits, etc. A common resident on the plains, ascending the hills to about 2,000 feet; like the preceding species it frequents open

cultivated districts, but is not met with so much in villages or cantonments. Stuart Baker writes in his "*Indian Pigeons and Doves*":— "This bird is probably entirely absent from the greater part of the Malabar Coast . . . and Bourdileon says: "It is only found in the dry stretch of country near Cape Comorin."

Breeding season. August to October, though nests are frequently found during other months of the year.

Nest. The usual frail structure of twigs, placed in a bush or small tree at no great height from the ground.

Eggs. 2; white; average measurement 1·17″ × ·9″.

Genus **ŒNOPOPELIA** Blanf., 1898.

"The Little Ruddy Ring-Dove is distinguished from all other species by its long wing, with the first primary nearly or quite equal to the second, and by having the sexes dissimilar in plumage"— (*Fauna of British India*).

(366) Œnopopelia tranquebarica tranquebnrica (Herm.).

THE INDIAN RED TURTLE-DOVE.

(*Fauna of British India*, 2nd edition, No. 1881.)
(*Fauna of British India*, 1st edition, No. 1311 (part).)

Description—Male. Length 9·25″; wing 5·37″; tail 3·62″; tarsus ·75″; bill from gape ·37″.

Bill horny, bluish at base; irides dark brown; edge of lower eyelid yellow; legs and feet dark purple.

Head, nape, lores, cheeks and sides of neck, back and rump, french-grey; a black demi-collar; upper tail-coverts and central tail-feathers pale brown; remaining tail-feathers ashy with a broad terminal white bar, washed with ashy on some of the feathers; vent and under tail-coverts pure white; chin and throat albescent; quills blackish brown; Remainder of plumage above and below vinous, darker on back and scapulars, paler on abdomen.

Female is slightly smaller than the male and wants the yellow edge to lower eyelid; lower back, rump and tail as in the male; remainder of upper plumage pale brown with indistinct paler bars; wing-coverts margined paler; edge of wings grey; demi-collar and quills as in the male; Chin and throat albescent; neck, breast and cheeks pale vinous-ashy; flanks pale grey, abdomen whitish, vent and under tail-coverts pure white.

Locality, habits, etc. A resident of the plains, but locally distributed and generally uncommon: it affects open, cultivated districts and may be met within company with *S. s. cambaiensis and S. d. decaocto.* They are handsome little doves especially when a large number of cock birds congregate together which they sometimes do. Their flight is rather swift and they are excellent eating.

Breeding season. Throughout the year.

Nest. The usual flimsy twig, structure placed low down in a bush or tree.

Eggs. 2 to 3; white or tinged with cream; average measurement ·97″ × ·77″.

Order PTEROCLETES.

"In the bill there is no soft base to the upper mandible. The toes are generally four in number, but the hallux is small, and in one genus wanting; all are on the same level; the anterior toes are short and rather broad. Oil-gland present and nude. The contour-feathers have after-shafts. The lateral bare tracts only extend on the shoulders to the base of the neck, not on to it; the dorsal feather-tract has an interscapular fork. Primaries eleven; fifth secondary wanting. Tail-feathers 14 to 16. Palate schizognathous; basipterygoid processes present; cervical vertebræ 15 or 16. There are usually two notches on each side of the posterior margin of the sternum, but the inner notch is sometimes reduced to a foramen; keel of sternum high. Deep plantar tendons Galline. Ambiens muscle present; other muscles in thigh as in *Columbæ*. Caeca present and large. Gall bladder present, and two carotids"—(*Fauna of British India*).

Family PTEROCLIDÆ.

"Tarsus short and feathered; wings long and pointed"—(*Fauna of British India*).

Genus **PTEROCLES** Temm., 1815.

"Bill is small and arched above; nostrils elongate, basal, and almost covered by frontal plumes; wings long and pointed; tail moderate, the central rectrices sometimes lengthened; tarsi feathered in front, reticulate behind; toes short and naked, hallux present"—(*Fauna of British India*).

(367) Pterocles orientalis (Linn.).

THE LARGE, IMPERIAL OR BLACK-BELLIED SAND-GROUSE.

(*Fauna of British India*, 2nd edition, No. 1888.)
(*Fauna of British India*, 1st edition, No. 1316.)

"Length about 14"; wing 9·5"; tail 4"; tarsus 1·1; bill from gape 7"—(*Fauna of British India*).

"Bill bluish-grey; irides brown; feet grey"—(*Hume*).

Description—Male. "Throat ferruginous chestnut, extending round sides of neck and disappearing behind nape, paler also on chin; a triangular black patch on the throat, crown and sides of the head, nape, lower neck all round, and upper breast pale earthy brown; back, rump and upper tail-coverts, scapulars, tertiaries, and inner secondary-coverts blackish grey, each feather tipped with ochreous yellow and pale fawn coloured towards the base; greater secondary and primary coverts and edge of wing fawn-coloured, shaded darker; quills slatey grey externally, the shafts, the outer web of the first quill, and the inner surface black; tail-feathers buff barred with black, middle pair tipped with greyish black; wing-lining white; thighs, tarsi, and lower tail-coverts buffy white."

Female. "Pale fawn, the head, neck, and upper breast spotted with black shaft-streaks; chin and throat yellowish, bounded behind by a black line, beyond which the fore neck is ashy; back and upper parts, including the middle tail-feathers, with curved black cross-bands irregular in direction; the other rectrices, the quills, and lower parts from the black pectoral gorget as in the male."

Locality, habits, etc. "Big Bore" records the shooting of three specimens in Mysore."

"Winter visitors to India, where they are to be found frequenting wide, open, sandy plains or taking their mid-day rest in ploughed lands and, though they drink with the greatest regularity every morning and evening, they are often found at great distances from water. They collect . . . often in hundreds and sometimes in thousands . . . Their flight is extremely swift and as they fly they constantly utter their call, "Katarr, Katarr." They feed principally on grass and vetch-seeds but will eat berries, grain and the shoots and buds of various plants as well as most kinds of small insects. They are wild, shy birds and almost impossible to approach on foot but provide excellent sport as they flight too and from their drinking places."

Breeding season. "Outside our limits the Large Sand-Grouse breeds wherever found . . . April to June"—(*Fauna of British India*).

(368) Pterocles indicus (Gmel.).

THE PAINTED SAND-GROUSE.

(*Fauna of British India*, 2nd edition, No. 1889.)
(*Fauna of British India*, 1st edition, No. 1317.)

Description—Male. Length 10 to 11″; wing 6·37 to 6·75″; tail 3 to 3·25″; tarsus 1″; bill from gape ·5″. Weight 6 to 7·5 oz.—(*Hume*).

Bill dull brownish-red; irides brown to dark-brown; eyelids and a large bare orbital patch pale bluish-yellow; feet deep-yellow, pale yellow-brown, waxy-yellow or pale-brown; claws horny black; hind toe rudimentary, fixed to inner side of tarsus, the other three toes connected by a membrane as far as the first joint.

A broad white stripe from the nostrils to the forehead, succeeded by a broad velvety-black stripe from in front of the eyes over the forehead where it widens out posteriorly, dividing into two parts; another broad white stripe from the eyes over the occiput; a deep black line over the eyes extending in an irregular line over the crown; a broad but short white spot from over the centre of the eyes posteriorly; rest of head and nape rufous, each feather with a broad, black, central stripe; chin, throat, cheeks, ear-coverts and neck all round gamboge or olive-yellow, some of the feathers at the back of the neck barred with pale rufous and black; upper breast gamboge-yellow; a full collar of rich chestnut followed by a broad three-quarter ring of pale yellowish, this again succeeded on the breast by three large semi-circular spots of deep black; remainder of lower plumage and thighs narrowly barred black and white; under tail-coverts yellowish-fawn with broad, black chevron bars; upper back and greater wing coverts black with narrow fawn bars and broadly tipped yellow; wings

blackish-brown, the primaries narrowly edged white on the outer webs; shoulders and primary coverts yellowish-fawn, paler on the latter, the former obsoletely barred pale brown or rufous; secondary coverts beautifully marked with alternate bars of white, black and fawn; lower back, rump, upper tail-coverts and tail barred rufous and black, narrowly on the two former, more broadly on the two latter which are also tipped yellow.

Female. Length 10 to 10·5″; wing 6·38 to 6·65″; tail 3·25 to 3·5″; tarsus 0·8 to 0·9″; bill from gape ·55 to ·6″; weight 6·38 to 6·75 oz.—(*Hume*).

The orbital skin pale bluish-white, is markedly different in colour from that of the male.

Chin, throat, cheeks and ear-coverts fawn; forehead and crown mottled pale rufous and black; nape and neck all round pale fawn, narrowly barred and mottled with black; back and rump narrowly barred rufous and black; upper tail-coverts and tail broadly barred pale fawn and black, each bar being chevron-shaped as in the male; greater coverts barred rufous and black, the longer feathers with a large sub-terminal black patch and broadly tipped white; quills as in the male; wing-coverts barred rufous and chocolate-brown, paling to white and brown on secondary coverts which are broadly tipped white, forming a conspicuous bar or stripe; beneath from the throat the plumage is barred black and white broadly on the breast where it is washed with rufous, and on the under tail-coverts where the black bars are chevron-shaped as in the male; abdomen, vent and thighs very narrowly barred with white.

Young male. "The young bird acquires the plumage of the adult first on the wings and upper plumage, but this is much broken with dark-brown vermiculations; the tips of the quills and sometimes the inner portions of the inner webs are marked with pale buff vermiculations and the plumage of the upper back, hind neck and head is more like that of the female, but these parts also are everywhere profusely vermiculated. On the under surface the deep breast-band is either obsolete or indefinite and much mixed with buff. From the breast downwards the lower surface of the body is banded black and white as in the adult bird, but the bands are narrower and not so perfect. The white forehead seems to be one of the last parts of the adult plumage to be acquired. At a still earlier age the whole of the back is vermiculated buff and black and the general colour varies through as wide a range of tints as in the adult. On the under parts the breast and abdomen are still more weakly barred than in the stage just described, and the bars on the centre of the abdomen and about the vent often merge into a blurred patch of black or dark brown"—(*Stuart Baker*).

Young females. "Resemble young males, but the under parts are like those of the adult female"—(*Ogilvie Grant*).

The nestling. "Is covered with a uniform earth-brown down, the same colour as the soil on which the eggs are laid"—(*Stuart Baker*).

Locality, habits, etc. Major Nurse, in an article to the *Bombay Natural History Society's Journal* (*Vol. XIV, page* 172) states:—"It is usually only found in small flocks, but this morning (11th August 1901 at Deesa) when shooting over some ravines covered with a little grass and a few bushes, I came across a large number, not less than two

or three hundred. They were chiefly in packs of from two to six, but there were several packs of ten or a dozen, and one flock of sixty or eighty birds." . . .

"My experience of these birds (somewhat limited, I acknowledge) is that they are generally found singly or in pairs. The best place to look for them seems to be on the slopes and in the ravines of a hill covered with boulders and scrub; when flushed they utter a low *chuck, chuck*, but are otherwise silent when on the wing, contrasting very much in this respect with their noisy congeners *P. e. erlangeri*; their flight is fairly rapid and tortuous, reminding one now of a woodcock, now of a night-jar, from the manner in which they twist and turn round bushes and rocks, alighting suddenly with a quick downward drop, and at once scuttling under shelter."—(*H.R.B.*).

Dewar records them from around Madras. Blanford gives it as far south as Mysore. Major E. G. Phythian Adams writes:—"Found in pairs or small flocks round Anaikatti in the Nilgiris on the north side (*i.e.*, Mysore side) at 3,000 feet elevation. They are not however common." He records "200 in one patch of jungle"—(*Fauna of British India*).

"The Painted Sand-grouse appears to be almost exclusively a vegetarian and the crops of those examined by Hume and others have so far contained practically nothing but grain and seeds of various kinds. They seem also to keep very much to a hard diet, and only one or two of my correspondents mention their indulging in green food, though they undoubtedly do eat such sometimes. They certainly eat termites . . . and one correspondent says that he found them feeding on ants"—(*Stuart Baker*).

Breeding season. I am inclined to believe they breed at all times of the year, according to locality, as I have shot females with eggs ready for expulsion in their ovaries as early as the 27th January, but April and May are the months in which most nests will be found—(*H.R.B.*).

Nest. Merely a slight depression scraped in the ground under a bush or rock.

Eggs. 2 to 4; "delicate pale salmon-pink in colour, with specks and tiny streaks of brownish red with a good many spots or clouds of pale inky purple intermingled. They measure 1·4″ × ·98″—(*Barnes*).

(369) Pterocles exustus erlangeri (Neum.)

THE COMMON INDIAN SAND-GROUSE.

(*Fauna of British India*, 2nd edition, No. 1893.)
(*Fauna of British India*, 1st edition, No. 1321.)

Description—Male. Length 12·5″; wing 6·75″; tail 4·5 to 5·12″; tarsus 1″; bill from gape ·6.″

"Length 11·75 to 13·75″; wing 6·7 to 7·5″; tail 4·38 to 5·37″; tarsus ·9 to 1·0″; bill from gape ·62 to 7″; weight 8 to nearly 10 oz.—(*Hume*).

Bill bluish, bluish-white or plumbeous; irides brown; feet plumbeous.

General colour isabelline-fawn washed with pale dusky-green on back, wing-coverts and upper tail-coverts; more yellow on lores, face, chin and primary coverts; wing-coverts and scapulars narrowly tipped with chocolate; primaries black, all but the first three tipped and

margined broadly on the inner webs with white; central pair of tail-feathers fawn, tinged greenish on the basal half, blackish brown on the remainder; rest of tail-feathers chocolate, broadly tipped bright fulvous; a narrow chocolate semi-circular band across the breast; abdomen and thighs chocolate-brown, washed with black down the centre of the former; under tail-coverts pale fulvous, the longest feathers with dark brown shafts and central stripe.

Female. Dimensions similar to male, except that the central pair of tail-feathers are not so elongate.

"Length 11 to 12·25″; wing 6·6 to 6·9″; tail 4 to 4·8″; tarsus ·8 to ·85″; bill from gape ·6 to ·67″; weight 7·5 to 8·3 oz."—(*Hume*).

Lores, face, chin, throat, and primary coverts pale yellowish-fulvous; remainder of plumage, except the abdomen and thighs, fulvous tinged isabelline on neck and breast; the head, neck and breast with large brown spots; back, wing-coverts and tail barred with chocolate; two narrow semi-circular chocolate bars across the breast; abdomen and thighs deep chocolate-brown, very narrowly barred with reddish fulvous; under tail-coverts pale fulvous barred with brown.

Immature female. "Differs from the adult in having the outer primaries and inner secondaries tipped with buff, the former vermiculated with black, the upper breast spotted with blackish brown, the centre pair of tail-feathers not produced with filaments"—(*Ogilvie Grant*).

Locality, habits, etc. Hume gives it "from Mysore and the Northern and Central portions of the Madras Presidency." Blanford got it near Trichinopoly and it is found in the open parts of Travancore from where he has received eggs.

Unlike the preceding species, the Common Sand-Grouse does not affect rocky hills, nor does it frequent swampy or wet land, but prefers open plains and ploughed land. It is highly gregarious in habits, being usually seen in flocks varying from tens to several hundreds; occasionally one sees a solitary pair, but these are most probably breeding or about to breed and should consequently not be molested. Its flight is fairly rapid and straight, and when on the wing, it continually utters its loud coughing-like cry which can be heard a great distance off, frequently long before the bird itself comes into sight. Its food consists chiefly of grass-seeds, and, in common with others of the genus, it has the habit of drinking twice daily, after the morning meal at about 9 a.m. and again in the evening at about 4 p.m. and it is when the birds are flying to and from their regular watering-places, which they visit day after day with the greatest regularity, until driven away to some less disturbed one, that sportsmen make the biggest bags, by concealing themselves in the nala, or at the edge of the tank, and waiting for the coming or going of the birds. Another profitable method is to lie up near their roosting-place (generally a ploughed field or fallow land) and shoot the birds as they come to roost; in this case, the sportsman must be prepared to take shots from all sides, as the birds descend from every quarter of the compass, or fly round and round the locality, loathe to leave it, although fearing to settle on account of the firing. "I have, curiously enough, never seen or heard this bird myself in this Presidency, but am credibly in formed that it occurs in suitable localities"—(*H.R.B.*).

Breeding season. Although a close season has been fixed for Sand-Grouse, varying slightly as to dates in different districts, but usually from March to July, I am of opinion that these birds breed practically all the year round and that, consequently, a partial close season affords them little protection ; the best way to discriminate between breeding birds and others, is, I think, to watch whether they fly singly or in pairs, or in flocks, as it seems unlikely that birds with nests or young, should fly in flocks ; this, of course, is a surmise, only, and is only given for what it is worth—(*H.R.B.*).

"The only conclusion one can draw is that these birds breed more or less throughout the year, but that in the North and Central India more breed from March to July than in other months, whilst further South they breed earlier, the majority in February and March. It is probable also that most birds lay twice in the year at least"—(*Stuart Baker*).

Nest. A mere depression in the ground sometimes lined with grass, usually on fallow or grass-lands.

Eggs. 2 to 3. Blewitt once found 5 in one nest in the Hissar District, probably the produce of more than one hen. Cylindrical, blunt at both ends ; ground-colour varies from pale brownish or stone to greenish-white, spotted, blotched and streaked all over with light and dark olive-brown and with underlying smudges of pale inky-purple ; averaging 1·46″ × 1·04″.

Order GALLINÆ.

"The true Game birds . . . have a stout bill, strong legs and feet suited for progress on the ground, a plump body and rounded wings in which the fifth secondary is present and there are ten primaries. There is frequently a spur, sometimes more than one, on the tarsus in males, and in a few genera, in females also. The hallux is always present; the nails are short, blunt and but slightly curved. An aftershaft is always developed to the body feathers. The spinal feather-tract is well defined on the neck and not forked on the back. Oil-gland present, except in the Genus *Argusianus*. The plantar tendons are joined by a fibrous vinculum, their distribution is normal, the *flexor perforans digitorum* supplying the three anterior digits, whilst the *flexor longus hallucis* passes to the hallux or posterior digit alone. The ambiens muscle is present, as are also the accessory femoro-caudal, the semitendinosus, the accessory semitendinosus, and, except in Peafowl and Turkeys, the femoro-caudal, so that in general all the thigh-muscles are developed. Cæca of the intestines are large. Both carotids are present, except in *Megapodius*, which has only the left one.

"The palate is schizognathous; the nasals holorhinal. The basipterygoid processes are wanting but there are sessile facets situated far forward on the sphenoidal rostrum. Cervical vertebrae 16. The sternum has two deep incisions in the posterior border on each side of the keel. The inner sciphoid process between the two is shorter than the outer which is bent over the hinder ribs and expanded at the end. The episternal process of the rostrum is completely perforated to receive the inner ends of the coracoids"—(*Fauna of British India*).

Sub-order **ALECTOROPODES.**

"The inner posterior notch on each side is more than half the length of the sternum. The hallux (hind toe) is raised above the level of the other toes and is short, its basal phalanx being shorter than that of the third or middle toe"—(*Fauna of British India*).

Family PHASIANIDÆ.

"Nostrils naked. Tarsi naked (except in *Lerwa*) and often armed with spurs especially in males; toes naked, not pectinate"—(*Fauna of British India*).

Sub-family PAVONINÆ.

"In this Sub-family the two species which it contains commence their moult of the tail with the fifth pair of tail-feathers. The males are distinguished by the immense length of their upper tail-coverts during the breeding season"—(*Fauna of British India*).

Genus **PAVO** Linn., 1758.

"Peafowl are distinguished by the peculiar, erect, occipital crest of elongate feathers in both sexes. The tail is long, wedge-shaped and

composed of 20 feathers, but is far surpassed in length by the train of the male birds which consists of the modified upper tail-coverts. Wings rounded, 1st quill much shorter than 10th. Tarsus very long and in males armed with a spur "—(*Fauna of British India*).

(370) Pavo cristatus Linn.

THE COMMON PEAFOWL.

(*Fauna of British India*, 2nd edition, No. 1897.)
(*Fauna of British India*, 1st edition, No. 1324.)

Description—Male. Length to end of the tail 3 to 4′; train 3 to 4′; wing 18″; tail 18 to 24″; tarsus 5·5″; bill from gape 2″. "Weight 9 to 11½ lb." (*Hume*). Stuart Baker mentions a train measuring 5′ 3″.

Bill horny above; yellowish below; irides dark brown; legs brown; orbital skin whitish or dirty yellow.

Head, neck and breast bluish purple with green reflections especially on the head where there is a fine metallic lustre; back green, the feathers scale-like, margined black and with a beautiful copper lustre, centred red-brown with green shaft-stripes; occipital crest which is webbed and fan-shaped at the tip only, black with purple edges, shafts dirty whitey-brown; primaries pale chestnut or rufous, their coverts spotted with black; secondaries black; secondary coverts black with blue and purple reflections; wing-coverts and scapulars pale tawny with dark green cross-bars and frecklings; tail brown freckled paler (Barnes says that the tail is chestnut); train a mixture of lustrous blue and green, each feather showing coppery reflections in some lights and having beautiful ocelli of green, brown, purple and blue; abdomen and vent black or blackish-brown; the thigh-coverts pale fawn with wavy brown cross-bars.

Female. Cheeks bare, of a pale whitey-blue colour; forehead and crown brown, each feather with a terminal green spot; occipital crest smaller and duller in colour than that of the male; a small light brown line over the eyes, and between this and the crown is a brownish-white line extending from the nostrils and joining the white of the sides of the neck and throat; ear-coverts white tipped dark brown; back of head and upper neck brown, the latter tipped green; lower neck brown with a large sub-terminal green spot to each feather, and tipped white; breast brown tipped white, some feathers with a sub-terminal purple spot; lower breast pale brown tipped white, the shafts white; sides of body white tinged pale rufous; abdomen speckled pale rufous and white; under tail-coverts black, hair-like, tipped pale brown; flanks black, broadly tipped and speckled light rufous and black, shafts white; back of neck dark brown with large purplish-green spots, tipped whitish; back and wing-coverts a mixture of black and brown; rump and upper tail-coverts pale brown, minutely speckled with white; tail with the central feathers brown, the outer ones black with a green gloss; wings dark brown, the secondaries minutely speckled with white on the outer webs.

"Female, length 36 to 40″; tail 12·75 to 14·5″; wing 15·75 to 16·5″; tarsus 5 to 5·2″"—(*Hume*).

Young Males. "Resemble the adult female but have the primary quills pale chestnut as in the males but mottled with dark brown"—

Young bird, 9 weeks old. "Top of head pale sandy with black bases to the feathers ; crest about ½ an inch long, black at the base, brownish chestnut on the terminal half and tipped with black ; general colour of the upper parts including the wings and tails light brown, barred and freckled with brownish black ; under surface of the body yellowish white becoming broader on the chest."

Chick in down. "Pale buff with dark brown nuchal mark running from behind one eye to the other and down across the neck : back deeper rufous brown ; quills of wings pale dull chestnut mottled with brown and secondaries barred and mottled with brown and pale tipped."

"The form known as *nigripennis* differs from the common one in having the scapulars and wing-coverts black with narrow green edges ; the thighs are black and the back is still more golden than in the normal plumage. There is nothing to prove that the form is other than an abnormal phase showing, perhaps, an inclination towards in melanism. It is very rare and has hitherto never been obtained in birds in a state of nature"—(*Stuart Baker*).

Locality, habits, etc. Common at the foot of the Wynaad Ghats in the Nilambur Valley.

A permanent resident on the plains where it frequents grassy jungles, "In a semi-wild state they are often found in the neighbourhood of villages, temples, etc., where the people feed them and guard them jealously. I have seen them in parties of twenty or thirty feeding in the paddy lands which bordered the high grass-jungle found in parts of Assam. They were very wary and would not allow a close approach. At dusk they came down to the river to drink but sometimes they evidently did so after sunset and then flew up into high simul trees to roost. Their loud cry which sounds like *pehaun, pehaun*, used to be heard every morning and evening. They run well and trust more to their legs than to their wings on being put up. The courting attitude of the cock is well known, when he raises his train and spreads it fan-like, every now and then giving it a shiver ; whilst doing this he struts about just like a Turkey-cock and, as Colonel Tickell says :—"a little strut and a puff and a short run forward, as if something had exploded unpleasantly close behind him." Sanderson says :—"Old cocks are in full plumage from June to December and also that a white variety is sometimes found in a wild state"—(*C.M.I.*).

It is said to be rare in Travancore. Davison says it ascends the slopes of the Nilgiris to about 4,000 feet. The only place where he found it abundant was in the vicinity of Mudderi in Mysore. Said to be still common at Musnagudi on the Sigur Ghat of the Nilgiris.

Breeding season. June to September.

"Presumably its breeding is governed to a great extent by the rainfall, and in places when there are showers in the early part of the year and food is plentiful, the birds breed from January to April, whereas when there is a very long period of drought . . . the birds do not breed until the rains commence"—(*Stuart Baker*).

Nest. A depression in the ground lined with grass.

"In countries in which it is not held in reverence it is a shy bird only breeding well away from the haunts of man, and the two conditions which would appear to be then essential are dense cover, thorny if possible, propinquity of water . . . I also once found a nest from

which the young had been hatched, placed in a tangle of creepers and fallen rubbish on the top of a low bush "—(*Stuart Baker*).

Anderson got eggs from an old nest of *Pseudogyps bengalensis* and he has also got them from roofs of huts in deserted villages, from high mounds and from the top of *pucca musjids* on which rank vegetation grew to a height of 2 or 3 feet. The above is quoted by Hume.

Eggs. Generally 3 to 5 but sometimes up to 8 ; Miss Cockburn says up to 15 ; this is evidently incorrect ; of a white or buff colour closely pitted all over with yellowish brown. In shape they vary from broad to long ovals and measure 3″ × 2″. "Incubation in India seldom exceeds 20 days "—(*Stuart Baker*).

Sub-family PHASIANINÆ.

"This Sub-family contains the true Pheasants and the game-bird most closely connected with them. The moult of the tail-feathers commences with the outermost pair. With the exception of this character it is not easy to differentiate between the Pheasants and Partridges as groups, though the typical forms are so well marked. Taking them as a whole the Pheasants are big birds with a wing of over 8 inches and the tail is longer than the wing in all genera except *Lophophorus* and *Lophura*. The *Perdicinæ*, or Partridges, on the other hand, are all smaller birds with a wing under 8 inches, except *Ithaginis*, *Tetraogallus* and *Tragopan* "—(*Fauna of British India*).

Genus **GALLUS** Brisson 1760.

"The males have a fleshy longitudinal coronal crest, known as the "comb", which is small or rudimentary in females ; the males of all Indian species have a wattle or lappet on each side of the throat whilst the sides of the face are mainly or wholly naked in both sexes. The tail is laterally compressed and composed of 14 or 16 feathers (14 in all Indian species) ; the middle pair in the male are about twice as long as the outer rectrices ; the ends of these long middle tail-feathers diverge and droop when the tail is raised. The feathers of the neck and of the sides of the rump form long hackles in the male. The first primary is considerably shorter than the tenth. Tarsus much longer than the middle toe and claw, and armed with a sharp spur "—(*Fauna of British India*).

(371) **Gallus bankiva murghi** Robinson and Kloss.

THE COMMON RED JUNGLE-FOWL.

(*Fauna of British India*, 2nd edition, No. 1903.)
(*Fauna of British India*, 1st edition, No. 1328 (part) .)

Description—Male. Length 24 to 28″ ; wing 8·5 to 9·5″ ; tail 12 to 14″ ; tarsus 3″ ;bill from gape 1·25″. "Spur generally about 1 inch but sometimes 2″ "—(*Stuart Baker*) ; "Weight 1 lb. 12 oz. to 2 lb. 4 oz."—(*Hume*) ; Stuart Baker got one just under 3 lb.

Bill horny brown above, yellowish beneath ; irides orange-red ; face, comb and wattles red ; legs slaty, or blackish.

Head, neck, throat and breast rich ruddy gold passing into golden on the sides of neck and posteriorly ; ear-coverts white ; upper back

black with green reflections and tipped red-brown ; middle back rich mahogany-brown ; sides and rump rich orange-brown; upper tail-coverts a mixture of rich golden and golden-brown, some of the feathers having black centres furnished with green; central tail-feathers black richly glossed with green ; the remainder black glossed purple and green ; greater and lesser wing-coverts black, glossed with green ; median coverts similar to the middle of the back ; primaries dull brown ; secondaries the same but edged with pale chestnut externally ; tertiaries dull black ; the whole plumage below dull brown-black with slightly paler shafts, and a few of the feathers tipped rusty. "I have a cock-bird shot on the 20th May, which has lost its long tail-feathers and hackles, only a few of the latter still adhering to the rump ; it gives the bird a most peculiar appearance as the neck hackles have given place to ordinary black feathers which run right up to the base of the comb ; this is the post-nuptial plumage "—(*C.M.I.*).

Female. Length 16 to 18″; wing about 7″; tail 5·5″; tarsus 2·25″; Weight 1 lb. 2 oz. to 1 lb. 10 oz.—(*Hume*).

Forehead chestnut ; head blackish tinged golden ; nape, neck and mantle dark brown, the feathers broadly edged bright yellow ; rest of upper plumage rusty brown minutely peppered and freckled with black and some feathers of the back and wing-coverts with pale yellow shafts; cheeks and ear-coverts rufous ; a red-brown supercilium which passes down the side of the neck behind the ears and meets in a point ; a similarly coloured band which crosses the throat ; chin rufescent ; breast rufous, paling towards the abdomen, the feathers pale-shafted ; flanks, vent and thighs brown freckled dark brown and pale-shafted.

Immature Male. "Has the hackles less developed both on neck and rump, and the black centres to these feathers comparatively broader and far more visible ; as a rule also the neck hackles are more yellow and less deep orange in tint. The cinnamon of the wing-quills is darker and the whole of their surface except at the basal halves of the outer-webs are finely powdered and vermiculated with blackish ; the greater wing-coverts are also more or less powdered in similar way."

Quite Young Males. "In their first feathers are similar to females of the same age."

Young Females. "In their first year are generally more yellow-buff and less red below and have the feathers boldly mottled with brown on the breast and lower parts. The extent of the crimson or rusty red of the head is also a sign of age, though a few females seem never to acquire this."

Chick in down. "A broad band down from the centre of the crown to the end of the back a rich plum-brown ; a streak of similar colour from the posterior lores produced in a fine line over the eyes and as a wide line down the side of the neck ; lateral bands of buff down each side of the back succeeded by other bands of the same colour at the centre. Sides of body rich warm reddish buff changing to pale buff on the coat, foreneck and centre of breast and belly. The wing-feathers when they first appear are isabelline finely vermiculated with black, the quills gradually becoming more or less immaculate on the inner webs as they grow larger. The bills are fleshy yellow and the legs rather clear olive greenish "—(*Stuart Baker*).

Locality, habits, etc. In this Presidency the Common Red Jungle Fowl does not seem to be found South of the Godavari river. It affects the plains, generally at or near the foot of the hills, in bamboo clumps and fairly open jungle. Its ordinary haunts being, as a rule, difficult of access for a European, the best way to obtain a shot at them is to have them driven out of the jungle towards the guns where they afford splendid sporting shots as they sail overhead, or if the locality is suitable, such as fields or gardens bordering the jungle, one can often obtain a shot, morning and evening, by quietly strolling round the edge of the jungle and intercepting the birds, which are outside feeding, as they fly back to the shelter of the forest. We have found them great runners and while doing so they droop their tails. They feed on insects and grain and are said to be foul feeders when found near villages. The cocks may be heard crowing early in the morning and also in the evening. They are very pugnacious. We have seen them enticed out of the jungle by a tame Jungle-cock which started crowing; the latter bird was surrounded by nooses so the wild bird got caught when it started to fight.

Breeding season. March to June.

Nest. A depression scraped in the ground under a bush or bamboo clump, sometimes with a lining of a few dry leaves.

Eggs. 5 to 9, sometimes only 4; cream-coloured or buff; average measurement 1·64 × 1·38". "Incubation appears to take 20 days. The hen sits close, and when forced to leave creeps silently through the jungle more like an animal than a bird, though occasionally when very suddenly disturbed she may get up with as much fluster and fuss as a barn-door fowl. The young birds fly within a very few days of hatching"—(*Stuart Baker*).

(372) Gallus sonneratii Temm.

THE GREY JUNGLE-FOWL.

(*Fauna of British India*, 2nd edition, No. 1905.)
(*Fauna of British India*, 1st edition, No. 1330.)

Description—Male. Length about 30"; wing 9·5"; tail 14 to 18"; tarsus 2·75"; bill from gape 1·5".

"Length of spur 1·3 to 1·75"—(*Hume*).

"Weight 1 lb. 10 oz. to 2 lb. 8 oz."—(*Hume*).

Bill horny above, yellow below; face, comb and wattles red; irides red or horange-brown; legs brownish-yellow.

Head black, each feather with a white waxy spot; hackles greyish-black, white-shafted and terminating with two spots, one white, the other like a drop of yellow wax; the same sort of waxy spots on the wing-coverts, except that here the spots are more reddish and are shaped differently being much elongated instead of almost square; primaries brown with red-brown shafts and with green reflections; secondaries black with white shafts; back, lesser wing-coverts and plumage below black with white shafts and grey edges, the feathers of the sides tipped with glistening rusty-brown; rump and upper tail-coverts black with fine purple and lilac reflections; tail black with green reflections. At the spring moult the cocks drop their fine neck-backles and do not assume them again till the autumn. The first bird

I shot this season, 1921-22, had the whole neck black without a vestige of other colouring ; yet others, shot a few days afterwards, had already assumed the coloured neck-backles—(*H.R.B.*).

Female. Length 15·5″; wing 7″; tail 5″; tarsus 2″; bill from gape 1″.

Bill horny above, yellowish below ; irides yellow-brown ; legs dirty yellow. "Weight 1 lb. 9 oz. to 1 lb. 12 oz."—(*Hume*).

Head and neck buffy-brown, the pale shafts bordered with brown ; rest of upper plumage brown, with the white shafts on the upper back and wing-coverts bordered with dark brown ; primaries dark brown ; outer webs of secondaries and tertiaries mottled ; tail dark brown on the webs, also mottled ; chin and throat yellowish-white ; lower plumage white broadly margined with blackish-brown on the breast and narrowing towards the abdomen.

Young—Male. "Like the female, but much more rufous and more boldly barred and blotched."

"On moulting from the first plumage and before acquiring backles has the whole upper plumage black, the feathers grey-edged and with white shaft-lines ; the wings and tail are like the female, but much darker ; the underparts are like the adult but without the rufous on the flanks and belly-feathers. The median coverts and the scapulars where waxy yellow and spatulate in the adult are marked with rufous in the young bird and a few of the feather shafts are already somewhat flattened and spatulate."

Chick in down. "Similar to that of the Red Jungle-Fowl, but with the lateral bands almost pure white instead of light pale buff and the sides and lower parts dull grey instead of rich buff and buff respectively "—(*Stuart Baker*).

Locality, habits, etc. This handsome bird replaces the preceding one on the slopes and summit of the hills and is also found quite at the foot of the hills where, it is said, the birds attain a larger size than those met with on the hills ; this may perhaps be due to more abundant food in the shape of grain picked up in the fields adjoining the jungle. Like the common Red Jungle-Fowl, it is essentially a forest bird, being found only in the sholas (plantations or small patches of jungle) and jungles. Formerly it used to be common on the Nilgiris, but owing to cheap game-shooting licences and the consequent annual increase in the number of sportsmen amongst residents and visitors and also to the poaching that undoubtedly is practised by the natives it has diminished greatly in numbers and has removed itself to the deeper forests on the slopes where it is less liable to molestation. Like its congener, it is a strong rapid flyer when once well under way, and takes a large amount of shot to stop it effectually ; many a fine old cock does the sportsman bring down, only to see it racing off like the wind for the nearest cover, to be irretrievably lost and probably become food for jackals and rats unless a good retrieving dog is at hand to pursue it. Talking of dogs reminds me of the one my shikari in Ootacamund used to bring out with him years ago ; a veritable "pie," by birth at least, but by training and, no doubt, instinct, one of the best shikar-dogs it has ever been my lot to hunt with ; possessed of a remarkably keen nose and perhaps keener eye-sight, swift as a grey-hound, that dog was worth a mint of money, but all offers to purchase it were politely declined by its owner. I

have frequently seen my shikari put him on the trail of a runner, and after waiting patiently for quarter of an hour or so, have given up hopes of the dog finding the bird, and have moved on to pastures new, when later we would see him coming along with his long, swinging gait, carrying the bird in his mouth ; and occasionally, long after having left the spot where the bird was last seen, we have heard the dog giving tongue at some quite different and distant place, he having tracked it and "treed" it or possibly run it to ground in some jackal's earth. But to return to the Jungle-Fowl, more especially the cock-bird, which is much more sought after than its dimunitive and sombre-coloured mate. It is very fond of "scrabbing" the dried cow-dung that is to be found lying about plentifully on the paths and roads which intersect the sholas, and on the open ground on their outskirts, and one can very often pick up a few birds, morning and evening, by taking a quiet stroll around and intercepting them, but it must be a quiet stroll—no talking or noise of heavy boots—or the devil a bird will be bagged. The usual custom however is for the guns to stand outside the sholas, surrounding them if possible, and to have the birds beaten out by natives who, in the process, kick up a most infernal row which, one would think, would be enough to scare the wits out of any living creature, but not so with our friend the Jungle-Cock ; a craftier, more cunning creature does not exist. Many is the time I have beaten a shola blank, though I could swear there were birds at home (either from having heard them crow in the early morning, or having seen recent scrabbings at the lumps of cow-dung) ; back would go the beaters for another drive, this time being warned to look up in the thickest part of the trees and to throw stones up, and in nine cases out of ten, the men would spot a fowl or two sitting high up amongst the thickest leaves calmly watching the undergrowth being searched. On one occasion I killed a bird that happened to fly back into the shola over the beaters and it dropped among the branches of a tall tree ; I had to send one of the men up the tree to fetch it, and as he neared the bird outflew two more that had sat there quietly in spite of the noise of the men and of the firing down below.

On another occasion I was tramping a swamp after snipe which had risen in a bunch and had scattered and settled again in a narrower part of the same swamp. This swamp was bordered for its whole length, on one side, by a huge shola ; on the opposite side was a bare grassy hill with no trees except one small clump of 2 or 3 small and thickly-leaved ones which grew quite at the edge of the swamp at its narrowest part. We passed close to this clump, in fact one or two of the beaters passed through it, I firing all the time as the snipe were flushed, and nothing came out of the clump ; on returning up the swamp to pick up some snipe that had flown back, my shikari suggested beating the clump with sticks in case there should be any fowl in it, when to our astonishment half a dozen hens flew out and crossed to the shola opposite ; unfortunately it was then the close season for hens, and no cock was with them. This also goes to show how closely the birds will sit on occasion.

The flesh of the cock-bird especially is most delicious and gamey, if, as can be done in the hills, the carcase is hung for a few days before being cooked.

During a recent march from Seringapatam to Cannanore, I found these birds plentiful, though very hard to get at on account of the density of

the forest, on the Western Ghats from Hunsur on the eastern side to almost the foot of the slopes on the western side."

"There can be little doubt, I think, that the Grey Jungle-cock is polygamous, one occasionally does see a cock accompanied by a single hen whether feeding outside a shola or driven out by beaters, just as one occasionally sees a solitary cock driven out, but in most cases the cock is accompanied by two or more hens, and this occurs quite up to the end of the shooting season. With regard to this, the close season for hens throughout the Nilgiri district commences on the 1st January annually but the close season for cocks does not commence till the closure of the shooting season, *i.e.*, 15th March. This, in my opinion, is a mistake on the part of the Nilgiri Game Association and I brought up the question at a recent meeting of members and proposed that the shooting of cocks should cease earlier ; after some discussion it was agreed that cock-shooting should cease on 1st March annually. Even this, I consider, is not really early enough, and I gave as my reasons (1) that undoubtedly both cocks and hens are scarcer at any rate within a radius of about 10 miles from Ootacamund, than they were and it would seem wise to give them both more protection ; (2) when beating the sholas for cocks the beaters are liable to disturb sitting hens and moreover the men are liable to pocket any eggs they may find and (3) the cock-birds are surely as necessary for the propagation of their species as the hens, and it appears to me justifiable to give them earlier protection on this account alone"—(*H.R.B.*).

Davison writes :—"The undergrowth of many of the forests of the Neilgherries is almost entirely composed of *Strobilanthus whitiani*, and when this seeds, as it does once in about seven years, the Jungle-Fowl assemble in vast numbers to feed on the seeds ; they do this too when the bamboo seeds." "The crow of the Grey Jungle-cock is not in the least like that of a domestic bird but although somewhat feeble in volume can nevertheless be heard—chiefly at sunrise and sunset, though occasionally a bird will crow during the daytime—to a considerable distance, as the bird crows when perched fairly high upon a tree and not when on the ground. When heard at a distance the crow may be likened to the words "Kuk-kā kurra kuk," repeated at intervals of about half a minute, or if heard close at hand it sounds more like *Kuk-kā Kāwā Kao*, ending in a drawn-out throatly kind of *Ugh* as is sometimes heard with the domestic bird. When disturbed off the ground both the cock and hen utter a sort of frightened *Chuck*, but when on the run or on the wing they are silent except of course for the loud fluttering and flapping of their wings"—(*H.R.B.*).

Breeding season, etc. February to end of June, April and May being the months during which most nests may be found.

Last season, 1920–21, I shot a couple of half-grown Jungle-chicks mistaking them for Spur-Fowl as they flew past me—in January, which shows that Jungle-Fowl sometimes breed very late"—(*H.R.B.*).

Davison gives October, November and December as the principal breeding months on the Western Nilgiris. "What does he include in the term "Western Nilgiris" ? The *close* season for hens in the whole of the Nilgiri district commences on the 1st January in each year (*vide* the Nilgiri district shooting licences), where as the *open* season extends from 16th September to 31st December annually, and it is hardly likely that the Nilgiri Game Association would issue licences during the breeding season"—(*H.R.B.*).

Nest. A hollow scratched in the ground under small brushwood in a shola, filled with dry leaves and a few feathers.

Eggs. Usual number 3; occasionally 5, more rarely 6; cream-coloured or light *café-au-lait*, closely pitted all over; some small, light red spots and blotches; average measurement 1·82 × 1·42″.

Mr. W. A. Hasted of the Madras Survey Department informs me that this summer, 1921, while out fishing in the Pykara river, near Ootacamund, he flushed a Jungle-hen with 9 chicks; he was able to count them accurately because on his approach the chicks squatted under a bush where he could see them. If all these chicks were the progeny of one hen it shows that more eggs are occasionally laid than is suspected."—(*H.R.B.*).

Sub-family PERDICINÆ.

"In the *Perdicinæ*, or Partridges, the moult of the tail-feathers commences with the central pair followed by each succeeding to the outermost"—(*Fauna of British India*).

Genus **GALLOPERDIX** Blyth 1844.

"In *Galloperdix* the tarsus is longer than the middle toe and claw, and bears two or three spurs in the male (even four on one leg have been found in *G. spadicea*); it is frequently unarmed in the female, but sometimes bears one spur, and occasionally two, there being in that case generally two spurs on one leg, one on the other. First primary shorter than the 10th, 5th or 6th generally longest. The tail, of fourteen feathers, and considerably rounded at the end, is two-thirds or more than two-thirds as long as the wing. A large naked space round the eye"—(*Fauna of British India*).

(373) Galloperdix spadicea spadicea (Gmel.).

THE RED SPUR-FOWL.

(*Fauna of British India*, 2nd edition, No. 1904.)
(*Fauna of British India*, 1st edition, No. 1349 (part).)

Description—Male. Length 14 to 15″; wing 6 to 6·5″; tail 5 to 6″; tarsus 1·75 to 2″; bill from gape about 1″.

Weight 11 to 11½ oz. "Weight 11 to 14 oz."—(*Hume*).

Lores, eyelids and bare orbital skin pinkish red.

Bill pinkish-red to reddish-brown, horny towards the tip; irides brown or red-brown; legs and feet coral to vermilion-red; face red.

Head and neck brown, darkest on crown; upper plumage chestnut, the feathers edged with grey; primaries dark brown; secondaries, and tertiaries vermiculated with blackish-brown; median tail-feathers chestnut vermiculated with blackish-brown; the other rectrices dark brown; chin whitish, neck grey-brown; lower plumage like the upper but much richer in colour; lower abdomen and thigh-coverts brown, slightly vermiculated on the latter.

Female. Length 13·25 to 14″; wing 5·75 to 6″; tail 4·5 to 5″; tarsus 1·65″; bill from gape 1″.

Bill, legs, irides and soft parts, as in male.

Head and neck as in male ; upper plumage brownish-black, the feathers barred and tipped with rich buff, and the whole more or less vermiculated ; primaries brown ; central tail-feathers black, closely and narrowly barred with zigzag tawny and brown lines, the outer feathers so marked on outer webs only ; chin and throat greyish-white ; neck and upper breast like the back, but the tawny colouring is paler ; sides of body like the back ; breast and abdomen fine rufous or chestnut with narrow pale shaft-stripes and terminal black markings ; vent grey ; thigh-coverts grey with tawny markings ; under tail-coverts black with dark tawny zigzag close bars.

The Young Male. "Is like the female but is more richly and deeply coloured, with more black in proportion to the buff and rufous."

The Young Male in first plumage. "Is like the female, but more dark and rich in general tint and the tail is deep chestnut with definite bars of black"—(*Stuart Baker*).

Locality, habits, etc. "Madras and as far south-west as Mysore, North Coimbatore and the Palni Hills. Malabar birds and those from the north coast of Travancore are intermediate between *spadicea* and *stewarti* but nearer the former"—(*Fauna of British India*).

"A permanent resident on the hills from foot to summit. A forest bird frequenting the same localities as the Grey Jungle-fowl. I found it plentiful on the Western Ghats and during a march from Seringapatam to Cannanore picked up several birds for the pot by strolling quietly down the road in the morning and evening and shooting them as they scuttled off into the jungle. As a rule they are shy birds and take cover on the slightest sign of danger ; yet, on the other hand, I have seen them feeding on the roadside quite unconcernedly within fifty yards or so of a gang of stone-breakers or bullock-cartmen resting by the wayside.

"I have found that, like Jungle-fowl, they are difficult to drive out of the sholas and are much given to sitting quietly up in thick trees and allowing the beaters to pass by underneath ; so that again like Jungle-fowl, it does not follow that because no birds are driven out there are none in the shola. Also, if the beaters do get them on the move, Spur-fowl are very apt to fly or move quite to the edge of thy shola and remain there until absolutely forced to fly out, so it is always wise for the sportsman to be prepared for these birds (and for Jungle-fowl too) right up to the last moment when the beaters emerge from the shola especially if there is thick undergrowth at the edge"—(*H.R.B*).

"They feed on both an insect and vegetable diet, and as Hume records "their food consists chiefly of grain and seeds of all kinds and small jungle fruit, the berries of the dwarf *Zizyphus* (*Jherbery*) and the figs of the Peepul and its congeners, but I have often found the remains if bugs, beetles and other insects in their crops mixed with these." I have also found their crops full of millet (*Bajra*) and of paddy."

They are very good eating and are better and more gamey than most of our Indian Partridges. No finer way of cooking them can be found than rolling them up in a ball of clay and roasting them in the ashes of a good strong fire. They should be rolled up, feathers, entrails and all and then when the burnt clay is broken open, the feathers and skin will come away with the clay and a most juicy bird remains to be eaten"—(*Stuart Baker*).

"Birds from Mysore and north-east Coimbatore are of the typical race and this extends at least as far south-east as the Palni Hills, latitude 10°. On the Malabar Coast north of Travancore specimens appear to assume a somewhat richer colour, and these specimens procured there by Chapman and now in the British Museum series are about half-way in depth of colouring between *spadicea* and *stewarti*, but have not the bright tint of the latter bird; so, for the present, I retain them under the typical name"—(*Stuart Baker*).

Breeding season. February to June. "Breeds from the foot hills at all heights up to 5,000 feet and sometimes in the Southern Hill-ranges up to 6,000 feet or more. Most birds, however, will be found breeding in these hills between 2,000 and 4,000 feet"—(*Stuart Baker*).

"I have myself taken eggs near Ootacamund"—(*H.R.B.*).

Nest. A depression in the ground filled with dry leaves under a bush inside a shola or jungle.

Eggs. 2 to 5, usually 3; white or creamy-white, very like those of the Indian domestic fowl in shape and size. Average measurement 1·77" × 1·25".

(374) Galloperdix spadicea stewarti Stuart Baker.

THE TRAVANCORE RED SPUR-FOWL.

(*Fauna of British India*, 2nd edition, No. 1941.)
(*Fauna of British India*, 1st edition, No. 1349 (part).)

Description—Male. "Wing 145 to 161 m.m." "Colours of soft parts as in the preceding bird."—"Similar to *G. s. spadicea* but much more richly coloured; the crown is almost black and the whole of the upper parts are a bright chestnut-rufous, the pale borders to the feathers being absent or obsolete, the vermiculations on the lower back entirely absent and on the rump and upper tail-coverts almost so; below, the chestnut is very rich and extends to the vent."

Female. Wing "148 to 150 m.m."

"Differs from that of the typical form in being much more richly and brightly coloured."

Locality, habits, etc. "Central and South Travancore only, between the foot-hills and 4,000 feet."

"This Spur-Fowl is very common in Travancore on the Shencottah Hills between 1,000 and 3,000 feet, being more common at elevations half-way between these two extremes, and sometimes being found still lower than 1,000 feet. They are essentially birds of thick cover and will never be found on the open bare lands so common in parts of Travancore, nor indeed will they often be found in scrub or thick grass, though they frequent the dense patches of Lantana bush in the mornings and evenings, greedily eating the berries and the white-ants —or termites—which are as plentiful as the berries. Their home is in the depths of evergreen jungle, and less often in heavy bamboo jungle, and here, as one wanders gun in hand, they may often be heard rustling about amongst the fallen leaves, a habit which has bestowed on them the Tamil name of "*Saravoo Koli*," or dry-leaves Fowl.

Less often than they are heard they may be seen scuttling across some more open glade or forest path, and a hasty snapshot obtains a

dinner worthy of our epicure. If put up by dogs they invariably take to trees, and if so treed it is easy to pot them as they sit.

They are poor flyers though like many others who are poor performers they are very noisy, making a great fluster in rising and a loud whirr as they fly.

Mr. J. Stewart, to whom I owe the foregoing notes, says that he has never attempted to make a bag of Spur-Fowl, but has several times got 4 or 5 in a morning's or evening's walk. They were most often met with when one was after big game and in consequence escaped without being fired at.

When disturbed they utter a chattering cry, and after a pair or a family have been put up and separated, they continue to call to one another until all have been re-united.

The cocks are not noisy birds, but crow, if one can call their chuckling cry a crow, regularly in the mornings or evenings during the breeding season. One would have expected birds so well armed with weapons of offence to be exceptionally combative, but I can find no support for such an idea and Mr. Stewart informs me that he has never come across them fighting or obtained any evidence, native or otherwise, to make him think they are at all pugilistic by nature.

They are difficult birds to rear and Mr. Stewart never succeeded in bringing them up. His most successful attempt was with some birds which grew half-way to maturity and then all died after their first meal of paddy, a food substituted too suddenly for their previous diet of white-ants.

They have, however, been reared in the Trivandrum Zoological Gardens where they lived in amity with some Grey Jungle-Fowl.

They feed on a mixed diet of insects, fruit and grain, and in the mornings and evenings are very fond of scratching about and feeding in the intensely thick secondary growth which so soon covers the deserted coffee clearings; they do not, however, ever haunt the more open coffee which is being cultivated."

Breeding season. "The Travancore Spur-Fowl breeds during February and March, and it is during these 2 months only that Mr. Stewart obtained all his eggs."

Nest. "The nest-hole is always scraped in dense cover and most often in some almost impenetrable cane-brake in evergreen forest; less often it is placed under a bush or a mass of creepers and it may also occasionally be found in thick bamboo jungle. Like *G. s. spadicea* it makes no nest, the only materials used being the fallen leaves and rubbish accumulated on the ground.

The cock is monogamous and Mr. Stewart thinks they probably pair for life, and as with the common Red Spur-Fowl, the cock bird proves an excellent father and husband.

They seem to breed only in the area of heaviest rainfall, to which fact is due their brilliant and dark colouration. The average rainfall is about 150 inches or more annually, an amount greatly in excess of that falling over the greater part of the range of the typical bird."

Eggs. "The eggs number 2 or 3 only, and whilst Mr. Stewart has never seen or heard of more than 3, he has often taken 2 well incubated. The eggs are, of course, quite inseparable from those of *G. s. spadicea*"—(*Stuart Baker*).

"The average of thirty-six is 41·3 × 30·4 mm."—(*Fauna of British India*).

(375) Galloperdix lunulata (Valenc.).

THE PAINTED SPUR-FOWL.

(*Fauna of British India*, 2nd edition, No. 1943.)
(*Fauna of British India*, 1st edition, No. 1350.)

Description—Male. "Length 12·5"; wing 6"; tail 5"; tarsus 1·75"; bill from gape 8"."—(*Fauna of British India*).

Weight 9 to 10 oz.—(*Hume*).

"Bill blackish; irides red-brown; orbits red; legs horny brown."

"Forehead and crown black glossed with metallic green, each feather with an elongate white drop that has sometimes a black centre; sides of the head and neck all round black with broader white subterminal spots. Chin buffy-white with black tips to the feathers; back, rump and wing-coverts chestnut, the feathers tipped with black-edged ocelli, smaller or replaced by small black tips or sometimes wanting on the lower back and rump; scapulars and some wing-coverts metallic green; quills dark brown. Upper tail-coverts and tail blackish brown with a slight green gloss; breast and upper abdomen buff with a triangular black tip to each feather; lower abdomen and flanks chestnut with white black-edged spots; under tail-coverts chestnut mixed with black."

Female. "Crown black with chestnut shaft-stripes; forehead, supercilia and sides of head dark chestnut; chin and throat chestnut mixed with buff, the latter prevailing on the chin and on a moustachial stripe from the gape: body and wings including quills, dark brown with an olive tinge, paler and yellower or rufescent on the breast. Tail blackish brown"—(*Fauna of British India*).

Females are smaller than the males.

Weight 8 to 9 oz.—(*Hume*).

Young Male and Female. "Resemble the adult female but are much duller. Above, the whole plumage is much freckled and weakly barred with dull black and rufous brown, and the tail and inner secondaries are chestnut brown, distinctly barred with black. Below, the whole surface is brownish, and the breast is no more chestnut than the rest of the plumage, but is more or less freckled with dull pale buff."

Chick in down. "Is a rich chestnut rufous above, the head and a broad dorsal line darkest and lightest; below, a dull pale earth-brown more chestnut on throat, upper breast, flanks, thighs and vent. The wing and tail-feathers, when they appear, are dull rufous brown, vermiculated with black and with a few tiny buff ocelli on scapulars and innermost wing-coverts"—(*Stuart Baker*).

Locality, habits, etc. Jerdon says:—"This handsome Spur-fowl is especially partial to rocky jungles and tangle coverts and is a very difficult bird to flush, taking sharp and rapid flights, and diving down into some impenetrable thicket. I have often seen it running rapidly across the rocks when the jungles are being beaten for large game.

From the difficulty of procuring this bird, it is not well known to sportsmen in general even in Districts where it is not rare and its qualities for the table are inferior to those of the last species, having less flavour and being more dry. Numbers are snared in the hills not far from Madras and they are generally procurable in the Madras market. I have kept them in confinement for long. They thrive pretty well, but the males are very pugnacious. The males have a fine cackling sort of call very fowl-like."

Davison got it on the Ghat below Coonoor and says that "Mr. G. R. Dawson of Coonoor procured another there and Mr. Rhodes Morgan shot one, I believe in the Seegore Ghat."

"We have had specimens sent us from the Orange Valley below Kotagherry, and at least half a dozen localities about the base of the Nilgiris"—(*Hume*).

The distribution of the Painted Spur-fowl is practically the same as that if the Red Spur-fowl . . . westwards it is found as far as the Eastern slopes if the coastal Hill-ranges, but not apparently on the Malabar Coast itself or in Western Travancore, though it is found in suitable places throughout Coimbatore and Mysore. On the East it extends right up the coast wherever the country is suitable"—(*Stuart Baker*).

Breeding season. Mr. Blewitt wrote to Mr. Hume—"It breeds certainly from March to May, making simply a slight excavation in the ground for the eggs under the shelter of a boulder or rock in a thicket."

Nest. "Sometime in April 1871 from such a nest, made at the base of a large boulder in dense jungle, the egg shells were taken from which the chicks had just escaped; again in the same month under the ledge of a rock in thick underwood in a slight hollow in the earth two fresh eggs were found."

"The breeding season appears to extend from February to June, the principal months being April and early May"—(*Stuart Baker*).

Eggs. Apparently 5 is the maximum number of eggs. Hume says that "the eggs of these species have a fine satiny shell with a more or less decided gloss. It is a moderately broad regular oval and is of a uniform rich *café-au-lait* colour."

"The eggs vary from 1·55 to 1·65″ in length and from 1·07 to 1·15″ in breadth; but the average of 7 eggs is 1·62 × 1·11″.

"The eggs are, I think, generally 3 in number, sometimes 2 or 4, and rarely 5"—(*Stuart Baker*).

Genus **EXCALFACTORIA** Bonap., 1856.

"This genus is scarcely separable from *Coturnix*, which the female closely resembles. The sexes, however, differ much in their lower plumage and the cock is a much handsomer bird than the true Quails. The wing is slightly more rounded than in *Coturnix*, the first primary being as a rule rather shorter than the second, and there are only 8 short tail-feathers entirely hidden by the upper tail-coverts"—(*Fauna of British India*).

(376) Excalfactoria chinensis chinensis (Linn.,).

THE BLUE-BREASTED QUAIL.

(*Fauna of British India*, 2nd edition, No. 1948.)
(*Fauna of British India*, 1st edition, No. 1354 (part).)

Description—Male. "Length 5·5"; wing 2·75"; tail 1"; weight 1·5 to 2 oz."—(*Hume*).

Bill black, blue at base below; irides red; legs bright orange.

Plumage above brown, the feathers centered pale yellowish or fawn, with dark spots and markings at the tips; upper tail-coverts blue, chestnut on the outer webs; tail and lower parts chestnut; centre of abdomen silky white, sometimes barred with grey; wings bluish-grey, the coverts with brown and chestnut markings; forehead, cheeks, sides of neck, breast and flanks, bluish-grey; a thin white stripe from the nostrils to the eyes; a white triangular patch on the sides of the throat, and a white collar bordered with black; chin and throat velvety-black.

Female. The whole upper plumage brown, with yellowish shaft-stripes, barred grey and with blackish-brown blotches and vermiculations; forehead, supercilium and sides of neck pale rufous; a narrow white stripe from nostrils to eyes; a black stripe from the gape through the ear-coverts which are brown, down the sides of the neck where it meets and merges into the breast colour; chin and throat white, cheeks and a band across the neck pale rufous; breast and sides pale vinous, each feather with a wavy dark-brown narrow bar; abdomen and vent silky-white; flanks barred pale rufous and red-brown.

Locality, habits, etc. Dewar records it from Madras. Jerdon got it once somewhere in the Carnatic and Bidie in Chingleput.

Davison found it, "occurring sparingly through the grassy portions of the Wynaad and obtained some specimens at Rampore on the confines of the Mysore Territory." "It is a common breeding bird in Travancore and the Malabar Coast . . . rare in Madras"—(*Fauna of British India*).

Frequents grass-lands and can sometimes be literally Kicked up from short grass on paths. They are also found in scrub jungle"—(*C.M.I.*).

Hume says, "Their call is a very low, soft double-whistled note, comparatively rarely heard except when a pair has been separated; then indeed, almost the moment the male has lit he begins calling to his mate. They feed quite silently also, but both sexes, if suddenly alarmed, and females when started from their nests, rise when a low, shrill rapidly repeated chirp, "tchi, tchi, tchi." Their flight is very fast, straight and low, rarely more than a foot above the tops of the grass and is continued from fifty to seventy yards, affording an excellent shot."

They feed principally on grass seeds.

Breeding season. "In Southern India February to April"—(*Fauna of British India*).

Nest. A depression in the ground lined with grass and situated amongst grass.

Eggs. 4 to 8; "I have one clutch of 8 eggs. They are olivaceous in colour, minutely speckled with brown and measure '95 × '75"—(*C.M.I.*).

"One hundred eggs average 24·5 × 19·0 mm."—(*Fauna of British India*).

Genus **COTURNIX** Bonnaterre 1791.

"The true Quails are birds of small size and peculiar plumage with conspicuous whitish longitudinal streaks on the back. Unlike the *Phasianidæ* in general, some of the Quails are migratory. The wing is much longer and more pointed than in Partridges, first primary being as long as the second or slightly longer. The tail is of 10 or 12 feathers, and less than half as long as the wing. The bill is long and rather slender; the tarsus bears no spur in either sex and is rather longer than the middle toe and claw; the claws are all of moderate size. The sexes differ slightly in plumage"—(*Fauna of British India*).

(377) Coturnix coturnix coturnix (Linn.,).

THE COMMON OR GREY QUAIL.

(*Fauna of British India*, 2nd edition, No. 1950.)
(*Fauna of British India*, 1st edition, No. 1355 (part).)

Description—Male. "Length 7·5 to 8"; wing 4 to 4·25"; tail 1·5 to 1·75"; tarsus ·9 to 1·15"; bill from gape ·6 to ·73"; weight 3·2 to 4·62 oz."—(*Hume*).

Bill horny brown above, paler below; irides vary from brown, dark brown, to red-brown; legs pale fleshy or pale yellow.

Head dark brown with rufous tips, and a pale yellowish-white line down the centre of head, nape and hind neck; lores, a long supercilium, the cheeks and sides of throat white; a brown line from the nostrils through the eyes to the neck; upper plumage brown, the feathers of the hind neck and upper back with a yellowish-white longitudinal stripe and with a blackish brown spot on each side of the stripe; back and scapulars with broad blackish-brown bars and tipped grey; remainder of upper plumage like the hind neck; wings dusky barred pale rufous; wing-coverts brown washed with grey, and with narrow fawn and dark brown cross-bars; a broad dark brown line runs down the neck from the chin terminating in a collarette which meets the brown of the earcoverts; below this collarette is another one of silky white; lower plumage pale rufous, paling to whitish on abdomen and vent; the breast and sides white-shafted; flanks whitish with broad rufous and brown stripes.

Female. Similar to the male except that the blackish brown throat-stripe and the brown collarette are wanting.

Locality, habits, etc. "In the winter it wanders South to Madras and Travancore"—(*Fauna of British India*).

A common winter visitor to the plains in suitable localities and very occasionally found on the hills. It prefers dry cultivation, grassy or fallow land, and the dry scrub-grown beds of nullahs, and is rather solitary in habits, for, although numbers may be seen in a day's

shooting, they are generally flushed singly or in pairs, unlike *Perdicula argoondah* and certain other Quails which associate in coveys. Their abundance or otherwise appears to be greatly affected by climatic conditions and by the food-supply. Some years they come in in large numbers, at other times when the local conditions appear to be favourable and similar to other years, scarcely half a dozen will be flushed during the day. Their flight is rapid and straight, offering as a rule, a fairly easy mark to the sportsman ; when once flushed, however, they sit very tight on re-settling and though often marked down into a certain bush, are difficult to dislodge a second time. Their food consists of grass seeds and insects, and the birds are excellent eating, in fact, these are the only Quails, to our mind, worth the powder and shot."

Breeding season. "Doubtless a close season is necessary in the parts of Northern India where these birds breed, but in this Presidency they hardly require protection although they figure upon the list of protected birds, because few, unless perhaps wounded birds, stay with us throughout the year ; I have now and then seen one during the off-season but have not heard of any nest having been taken in this Presidency"—(*H.R.B.*).

(378) Coturnix coromandelica (Gmel..).

THE BLACK-BREASTED OR RAIN-QUAIL.

(*Fauna of British India*, 2nd edition, No. 1952.)
(*Fauna of British India*, 1st edition, No. 1356.)

Description—Male. "Length 6·25 to 6·75″; wing 3·25 to 3·5″; tail 1 to 1·25″; tarsus ·87 to 1″; bill from gape ·5″; weight 2·2 to 3 oz."—(*Hume*).

During the breeding season the bill is black, and the legs yellowish-fleshy ; at other times the former is horny above, bluish below and paler at the gape, and the latter are pale fleshy ; claws horny ; irides brown or red-brown.

Head and neck brown with a yellowish-white mesial stripe ; a white stripe from the nostrils over the eyes down the sides of the neck, another from the nostrils under the eyes to the ears, and a third short one behind the ears down the neck a black stripe from gape across the face to the ears where it turns sharply inwards across the throat, meeting another broad black stripe from the chin, thus enclosing a large triangular white patch on each side of the throat ; below this black stripe is a broad white one, succeeded again by a dark brown horse-shoe-shaped bar which terminates at the ear-coverts ; a large black patch on the breast, surrounded by black spots and streaks ; sides of neck rufous-fawn with white shafts ; lower breast white, tinged rufous ; abdomen and vent white ; flanks rufous streaked with dark brown ; wings pale brown, the coverts pale rufous-brown with white centres ; scapulars like the back but with narrow stripes ; upper plumage rufous-brown, the feathers centred longitudinally with pale fawn and white, and with large black spots on each side of the central line ; rump black with narrow zigzag pale rufous bars ; the side feathers like the back.

Female. Is larger than the male, paler in colour and wants the black stripes on the throat and the patch on the breast ; bill pale brown, irides and legs as in the male.

Locality, habits, etc. A common visitor to the plains during the rainy season, frequenting much the same localities as the *C. c. coturnix*, *i.e.*, cultivated and fallow land, grassy plots, the beds of scrub-grown nullahs, etc. Some birds, probably wounded or sickly ones, remain with us the year round, but the majority are migratory, arriving about June and leaving again soon after their broods are full-fledged and strong, in November or December. "These Quails may at almost any time of the day be heard uttering their shrill double-note whistle of *tweet-tweet*, *tweet-tweet*, and can thereby be easily stalked and shot; like most game-birds, after once being flushed, and indeed often at other times, they lie very closely and will allow themselves to be almost trodden upon before they rise; in fact only the other day when out after Grey Partridge, I actually did stamp upon a Rain-Quail out in the open; it was not until feeling something wriggling that I lifted my foot and the bird flew off; its mate too was crouching close by it, and it was a wonder that I did not stamp upon them both"—(*H.R.B.*)

Davison "shot one out of a small covey on the edge of the Government Cinchona plantations at Neduvattam and on another occasion killed one in Ootacamund."

Breeding season. August and September.

Nest. A depression made in the ground amongst rank grass and tangled weeds, generally well concealed and difficult to find.

Eggs. 4 to 6; yellowish stone-colour, blotched and spotted all over with various shades of sepia. Barnes in his "*Birds of Bombay*", says:—"The eggs 8 or 9 in number are usually broad and oval in shape, and vary in colour from pale yellowish to rich *café, au-lait*;" Quoting from the "*Game Birds of India*", he proceeds:—"The markings are of three types.—First fine specklings and spottings, thickly spread over the whole surface of the egg, second bold blotchings and frecklings, third marblings; in colour the markings equally vary, blackish, purplish, olive and burnt sienna, all occur." Stuart Baker also records clutches of 8 and 9. Average measurement 1·09 × ·84".

Genus **PERDICULA** Hodgson 1837.

"The bill is short and thick and the culmen very convex. The fourth primary is the longest, the first being intermediate length between the seventh and ninth. The tail consists of twelve feathers and is about half as long as the wing. The tarsus is about as long as the middle toe and claw, and is armed in males with a blunt, tubercular spur. The sexes are very different in plumage"—(*Fauna of British India*).

(379) **Perdicula asiatica asiatica** (Lath.,).

THE JUNGLE BUSH-QUAIL.

(*Fauna of British India*, 2nd edition, No. 1953.)
(*Fauna of British India*, 1st edition, No. 1357.)

Description—Male. "Length about 6·5"; tail 1·5"; wing 3·25"; tarsus 0·95"; bill from gape 0·55"; weight 2 to 2·85 oz."—(*Hume*).

Bill black or dusky with a reddish tinge at the base, lower mandible usually paler; irides brown; legs yellowish-red."

"Upper parts brown, the crown usually more rufous and bordered and blotched with blackish; the back, rump and upper tail-coverts with wavy black bars, a few narrow buff shaft-streaks (wanting in very old birds) on the back; scapulars, tertiaries and wing-coverts blotched with black, with broader buff shaft-stripes, and the coverts, especially, with buff cross-bars; quills brown with buff spots on the outer webs, inner webs plain, the inner secondaries becoming banded and vermiculated; tail brown with black-edged buff cross-bars; forehead, supercilia, cheeks, chin and throat rufous chestnut; yellowish white stripes speckled with rufous above the supercilia and cheeks; ear-coverts brown; breast and abdomen barred across with black and white or buffy white, the bars a little broader behind; thighs, lower abdomen and lower tail-coverts rufous, varying in tint."

Female. "The adult female has the head and throat coloured as in the male, the upper parts are more uniform; the pale shaft-stripes are absent on the back and narrow, or in old birds wanting, on the scapulars and wing-coverts; the lower parts from the throat are uniform dull rufous with a vinaceous or lilac tinge."

"Immature birds want the chestnut on the head; the upper parts are much as in the male, but with broader buff shaft-stripes throughout; the lower surface is dull rufous or pale rufous-brown with whitish shaft-stripes. The change to the adult plumage is gradual"—(*Fauna of British India*).

Locality, habits, etc. Ferguson says in his "*Birds of Travancore*":—"Numbers of these birds are brought round alive from the Eastern side to Trivandrum for sale; they are not taken in Travancore but in the dry District of Tinnevelly. They may be found, however, about Cape Comorin but so far as I am aware nowhere else in Travancore."

Jerdon says:—"Chiefly found in the more wooded districts of Malabar, Mysore, on the Eastern Ghats and on the various hill ranges, being rare in the low Carnatic and bare table-land. Colonel Sykes found it on the higher ranges of the Western Ghats, at 4,000 feet."

Davison failed to notice it on the Nilgiris.

Mr. F. W. F. Fletcher, in his book "*Sport on the Nilgiris and in Wynaad*," *Appendix I*, remarks that this bird is found on both plateaux, that is the Nilgiri and the Nilgiri-Wynaad plateau.

Hume mentions having got it from the neighbourhood of Madras. Hume's account of its habits is so good that we copy it *in extenso*.—"Moderately thick forests and jungles, hills, ravines and broken ground, not too deficient in cover, and rich cultivation if not in too damp and undrained situations, from near the sea-level to an elevation of four to five thousand feet are the ordinary resorts of the Jungle Bush-Quail. Very considerable differences in rain-fall affect them but little, provided the ground is hilly and raviny or well-drained and cover sufficient, and they are abundant, as on the Western Ghats, where the rainfall is over 100 inches, and on the scrub-clad hills in Rajputana where it certainly falls short of 20 inches. Little bustling ground-birds, always keeping, according to my experience, in packs or families; never coming out into the open, always feeding in grass-jungle, or stubble long enough to hide their tiny selves; there is but little to be said of their habits; they are very tame and trouble themselves little about men, and, if you stand perfectly still for a few

minutes, will bustle about within a few yards of you, all feeding, chirping, and scratching in the dust as if their lives depended upon their getting through a certain amount of all this within the shortest possible time; even when thus at their ease, a pocket handkerchief would often cover an entire covey of a dozen; they have often reminded me strongly when thus moving about, the whole body animated, as it were, by one impulse, of a flock of Guinea-fowl. Make the least sound, and the whole party cluster together into the space a dinner plate would cover; and unless pressed, glide away *en masse* out of sight. You make a rush, and, suddenly from the grass on which your foot is descending, a lively fountain of small birds sprouts out, with a vast amount of whirring and a sharp quivering whistle. In every direction fly the birds, every one of which probably drops, as if shot, within 20 or at most 30 yards. Immediately some one or two begin calling vigorously; within five minutes, if you have not fired and keep still, your dog will put the whole re-united covey up again, perhaps nearly a hundred yards away, perhaps closer to you than any of them alighted. Their chief food appears to be grass seeds and grains of millet. Ragi stubble is a sure find for them, but they eat any small seeds, and grains and *sometimes* you find quantities of insects, ants and tiny Coleoptera in their crops. I am disposed, however, to think that they only eat these latter when grain and seeds are scarce, for in numbers that I have examined nothing absolutely but the latter were to be noticed."

Breeding season. Hume gives it as from September to February.

Nest. We again quote Hume. "The nest, always placed on the ground under the shelter of some bush or tuft of grass, is of moderate size, circular and shallow, more or less fitted into a corresponding depression of the soil, and more or less neatly constructed of grass and roots."

Eggs. 5 to 7 seem to be the full complement. In one case a clutch of only four eggs was hard-set. The eggs are rather pointed ovals and creamy white in colour; they measure 1·1″ × 0·8″.

(380) Perdicula asiatica argoondah (Sykes).

THE ROCK BUSH-QUAIL.

(*Fauna of British India*, 2nd edition, No. 1954.)
(*Fauna of British India*, 1st edition, No. 1358.)

Description—Male. "Length 6 to 7″; wing 3·12 to 3·4″; tail 1·5 to 1·87″; tarsus 1″; bill from gape ·5″; weight 2·25 to 3 oz."—(*Hume*).

Bill blackish above, bluish beneath; irides brown or red-brown; legs orange or reddish-orange.

Forehead and anterior portion of crown rufous; remainder of head brown with narrow irregular black lines; lores and supercilium white; ear-coverts dark brown; neck and rest of upper plumage brown, minutely freckled with black and also with transverse fawn and black lines; on the lower back, rump, upper tail-coverts and tail these lines are replaced by "chevrons" of fawn and black; wing-coverts brown, centred yellowish-fawn, with two large blackish-brown spots on the feathers; primaries dusky with tawny bars on the outer webs,

freckled on the inner webs ; chin, throat and sides of face pale rufous, the latter narrowly barred with black ; lower plumage white with numerous transverse black bars; the sides, abdomen, flanks and under tail-coverts tinged with pale rufous.

Female. The whole upper plumage rufous-brown minutely barred and freckled with darker brown ; lores and a narrow supercilium white ; primaries as in the male ; chin whitish, remainder of lower plumage pale rufous, albescent on vent and thighs.

Locality, habits, etc. "Madras to the extreme South . . . West it extends to the dryer plains of Mysore and Travancore"—*Fauna of British India*).

"A permanent resident on the plains in suitable localities, but does not appear to ascend the hills to any height. It is gregarious in habit, associating in coveys of 6 or 8, and frequenting dry, grassy localities, preferably where rocks and scrub abound, such as the dry beds of nullahs, the lower slopes of hills, etc. When flushed the birds all rise at once with a loud whirr and a vast amount of "tweeting", but they do not, as a rule, fly very far, preferring to seek the shelter of rocks and bushes as soon as possible ; they are, moreover, very close sitters and often allow themselves to be almost stamped upon before taking to flight, in fact, on one occassion, I did actually stamp upon one which was crouching unseen by me amongst some stones"—(*H.R.B.*).

Breeding season. From about August to the beginning of December.

Nest. "A pad of coarse dry grasses, placed in a depression under a tuft of grass or small shrub. A nest I found near Bangalore on the 28th November 1909, was placed under a small tuft of grass in an open, uncultivated field, without any attempt at concealment. It contained 6 fresh eggs"—(*H.R.B.*).

Eggs. 6 ; broad ovals ; pointed somewhat at the smaller end, cream or very pale *café-au-lait* coloured ; average measurement (of the clutch of 6 eggs) 1·05 × ·93".

Genus **CRYPTOPLECTRON** Streubel 1842.

"There is no spur on the tarsus in either sex ; the bill is much longer than in *Perdicula* and less ; high the tail is of ten feathers only, and rather more than half as long as the wing ; and the wing is shorter and more rounded than in *Perdicula*, the 4th, 5th and 6th quills being longest and sub-equal, and the 1st equal to the 10th"—(*Fauna of British India*).

(381) Cryptoplectron erythrorhynchum erythrorhynchum (Sykes)

THE PAINTED BUSH-QUAIL.

(*Fauna of British India*, 2nd edition, No. 1955.)
(*Fauna of British India*, 1st edition, No. 1821.)

Description—Male. Length 7" ; wing 3·5" ; tail 2" ; tarsus 1·1" ; bill from gape ·6" ; weight 2·4 to 3·1 oz. (*Hume*)"—(*Fauna of British India*).

"Bill and legs fine red; irides yellow brown"—(*Jerdon*).

"Forehead, lores, all round the eyes and gape, and the chin black; a narrow white sincipital band running back above the eyes and brown ear-coverts on each side; crown black, more or less replaced by brown in the middle of the occiput; upper parts brown, back and rump with rounded or lens-shaped black spots; scapulars, tertiaries and wing-coverts with white shaft-stripes, distant buff cross-bars and sub-terminal black blotches, chiefly on the inner webs; quills brown, the outer webs with rufous buff cross-bars; tail-feathers blackish brown with narrow buff transverse bands; throat and cheeks white surrounded by a black gorget; rest of lower plumage light chestnut, the upper breast washed with greyish brown and the feathers with small round sub-terminal black spots; the flanks and lower tail-coverts with large oval black spots with white borders."

Female. "Differs in having no black or white on the forehead, sides of the head or throat, which are dull rufous, and there is little or no black on the crown."

"Immature birds resemble females, but have black on the crown like males."

Locality, habits, etc. "South-West India from Poona to Travancore, through the various hill-ranges of Mysore, Nilgiris, Palni Hills, Cardamon hills, Wynaad and throughout the Western Ghats"—(*Fauna of British India*).

Appears to be found on the hills only. Cardew records it from the Nilgiris where he obtained eggs in July and August. Davison records it from Kanara, and it has been found on the Shevaroys. Ferguson writes from Travancore:—"I have only found this Quail on the Cardamon hills and the High Range; at the latter place and at Peermaade it is the commonest species by far. Mr. T. F. Bourdillon took the eggs at Peermaade in December. Hume gives the distribution as 'Throughout the Pulneys and Nilgiris, in the Wynaad and Coorg, and thence northwards along the Western Ghats' . . ." We again pillage *Hume* and *Marshall* for remarks on the habits of this bird. Mr. Davison wrote:—"The Painted Bush-Quail is very abundant on the Nilgiris and their slopes. They always occur in bevies, numbering eight to twelve birds. They of course avoid the inner depths of the jungles, but are found on the outskirts especially where there is good dense cover such as the common brake fern; but their favourite resort is rather rocky ground interspersed with bushes and dense clumps of fern and high grass, especially where such places about on or near cultivation, or any road along which cattle carrying grain habitually pass. About the station of Ootacamund they are, even to this day, not uncommon; and in the grounds of almost all the outlying houses where these are tolerably wooded, one or more coveys are sure to be found. In the mornings and evenings they are very fond of coming out into the open, and I have met with a dozen or more coveys on the road in a morning's ride between Coonoor and Ooty. They are tame little birds and will seldom rise when met with on a road unless hard-pressed or suddenly surprised; they content themselves with running on ahead, occasionally stopping to pick up a grain or an insect, until they think they are being too closely followed when they quietly slip out of sight into the first bit of cover they come to. When retreating they keep uttering a very rapidly and continually repeated note, in a

very low tone hardly to be heard unless when one is quite close to them. When flushed they rise as a rule (as Jerdon says) all together, usually scattering in different directions, but this is by no means invariably the case, and sometimes even before a dog they will rise singly, or in couples, several minutes often intervening between the rise of the first and last birds. With dogs they are always easily flushed, but if there be no dog to press them after having been once disturbed they will either lie very close or dodge and run about amongst the bushes in a most persistent and disheartening manner. I have occasionally marked a bird into an isolated bush, which I have had to kick and trample to pieces before the bird would rise. Their call is a series of whistling notes, commencing very soft and low, and ending high and rather shrill, the first part of the call being composed of single, the latter of double, notes sounding something like 'tu-tu-tu-tu—tutu-tutu-tutu,' etc. When a covey has been flushed and scattered one bird commences in a few minutes calling in a very low tone, another immediately taking it up, then another, and so on. They then begin cautiously to re-unite, uttering all the time their low note of alarm, moving very slowly, with continual halts while in cover, but dashing rapidly across any open space they may have to cross. When calling to each other, after having been scattered, the call is uttered in a very low tone so that it appears to come from a long distance off though the bird may be within a few feet of one. Perhaps the bird ventriloquises and it is only the lowness of the tone that so misleads one. They are, of course, permanent residents on the Nilgiris and in the Wynaad and from my experience I may go further and say that they seldom wander far from the place in which they were bred."

Mr. C. Primrose writing to the *Bombay N. H. Society's Journal* from Kil-Kotagiri says :—"Their call is a very short whistle of about two seconds' duration, repeated after about the same interval and rising gradually till it reaches a certain pitch, which note is repeated a few times and then dies down rather more rapidly ; this call constitutes that of the hen, the male's call is graduated in the same way but has a "thrill" in it and I think is best expressed on paper as "Kirikee," "Kirikee", etc. I have tried imitating this call and find that with a little practice it is very easily done. The birds come to the call readily from short distances, that is up to 80 or 100 yards, you can, if you hear the birds calling a little distance away start answering them ; soon you hear the bird calling nearer you and a little more answering on your part brings him nearer still. Now you hear him calling close by and very often spot him standing on a small rock or other eminence waiting an answer to his challenge. Then once he has located the sound he comes along at a very fast walk or run, now and again making a sort of chuckling noise and looking about for his would-be antagonist, but should the bird see you instead, which it generally does, being by this time not more than one or two yards distant, he retires uttering an alarm note. The best time to call them in this way is when they are mating, as then they seem to be on the "war-path" in earnest.

Davison writing in *Stray Feathers, Vol. X, March 1883*, says :—It is still common in many parts, but of late years has become quite scarce in the neighbourhood of Ootacamund, Coonoor, etc."

"In 1900 I found it common enough at Kotagiri where I used frequently to see coveys during my walks along the paths through scrub jungle. Around Ootacamund, however, it seems now to be very

scarce, at any rate on the Western portion of the plateau—during the last 2 shooting-seasons (1920–21–22) I saw one covey only in a dry bramble-covered nala at the top of the Nanjanad Valley "—(*H.R.B.*).

Mr. A. M. Primrose found it common a good many years ago round the estates of Terramia, Kullakambi, Halashana and Sutton, not far from Coonoor.

Breeding season. July to April. Mr. C. Primrose writes in the *Bombay N. H. Society's Journal*:—"The breeding season, or rather seasons, for I am sure this Quail nests twice in the year, March, April and May, and again in September and October."

Nest. Usually just a hole scraped in the ground, but sometimes lined with grass and placed in grass under the shelter of a bush.

Eggs. 5 to 10 (Miss Cockburn says 10 to 14) long ovals of a deep cream colour, measuring 1·25 × ·91". They are large for the size of the bird.

Genus **FRANCOLINUS** Stephens 1818.

"Tail of 14 feathers, slighty rounded, rather more than half as long as the wing; the 3rd or 4th quill longest; 5th and 6th nearly as long. Tarsus usually spurred in males. Sexes similar or dissimilar "—(*Fauna of British India*).

(382) Francolinus pictus pictus (Jard., and Selby.)

THE SOUTHERN PAINTED PARTRIDGE.

(*Fauna of British India*, 2nd edition, No. 1979.)
(*Fauna of British India*, 1st edition, No. 1373 (part).)

Description—Male. Length 11·5 to 13", wing 5·5"; tail 2·75 to 3·5"; tarsus 1·75"; bill from gape ·9 to 1·1".

"Spurs rudimentary, or absent "—(*Stuart Baker*).

"Weight 8·5 to 12·7 oz."—(*Hume*).

Bill black, paler at tip; irides brown; legs orange-red.

Forehead, lores, a broad supercilium, cheeks, ear-coverts and sides of neck rufous; head and nape dark brown, edged pale; upper back blackish-brown, each feather with two white spots; wing-coverts and scapulars dark brown with rufous spots and markings; lower back, rump and upper tail-coverts black, beautifully cross-barred with narrow irregular white bars which are slightly washed with rufescent on the tail-coverts; tail dark brown finely cross-barred at the base with white; wings barred rufous and dusky brown; chin and throat pale rufous or rufescent-white, the latter with small triangular black drops; Plumage below black, each feather with two white spots which increase in size towards the abdomen; flanks washed with rufous; vent and thighs pale rufous, the latter indistinctly barred with black; under tail-coverts chestnut.

Female. "Like the male but with the lower back, rump upper tail-coverts and tail dull pale brown with narrow bars of white edged with darker brown, the throat is generally white, whilst the markings on the flanks and lower breast form black, arrow-shaped, central bars on a pale buffy ground."

Locality, habits, etc. "Southern India. On the West it is found as far North as Khandesh and thence in a line to Raipur, from which again it extends to Chanda and into Behar"—(*Fauna of British India*).

A permanent resident but locally distributed; frequents dry cultivated districts, although like the rest of the species it does not wander far from water. It has a peculiar call, something like *Kakah-urk-kurr*, the last two syllables being uttered rapidly, and resembling not a little the first attempts at crowing of a young cockerel—very unlike the pronounced *tee-turr-turr*, *tee-turr-turr* of *F-fracolinus*. Jerdon says he has heard of its occasional occurrence near Bangalore; this is the type locality.

"It never enters the heavy forest of the Western Coast, but whenever cultivation has taken the place of forest, and grass has grown up over the abandoned areas, there almost to a certainty, the Painted Patridge will sooner or later put in an appearance.

"Perhaps its favourite haunts are short grass on broken, stony plateaus and plains, or thin scrub-jungle, and in either place trees are *desiderata*, for this bird is much more fond of perching that the Black Patridge. They call like that bird from some elevated perch but more often from trees than from ant-hills, boulders and fallen stumps.

"White ants are a very favourite food with this bird, as indeed with almost all birds and it is said to be a foul feeder when living anywhere near villages.

"Pitman found that it drank regularly every evening about six o'clock in July in the Central Provinces, but he did not notice it drinking in the morning as the Black Patridge always did. Although never getting big bags, he obtained very fair sport with the Painted Patridge by driving the grass and scrub round cultivation. The birds were very clever at squatting close until the beaters were almost on them, when they doubled back through their legs or rose and doubled back over their heads, giving no chance of a shot. At other times they rose well and gave capital shots as they crossed the open.

"In Hume's time Laird wrote:—'7 or 8 brace of Painted Partridges with 15 brace of Quail, etc., would be here (Belgaum) reckoned a good bag for one gun,' and probably much the same would be the case now.

"In a few other localities they may be rather more numerous and rather larger bags possible, but I have heard of no place where much over twenty couples can be hoped for in a day's shoot.

"Hume says they fly faster and take more hitting than the Black Partridge . . .

"The flesh of the Painted Partridge is rather dry, but quite pleasant, and has sometimes been described as excellent"—(*Stuart Baker*).

Breeding season. June to September.

Nest. A depression in the ground lined with grass, and placed in grass crops and scrub-jungle.

Eggs. 4 to 8; Cream-colour or sometimes, according to Hume, white with a very faint greenish tinge, brownish-drab or pale *café-au-lait*.

(383) Francolinus pondicerianus pondicerianus (Gmel.).

THE SOUTHERN GREY PARTRIDGE.

(*Fauna of British India*, 2nd edition, No. 1983.)
(*Fauna of British India*, 1st edition, No. 1375 (part).)

Description—Male. "Length 11·5 to 13·5"; wing 5·5 to 6"; tail 3·25 to 3·5"; tarsus 1·7"; bill from gape ·9"; weight 9 to 12 oz."—(*Hume*).

Bill horny, paler below; irides dark brown; legs red.

Forehead rufous; head and nape brown; lores and face rufous with black specks; a rufescent white supercilium extending down the sides of the neck; upper plumage including wing-coverts, upper tail-coverts and central tail-feathers barred rufescent-white and grey-brown, each feather (except the central tail-feathers) with two large chestnut spots; outer tail-feathers chestnut with a broad sub-terminal black bar, and tipped whitish; primaries pale brown; chin and sides of throat white; centre of throat and neck pale rufous edged blackish-brown forming a triangular mark; remainder of lower plumage white, tipped rufous on the breast, and yellowish on the vent and thighs with narrow black cross-bars and some chestnut spots on the sides; under tail-coverts ferruginous, narrowly barred with black.

Female. Similar to male. "Weight 7 to 11 oz."—(*Hume*).

Locality, habits, etc. An exceedingly common resident on the plains (Hume knew of a straggler being killed near Kalhatti on the Nilgiris at an elevation of 5,500 ft.), though naturally more abundant in some places than in others. Davison writes:—"Occurs sparingly on the slopes of the Nilgiris to about 5,000 ft. on the Seegore side, and it is not uncommon in some parts of Mysore." Common round Masinigudi. It generally associates in pairs, occasionally in small parties of five or six and frequents cultivation, scrub-jungle, the banks of nullahs and such like places. They are very shy birds, and at the least sign of danger run to cover; good bags can often be made, however, by going out in the early morning or evening and locating the birds by their calls and then quietly stalking them, or else by employing and walking up with beaters; driving them is not so satisfactory as they are much given to flying back over the beaters.

"A tip worth knowing when in quest of this wily Partridge, is to throw stones up into all *seende* (wild date) palms and thick trees, *en passant*; the birds have a habit of flying up and settling in trees after feeding, and many a bird have I added to my bag by knowing and taking advantage of this habit. Their flight is strong and rapid, and they take away a deal of shot; I always use No. 6 in the right barrel, and No. 4 in the left; with smaller sized shot I find that there are too many "runners" amongst the birds dropped, and once a partridge is winged and takes to its legs, the chances are very much against its being brought to bag unless one has a dog; even then it is often impossible to get them, for they work themselves, if they can, right in amongst the tangled roots and holes under the trees. The call of the Grey Partridge is a loud *tee-turr-turr, tee-turr-turr*, the last two syllables uttered rapidly, and is heard constantly morning and evening when the birds are on the feed, the male (for it is he that calls) usually perching upon some low tree, stack of brush-wood, bank, etc., for the purpose,

presumably, of his challenge being heard at a greater distance. Immense numbers are snared and netted annually by the natives and brought into the markets ; cock-birds are also caught young and trained by the natives for fighting, the owner of a good fighter making quite a good thing out of his captive "—(*H.R.B.*).

Breeding season. February to June or later ; some birds doubtless rear a second brood, especially if their first nest of eggs is taken or destroyed.

Nest. A depression scratched in the ground under some bush.

Eggs. 4 to 8 ; of varying shades of cream or creamy-white ; average measurement 1·28 × 1·02".

Order HEMIPODII.

"The vertebræ are all free, whereas in both *Gallinæ* and *Pterocles* the last cervical and anterior dorsals are always anchylosed in adults, and the last dorsal is united with the lumbar vertebræ to form the sacrum. The sternum of *Hemipodii* has a single deep notch, about two-thirds the whole length, on each side of the posterior border and episternal process is incompletely perforated to receive the inner ends of the coracoids. The palate is schizognathous, but the palatines, pterygoids and basipterygoids are Pluvialine rather than Galline in form. The nasals are schizorhinal. Hallux wanting. As in other three-toed birds, the deep planter tendons in *Turnix* unite and the combined tendon is divided to supply the three anterior digits. The ambiens is present, and so are the other muscles of the thigh, except the accessory femoro-caudal, which is wanting. The left carotid only occurs in the genus *Turnix*. In other characters members of this Order resemble the *Gallinæ*. They are quincubital and posses a tufted oil-gland and 14 to 15 cervical vertebræ. The young are hatched covered with down which is marked with a coloured pattern and they run as soon as they leave the egg"—(*Fauna of British India*).

Family TURNICIDÆ.

Genus **TURNIX** Bonn., 1790.

"Bill moderate, somewhat slender, straight, compressed; nostrils elongate, horizontal, linear. Wings pointed, first quill generally longest in Indian species. Tarsus moderate; no hind-toe, the three anterior toes much longer in proportion in some species than in others"—(*Fauna of British India*).

(384) Turnix suscitator taijoor (Sykes).

THE COMMON BUSTARD-QUAIL.

(*Fauna of British India*, 2nd edition, No. 1998.)
(*Fauna of British India*, 1st edition, No. 1382 (part).)

Description—Male. "Length 5·6 to 6·25"; wing 2·85 to 3·1"; tail 0·9 to 1·2"; bill from gape 0·6 to 0·72"; weight 1·5 to 1·9 oz."—(*Hume*).

Supercilium, lores and sides of head white with small black spots; a small whitish stripe down centre of head; above isabelline or pale rufous with the back barred and spotted with black and white and edged with pale fulvous giving the bird a pale appearance; upper tail-coverts and tail narrowly barred with rufous and black and with some buff spots; wings brown margined pale buff or fawn; coverts barred blackish-brown and pale buff; chin and throat white; breast and sides of body barred black and pale buff; remainder of lower plumage rufous or fawn, paler down the centre; under tail-coverts rufous.

Female. "Length 6·12 to 6·7"; wing 3·4 to 3·7"; tarsus 0·95 to 1·12"; bill from gape 0·7 to 0·81"; weight 1·5 to 2·56 oz."—(*Hume*).

Larger in size and with a rufous collar and chin, throat and upper breast black, except at the sides which are similar to the male.

Locality, habits, etc. "The whole of India South of the habitat of *T. s. plumbipes* down to cape Comorin"—(*Fauna of British India*).

A resident on the plains and lower hills, frequenting dry, grassy places, cultivated ground, etc. Cardew records it from the Nilgiris and from Madras; Dewar on the other hand omits it from his list of birds found in and around the latter place. Ferguson says it is not uncommon in the low country in Travancore.

Major E. G. Phythian Adams writes:—"I shot one out of a couple on partly flooded paddy stubble near Cannanore last September (1927)."

"On being disturbed the birds fly with a strongish flight for about ten to twenty yards and then drop into cover again, and it is very difficult to put them up for a second time. A curious fact about these and other Bustard-quails is that the female rules the house, leaving all such work as hatching the eggs and looking after the young for the male to attend to. She also does all the fighting, and also, I believe, alone calls. In the breeding season she may be often heard but it is no easy matter to locate her by her note which is a loud booming sound uttered by her as she sits on her tarsi. I have never noticed her make it except when in that position, and I have kept these birds many months in captivity. They feed principally on grass and other seeds, but insects also form part of their diet"—(*C.M.I.*).

Breeding season. Jerdon gives July to September in the Carnatic, further South from June to August, and in Ceylon, says Layard, from February to August.

"The season for laying may vary somewhat in different places, but it may really be said to last more or less all the year round"—(*Stuart Baker*).

Nest. "Those I kept in captivity made quite respectable nests in some dried grass which was put in one corner of the cage, but this may have been because there was not sufficient earth to hollow out. I must say all I have seen in a state of nature were mere apologies of nests, often without any lining at all. I may add that anything I saw done in the nest line was made by the female alone. The nest is usually situated in a tuft of grass in open land or else under a bush"—(*C.M.I.*).

Eggs. Usual number 4, though as many as 5, 6 and even 7 have been very occasionally taken. In shape they are broad ovals, often peg-top shaped; the ground-colour being stone-colour, very thickly speckled all over with brown and dark grey and blotched with deep brown or dark grey round the thick end; in some eggs the brown speckling is so dense as to give the shell a decidedly brown colour. Hume gives the average of thirty as .93″ × .79″."

(385) Turnix dussumieri (Temm.).

THE LITTLE BUTTON-QUAIL.

(*Fauna of British India*, 2nd edition, No. 2003.)
(*Fauna of British India*, 1st edition, No. 1383.)

Description—Male. Bill plumbeous; irides pale yellow; eyelid plumbeous; legs whitish tinged with plumbeous and fleshy.

Head brown with black bars and with a buff streak down the centre ; supercilium and sides of head buff slightly speckled with dark brown ; upper parts rufous-brown, edged with buff on the neck, and elsewhere barred with black and edged with buff ; scapulars and wing-coverts rufous, the outer web having a black elongated spot and broadly margined with buff, that colour usually predominating ; wings brown, the earlier primaries edged with buff on the outer webs ; chin, throat and abdomen whitish, remainder of lower plumage buff, the breast with some black spots on the sides ; tail-feathers edged with buff ; the middle tail-feathers are elongated and pointed. The males are smaller than the females.

Female. Length 5·7″ ; wing 3″ ; tail 1·4″ ; tarsus ·75″ ; bill from gape ·6″.

Locality, habits, etc. "This tiny game-bird is found practically throughout India as far South as Travancore, from the Southern part of which I have received two male specimens with their eggs . . . as regards elevation, it certainly ascends as high as 8,000 feet . . . and on the highest parts of the Nilgiris where, however, it seems to be extremely rare"—(*Stuart Baker*).

"This little Quail is found in grass lands and in crops, either low or high but preferring the former. It is a solitary bird and lies very close and gets up at one's feet flying straight for a few yards and then dropping down into cover again. It is not a very difficult bird to shoot, but one has to be rather sharp. It is excellent eating, but, of course, forms a very tiny morsel. These, like other Bustard Quails, feed principally on grass seeds and other grain, but also include insects in their bill of fare"—(*C.M.I.*).

Breeding season. They breed from April to October.

Nest. A depression in the ground, lined with grass, in grass or crops.

Eggs. 4 is the usual number laid, though Hume says at times 5 or 6 are laid. They are broad, elongated ovals, yellowish-white in colour, speckled with yellowish, slate-colour and reddish-brown ; some larger spots of the latter colour at the large end. "An egg in my collection measures ·89″ × ·75″ but the average according to Hume is ·63″ × ·68″—(*C.M.I.*).

(386) Turnix maculatus tanki Blyth.

THE INDIAN BUTTON-QUAIL.

(*Fauna of British India*, 2nd edition. No. 2005.)
(*Fauna of British India*, 1st edition, No. 1384.)

Description—Male. "Length 6″ ; wing 3·25″.

"Bill, legs, feet and claws orange-yellow ; irides white ; in males the culmen and tip of lower mandible are brown."—(*Fauna of British India*).

Head black margined with brown ; sides of head and supercilium buff tipped brown ; upper plumage greyish-brown intermixed with rufous and vermiculated with black. some of the feathers are tipped with buff ; wing-coverts with a black spot near the tip and margined

with buff ; tail-feathers brown ; chin and throat white ; upper breast rufous-buff ; remainder of lower plumage light buff ; sides of head with round black spots.

According to Blanford adults want the rufous above, and in the young the black markings on the back are coarser and more distinct ; also young females have no rufous collar.

Female. "Length 6·5″ ; wing 3·5″ ; tail 1·25″ ; tarsus ·9″ ; bill from gape ·7."—(*Fauna of British India*).

Similar to male but with a rufous collar round back of neck.

Locality, habits, etc. "Hume received specimens from South Travancore. I have had specimens sent me from near Tinnevelly in the extreme South of Madras, whence it had not previously been recorded . . . it has been obtained . . . in the Travancore Hills and Palnis up to 4,000 feet"—(*Stuart Baker*).

In habits the same as the previous species frequenting the same localities and also thin forest.

Breeding season. Breeds in July and August, and, it is said, in April in Mysore.

Nest. Similar to that of *T. dussumieri*.

Eggs. 4 in number, broad elongated ovals, whitish in colour minutely speckled all over with yellowish-brown and purplish-grey. They measure ·88″ × ·76″.

Order GRALLÆ.

"In the *Grallæ* the hind-toe when present is slightly raised, except in the *Jacanidæ* and *Rostratulidæ*, the legs are generally long and part of the tibia is bare. All are schizognathous and none possesses basipterygoid processes; the vomer is always present and the angle of the mandible is truncated; there are two carotids; nostrils pervious, except in *Rhinochetus*; ambiens muscle always present, and cæca generally well developed; the deep flexor tendons are Galline except in *Heliornithidæ* whilst they are modified in *Otididæ*"—(*Fauna of British India*).

Sub-order **FULICARIÆ.**

"Schizognathous and holorhinal birds with heterocoelous vertebræ, and 14 or 15 cervical vertebræ. The sternum has a single notch on each side of the posterior margin; oil-gland tufted; cæca well developed; besides the ambiens, the femoro-caudal, accessory femoro-caudal, and semitendinosus muscles are always present; the accessory semitendinosus is present in the *Rallidæ*, not in *Heliornithidæ*"—(*Fauna of British India*).

Family RALLIDÆ.

"In this family, the sternum closely resembles that of *Turnix*, and has a similar deep notch on each side. There is a small after-shaft to the contour-feathers and the fifth secondary is absent. There are long lateral bare tracts on the neck. The deep flexor tendons are Galline"—(*Fauna of British India*).

Genus **HYPOTÆNIDIA** Reichenb., 1852.

"This genus differs from *Rallus* in having a stouter and, often a rather shorter bill, with a more distinctly angulate gonys"—(*Fauna of British India*).

(387) Hypotænidia striata gularis (Horsf.).

THE INDIAN BLUE-BREASTED BANDED RAIL.

(*Fauna of British India*, 2nd edition, No. 2008.)
(*Fauna of British India*, 1st edition, No. 1389.)

Description—Male. Length 10·5″; wing 4·5 to 4·75″; tail 2″; tarsus 1·4″; bill from gape 1·35 to 1·82″—(*Barnes*).

Bill slender, upper mandible grooved for about two-thirds, the lower mandible for about half its length; upper mandible along the culmen and at the tip, and the tip of the lower mandible, brown; the rest of the bill red.

"Irides light yellow to Indian red"—(*Cat. Brit. Mus.*).

"Legs and feet olive-green to leaden grey or fleshy grey"—(*Cat. Brit. Mus.*).

Crown, head and neck chestnut, the two former streaked with black; upper plumage brown, the feathers darker centred and each with rows of small white spots or narrow bars; rump and upper tail-coverts

tinged rufous; wings grey-brown with narrow white bars; the coverts washed with rufous; axillae white; there is a small spur or wart projecting from each shoulder; lores, cheeks and sides of neck, and the breast grey or blue-grey; chin and throat white; abdomen and flanks blackish-brown, more broadly barred with white.

(*N.B.*—The legs of a male shot by me in Singapore on 14th January 1906 were distinctly brown, darker at the joints; claws brown; it had a feathered spur on the shoulder over ½ inch long.—(*H.R.B.*).)

Female. Similar to male, but of duller colouring.

Young. "Young birds have the feathers of the back streaked with dark brown and the white bars and spots obsolete or absent; the crown and neck are rufous brown freely streaked with dark brown"—(*Stuart Baker*).

Locality, habits, etc. Cardew records it from Cannanore, but Dewar omits it from his list of Madras birds. Ferguson writing of Travancore says:—"These birds may be found scattered about in marshy thickets near the coast." Hume says of its distribution:—"It occurs about the bases of the Nilgiris, the Wynaad and the Malabar Coast . . . Two specimens were also sent me by Captain Mitchell said to have been procured in the Madras Market." This is an exceedingly timid and silent bird, never venturing far from the tangled undergrowth, weeds and rushes which it frequents and always sneaking away under cover on the least suspicion of danger. Its flight is heavy and slow, and the bird rarely takes to its wings unless surprised, preferring to trust to its legs for escape. It feeds on small snails, insects, worms and vegetable matter.

Breeding season. June to October.

Nest. A tangled mass of dry grass, placed amongst weeds, rushes, etc., always well-concealed and difficult to find.

Eggs. Usually 5 to 8 in number; white or salmon-pink in colour, speckled with red and sometimes with large blotches of that colour at the thick end, but not always; some have small lilac-grey blotches instead; all the eggs of a clutch are not necessarily coloured alike. They measure 1·4″ × 1·1″.

Genus **PORZANA** Vieill., 1816.

"The bill is comparatively short and moderately stout. The tarsus which is at least half as long again as the bill, is considerably shorter than the middle toe and claw. The 2nd quill is longest, the 2nd and 3rd sub-equal; the first is much shorter and about equal to the 6th or 7th. The tail-coverts extend nearly or quite to the end of the tail"—(*Fauna of British India*).

(388) **Porzana pusilla pusilla** (Pall.).

THE EASTERN BAILLON'S CRAKE.

(*Fauna of British India*, 2nd edition, No. 2013.)
(*Fauna of British India*, 1st edition, No. 1393.)

Description—Male. "Length 6·62 to 7·75″; wing 3·12 to 3·7″; tail 1·75 to 2·2″; tarsus 1·05 to 1·25″; bill from gape ·68 to ·78″"—(*Barnes*).

Bill yellow-green ; culmen and tip horny ; irides red ; legs olive-brown.

Forehead rufescent ; head, neck, back, scapulars and wing-coverts olive-brown spotted and smudged with blackish-brown and with numerous white elongated smears on the back, scapulars and wing-coverts ; rump and upper tail-coverts barred black and white, the latter tipped olive ; tail olive-brown with a broad longitudinal mesial black stripe ; lores, cheeks, sides of neck and body pale reddish-brown ; chin, throat, centre of breast and abdomen grey, and occasionally white ; flanks and thigh-coverts barred brown and white ; under tail-coverts barred black and white ; wings brown, the first primary edged with white.

Female. Similar to male.

" Young birds have the lower part whitish or white, not grey, but more or less tinged with brown "—(*Fauna of British India*).

Nestling covered with black down.

Locality, habits, etc. Found almost throughout India in suitable places but mostly as migrants. Ferguson says "rare in Travancore." Hume got it from the Wynaad. It is found in damp swampy country, sometimes in gardens where irrigated ; it also frequents paddy-fields. According to Vidal it is also found in salt marshes and tidal swamps. These birds, like most of the rails, are shy and run to cover on being observed, but sometimes may be seen running over water lilies and other floating aquatic plants. Hume says " their note is peculiar and very loud for the size of the bird ; a single note, repeated slowly at first, then several times in rapid succession, winding up with a single and somewhat sharper note in a different tone, as if the bird was glad that that performance was over." It feeds on insects, seeds and vegetable matter as well as on small snails.

Breeding season. August and September, in the plains.

Nest. Composed of, and placed in rushes.

Eggs. 5 to 8 in number. " The eggs in my collection are elongate ovals of a brownish-green colour, mottled and coloured with brown, thicker at the large end and measure 1·15 × ·85" "—(*C.M.I.*).

Genus **RALLINA** Reichenb., 1846.

" Bill much stouter than in *Rallus*, and considerably shorter than the middle toe which is shorter than the tarsus. Wings rounded, 1st quill much shorter than 2nd which is exceeded by the 3rd. Secondaries nearly as long as primaries or a little longer "—(*Fauna of British India*).

(389) Rallina superciliaris superciliaris (Eyton).

THE BANDED CRAKE.

(*Fauna of British India*, 2nd edition, No. 2014.)
(*Fauna of British India*, 1st edition, No. 1395.)

Description—Male. " Length 10" ; tail 5" ; tarsus 1·7" ; bill from gape 1·2" "—(*Fauna of British India*).

" Base of upper mandible and greater portion of lower, green ; remainder of the bill dark-brown ; irides blood-red ; legs black

(*Oates*). Iris mottled closely on the exterior portion with red-brown on an olive ground ; legs and feet plumbeous "—(*Legge*).

"Head and neck all round with upper breast chestnut ; chin and throat pale rufous to white ; upper parts from the neck dark brownish olive ; quills dark brown ; lower parts from breast including wing-lining and lower tail-coverts, barred across with white and dusky black, the dusky bars becoming narrow and partly disappearing in the middle."

"Old females appear to resemble the male, but this is not quite certain ; generally in females the chestnut is confined to the forehead, sides of face, foreneck and breast, the crown and nape being brownish olive like the back. Young birds have the rufous on the head, neck and breast entirely replaced by brown ; the inner webs of the quills are barred with white and there are occasionally a few white bars with dusky edges on the upper wing-coverts "—(*Fauna of British India*).

Locality, habits, etc. A single specimen was obtained by Ferguson in South Travancore near the foot of the hills. Dewar states that there is a specimen in the Madras Museum labelled "Madras." Hume writes :—"I received a specimen from the Assamboo Hills in the extreme South of the Peninsula . . . I conclude that it is only in Ceylon and the *extreme* South of the Peninsula that this species visits regularly in any great numbers ; but that yearly a few stragglers reach the Eastern coast of the Peninsula."

Mr. W. N. Fleming of Tuticorin writing to the *Bombay Natural History Society's Journal*, under notes of "Wild fowl in the Tinnevelly district," says :—"On the 14th November 1896, after a very severe gale from the North-East (in fact a cyclone), a bird was brought to me alive but much exhausted by the wind, which I identified as a male of this species . . . I have little doubt it was blown over in the gale from the coast of Ceylon, where (*vide* Hume and Marshall) this species arrives in considerable numbers in October." This bird is said to be less aquatic than most ; it haunts the dense jungles on the sea-coast ascending the hills to at least 1,800 ft.

Breeding season. June to September.

Nest. Mr. Bell gives an interesting account of the nidification of this bird in the *Bombay Natural History Society Journal, Vol. XIV, page* 393. He says *inter alia* :—"H. L. Hervey and I discovered the nest and eggs (in Kanara) on the 8th August 1898. We found that the Banded Crake was a fairly common bird in the jungles along the coast during the monsoon . . . All the nests with eggs were found in the months of June to September. The nests are placed in bamboo clumps, on creeper masses, on the top of a tree-stump, etc. and were at the most six feet from the ground."

Eggs. 4 to 6 ; white with a slight gloss. "Average about 1·30 × 1" "—(*T. R. Bell*).

Genus **AMAURORNIS** Reichenb ; 1852.

"The members of this genus are distinguished from both *Porzana* and *Gallinula* by having a more rounded wing, with the 3rd quill longest, the 2nd equal to the 5th or 6th, and the 1st much shorter. The species are also distinguished at once from *Porzana* by very different

and much more uniform plumage. The bill is of moderate length, much shorter than the tarsus which is shorter than the middle toe and claw "—(*Fauna of British India*).

(390) Amaurornis fuscus zeylonicus Stuart Baker.

THE CEYLON RUDDY CRAKE.

(*Fauna of British India*, 2nd edition, No. 2018.)
(*Fauna of British India*, 1st edition, No. 1398 (part).)

Description—Male. Length 8″; wing up to 3·9″; tail 1·5″; tarsus 1·4″; bill from gape ·9″; "Wing 87 to 96 mm.; bill 19 to 20 mm."—(*Stuart Baker*).

Bill dull olive-green, paler at the base of lower mandible; irides yellow-brown; orbital ring bright red; legs and feet red; "iris crimson"—(*Oates*).

Forehead, sinciput, sides of face with supercilium, and lower plumage as far as the abdomen, vinous red; chin and throat lighter; remainder of upper plumage olive-brown; wings and tail dark brown; abdomen, sides of body and under tail-coverts olive-brown barred with white.

"Very close to typical *A. f. fuscus* from the Philippines, but much paler and faintly tinged with yellowish-olive above. Although the individual variation is considerable, the darkest Ceylon bird is a trifle paler than the palest Philippine bird" (*Stuart Baker: Bull. British Ornithologists' Club, Vol. XLVII, p. 73*).

Female. Similar to male.

Young birds are dusky olive throughout, except the chin, throat and middle of abdomen which are whitish; apparently the rufous part is gradually assumed, beginning on the head"—(*Fauna of British India*).

Locality, habits, etc. "Ceylon and the south-west coast of India from Travancore to Belgaum and Kanara" (*Stuart Baker*). Ferguson says it is fairly common in Travancore. Hume says speaking about the Northern Ruddy Crake (*A. f. bakeri*), the habits of both subspecies being the same;—"It is only in the neighbourhood of Calcutta that I have been able to watch this species, and there, there are small reed and rush-fringed grounds on the leaf-paved surfaces of which, I have, in the early mornings, seen as many as a dozen tripping along briskly here and there picking up all kinds of insects and the larvae of these so abundantly adhering to the lotus leaves. They seem peaceable and gregarious birds, never fighting or skirmishing with each other, as they feed calling softly to each other. The note—the only one I ever heard to distinguish as theirs—was a low, soft "*toot, toot*", but there was a much louder cry which I often heard in the rushes and which I believed to be theirs as it was not that of any other water-bird that I knew to frequent these marshy recesses,—"*keek-keek, keek-keek, keek-kya*." . . . On showing oneself softly, most of the birds glide out of sight, to re-emerge if no further cause of alarm appears, but if a gun be fired, unexpectedly, some rise and fly—flying, I think, rather more easily than the Spotted Crake, but still heavily and with down-hanging legs—some dive, and some scuttle away with extraordinary rapidity over the leafy floor." They feed on both insects and seeds.

Breeding season. July to September. "Travancore in June." (*Stuart Baker*).

Nest. Of weeds and rushes, like those of other Crakes, situated in reeds.

Eggs. "5 or 6 more rarely 7 or even 8." (*Stuart Baker*). In colour pinky-white spotted and streaked with brownish-red, more densely at the large end. Average according to Stuart Baker 30·0 × 22·5 mm.

(391) Amaurornis phœnicurus phœnicurus (Pennant).

THE WHITE-BREASTED WATER HEN.

(*Fauna of British India*, 2nd edition, No. 2021.)
(*Fauna of British India*, 1st edition, No. 1401 (part.))

Description—Male. Length 12″; wing 6·25″; tail 2·5″; tarsus 2·25″; bill from gape 1·5″—(*W. E. Wait*).

Bill olive-green with a red patch at the base of the upper mandible; irides blood-red; legs greenish-yellow.

Upper plumage and sides of body dark slaty-grey and slaty-black washed with olive; lores and narrow eye-stripes, cheeks, chin to abdomen white; abdomen rufescent, vent and under tail-coverts chestnut.

Female. Similar to male, but slightly smaller.

"In young birds the forehead, crown and upper parts are olive brown, and the white feathers of the lower parts have dusky tips"—(*W. E. Wait*).

Nestling. Black with the base of the bill brown, and tip white; irides brown.

Locality. "South Travancore"—(*Stuart Baker*).

The habits are similar to those of the next sub-species.

Breeding season. In Ceylon they breed practically all the year round and will probably be found to do the same in Travancore.

Eggs. "3 to 4, 5 exceptional"—(*Stuart Baker*).

The colour is similar to that given for *A. p. chinensis*. "Average for 40 eggs 36·8 × 30·0 mm."—(*Stuart Baker*).

(392) Amaurornis phœnicurus chinensis (Bodd.)

THE CHINESE WHITE-BREASTED WATER HEN.

(*Fauna of British India*, 2nd edition, No. 2022.)
(*Fauna of British India*, 1st edition, No. 1401 (part).)

Description. Similar to *A. p. phœnicurus* except for size. This bird is slightly larger.

Locality, habits, etc. A common permanent resident on the plains, frequenting weed and rush-grown tanks, swamps and river-banks. "They are very partial to gardens and I have a couple of pairs which may continually be seen, except in the heat of the day, strutting about the compound hunting for insects. They have a very jaunty appearance, every now and then flicking their tail up and down. They are extremely noisy birds, and their note is far from beautiful

and gets on the nerves of many people ; they may be heard calling both in the morning and evening. They climb about bushes, etc., well, and I have often seen them about 10 feet up in bamboos. Aitken (*Eha*), as quoted by Hume, gives a most graphic description of this bird's call :—" Anything more unearthly proceeding from the throat of a bird I have never heard. It began with loud harsh roars which might have elicited from a bear by roasting it slowly over a large fire, then suddenly changed to a clear note repeated like the coo of a dove "—(*C.M.I.*).

" Occasionally they breed in small colonies.—(*Fauna of British India*).

Breeding season. May to September according to locality.

Nest. A tangled mass of weeds and rushes, generally placed on the water amongst rushes, sometimes on the ground, or even on a tree.

Eggs. 4 to 8 ; oval, somewhat pointed at the smaller end. They vary in ground-colour from white to cream, and a reddish colour, and the markings vary from streaks and spots of brownish-red and purplish-grey, thickly covering the ground-colour in some, to brownish-red stippling with blotches and a cap at the thick end of the same colour in others, and again to long blotches of brownish-red and smaller spots of purplish-grey more sparsely suffused over the surface, plainly showing the ground-colour.

" Some eggs in my collection are pale pinkish-stone or drab, streaked and blotched with pale purple "—(*H.R.B.*). Average measurements " 100 eggs 40·5 × 29·7 mm."—(*Stuart Baker*).

(393) Amaurornis akool akool (Sykes).

THE BROWN CRAKE.

(*Fauna of British India*, 2nd edition, No. 2024.)
(*Fauna of British India*, 1st edition, No. 1400.)

Description—Male. " Length 10·87 to 12″ ; wing 4·9 to 5·3″ ; tail 2·4 to 2·8″ ; tarsus 1·9 to 2·1″ ; bill from gape 1·3 to 1·68″—(*Hume and Marshall*).

" The irides vary from reddish brown to crimson ; the bill is green : culmen dusky, tip of lower mandible (sometimes of upper also) lavender to blue ; in some I have noticed a small red spot on the middle of the lower mandible. The legs and feet are dull lake-red in adults in the breeding season, darker in the cold season ; reddish-brown in young birds "—(*Hume and Marshall*).

Upper plumage olive-brown ; quills and tail-feathers dark brown ; supercilium, sides of head and lower plumage, ashy ; chin and throat white ; flanks olive-brown ; under tail-coverts brown.

Female. Similar to male ; " Length 10 to 11·3″ wing 4·4 to 4·9″ ; tail 2·3 to 2·62″ ; tarsus 1·7 to 1·8″ ; bill from gape 1·2 to 1·4″—(*Hume and Marshall*).

Young birds appear to moult into the adult plumage from the downy stage. Some young birds from Saugor in the Hume collection, though nearly full grown, retain some black down on the head "—(*Fauna of British India*).

Locality, habits, etc. This species has been recorded from Mysore, but will doubtless turn up in other parts of the Presidency. As

regards its habits, Hume says :— "This species is less aquatic in its habits than any of our other crakes ; . . . very often especially in the early mornings you will see this bird running about on the bare ground, and even on stones and rocks, near indeed to water but still quite in the open ; and it habitually frequents pools of water and those small deep-sunk reservoirs which are commonly called open wells in Rajputana, about which there are only a few tufts of grass and a few bushes and none of that dense growth of aquatic herbage which all the other species specially affect. Moreover they habitually swim about and are more thoroughly Water-hens in all their habits than the rest of the Crakes. Its food too although similar to that of other species, includes a far larger proportion of tiny snail and other shells and of worms and slugs. I never once saw it walking about over the leaf-covered surface of a weed-choked water. It climbs too like the White-breasted Water-hen and may be found resting many feet above the ground in bushes of different kinds—a thing I never noticed in any of our other Crakes. It runs, flies, swims and walks for all the world like a common Water-hen of course jerking its tail and nodding its wise little head just as this latter bird does under similar circumstances. It is, as a rule, only in the *early* mornings, and just before sunset, that you will see them in the open ; but after a good fall of rain, if the sky be still cloudy, they may be observed at any hour picking about the short grass, feeding at that time chiefly on small worms."

Breeding season. May to September.

Nest. Of grass and rushes placed in grass, etc. at the side of the water.

Eggs. "4 to 8 in number ; are oval, pinkish white with purplish and reddish brown spots and underlying faint purple blotches. They measure about 1·49″ × 1·1″"—(*Fauna of British India*).

Genus **GALLINULA** Brisson 1760.

"Bill moderate, the basal portion of the culmen bent up on the forehead to form a frontal shield that is rounded behind ; nostrils elongate. Toes fringed with a membrane and extremely long, the inner toe without claw exceeding the tarsus in length. In the wing the second quill is longest, and the second and third sub-equal ; the first is equal to the fifth or sixth"—(*Fauna of British India*).

(394) **Gallinula chloropus parvifrons** Blyth.

THE INDIAN MOORHEN.

(*Fauna of British India*, 2nd edition, No. 2026.)
(*Fauna of British India*, 1st edition, No. 1402.)

Description—Male. Length 12 to 13″; wing 6·2 to 6·75″; tail 2·6 to 2·9″; tarsus about 2″; bill from gape 1″.

Frontal shield and basal two-thirds of bill red (reddish-chocolate in females), remainder greenish-yellow ; irides vary from hazel-brown to red ; legs and feet green, the hind part of the tarsus and the toes slaty-green ; an orange ring or garter round the tibia.

Head and neck dark ashy ; upper plumage deep olive-brown, the wings edged with white ; plumage below slaty or dark bluish-grey

except the abdomen which is streaked with rufescent-white; the flanks with broad white streaks; vent black; under tail-coverts white.

Female. Similar to male but slightly smaller.

Young birds. Are like adults above, but the plumage below is tinged with brown and is densely streaked with white, especially on the abdomen; the ear-coverts and sides of neck pale brown.

Nestling. Covered with black down.

Locality, habits, etc. Dewar records it from Madras, and according to Fergnson, it is uncommon in Travancore. Davison says:—"Common on the lake at Ootacamund where it breeds among the sedge growing on the margin." (*N.B.*—This may have been so in former years, before the lower portion of the lake was reclaimed, but I doubt if Moorhens will be found on the lake now, that is on the upper portion that used to be. Sir A. Cardew who has for many years, off and on, resided in Ootacamund does not record it in the list of his "skins and eggs" and I am quite sure he, if any one, would have noticed the bird if it had been met with there within recent years—(*H.R.B.*).

Blanford gives its habitat as the whole of India, etc. It is found on tanks, especially those that are well supplied with aquatic plants. Unlike the preceding species these birds do not come into gardens, etc., but keep near the water. They swim very well, jerking their tails whilst doing so, and also dive with great facility; on land they run well, the white under the tail being most conspicuous. They have a loud call which Dresser likens to "*Kirrik-crek-rek-rek.*" They feed on insects, vegetable matter and, it is said, at times on fish.

Breeding season. July to September. It "breeds practically all through the plains and ascends the hills to a considerable height being found as high up in the Nilgiris and hills of Southern India as there is water for it to breed near"—(*Stuart Baker*).

Nest. Is composed of weeds, placed either in the water itself, or near it, and occasionally in a bush or tree.

Eggs. 5 to 14; pale drab with reddish-brown blotches and specks, average measurements "200 eggs, average 40·6 × 29·6 mm."—(*Stuart Baker*).

Genus **GALLICREX** Blyth 1852.

"Bill stout, of moderate length, about as long as the hind toe without claw; frontal shield pointed behind, much larger in males than in females, and in the breeding season terminating on the vertex in a fleshy horn-like peak. All toes long, the middle toe without claw longer than the tarsus. The second, third and fourth quills sub-equal, the third generally slightly the longest, first between the sixth and eighth in length. Sexes dissimilar, males larger than females"—(*Fauna of British India*).

(395) Gallicrex cinerea (Gmel.).

THE KORA OR WATER-COCK.

(*Fauna of British India*, 2nd edition, No. 2027.)
(*Fauna of British India*, 1st edition, No. 1403.)

Description—Male. "Length 16″ to 17″; wing 8·5; tail 3·5″; tarsus 3″; bill from gape 1·23″"—(*Barnes*).

Bill greenish-yellow, red at base of upper mandible ; irides red ; legs dull red (*Barnes*).

Head, neck, cheeks, chin, throat and breast black, with a few white streaks and some indistinct very narrow pale edgings to the breast-feathers; rest of upper plumage dark brown, margined with grey on the back and wing-coverts, with pale brown or fulvous on the rump, upper tail-coverts and tertiaries ; tail dark brown, the outer feathers pale edged ; wings dusky brown, the outer web and shaft of the first quill white ; wing coverts brown freckled with pale brown ; centre of breast, abdomen, vent and thigh-coverts greyish-ashy streaked and barred with white ; the under tail-coverts pale fulvous, barred dusky.

Female. Length 12·5 to 14" ; wing 6·75" ; tail 2·75".

Bill yellowish at gape and base; upper mandible dusky ; lower mandible yellowish-white : irides brown ; legs dusky-green.

The head brown ; rest of upper plumage brown edged pale fulvous ; lores, chin and throat white ; a stripe over the eyes, the cheeks and ear-coverts pale rufous ; neck and breast fulvous, narrowly barred with dark brown ; abdomen like the breast but greyer; thigh-coverts and under tail-coverts darker fulvous and more broadly barred with dusky brown ; edge of wings and outer web of first quill white, remaining quills greyish-brown ; lesser wing-coverts grey ; medium and greater-coverts like the back ; rump and upper tail-coverts dark brown narrowly edged with deep rufous.

Locality, habits, etc. "Especially common on . . . the Malabar coast" (*Stuart Baker*). Dewar records it from Madras, though rare. Ferguson says it is not uncommon about the rice cultivation in the low country of Travancore. Jerdon obtained it in the South Malabar. As regards its habits, Jerdon says :—"The Kora or Water-cock as it may well be termed from its large fleshy horn, is found in those parts of the country that are well watered and abound in swamps and thick grassy tanks . . . It affects concealment much more than the other Water-hens, running with activity through the thick grass or tangled paddy, or on the surface of weedy tanks. It feeds on rice and other grains, or shoots of various water plants, and also on small molluscs and insects. It is a very noisy bird and its loud sonorous booming cries, especially during the breeding season, must be familiar to many." They are excellent birds for the table.

Mr. Stuart Baker in a long and interesting article in the *Journal of the Bombay Natural History Society* (*Vol. XXXI, p. 540*) writes :—

"Its fighting qualities have made this bird a great favourite with the natives of Sylhet and Cachar who keep them as fighting birds . . . Wild birds are said not to be so good at fighting as those which are reared by the natives from the eggs, so for this reason the eggs are taken and hatched by the natives. The most usual manner in which this is done is for the man himself or his wife to carry them about all day fastened to his or her stomach by a cloth. The heat thus engendered seems to be ample for the purpose of incubation and I am informed that two out of three of the eggs which escape being smashed hatch out alright." This method must be somewhat inconvenient at night !!

Breeding season. July and August.

Nest. Breed in swamps and rice-fields, making sometimes a large Coot-like nest of flags and rice-straw in the midst of a dense tangled mass of reeds, rushes and water-weeds, and sometimes a comparatively slight one of fine rush and grass on the floating leaves of lotus and Singhara (*Trapa bispinosa*)—(*Jerdon*).

Eggs. 3 to 7: in colour pale or deep pink or buffy yellow blotched all over with brownish-red and underlying markings of purplish-grey, often forming a cap at the thick end. "One hundred eggs, average 42·2 × 31·0 mm."—(*Stuart Baker.*)

Genus **PORPHYRIO** Brisson 1760.

"The blue Moorhens are distinguished at once by coloration and by the thick compressed, rather short and high bill, small rounded nostril not placed in a groove, and broad frontal shield covering all the anterior portion of the crown and squarely truncated behind. The wing is rounded; the first quill about equal to the 6th or 7th; the 2nd, 3rd and 4th sub-equal. Tarsus and toes very long. Sexes alike"—(*Fauna of British India*).

(396) Porphyrio poliocephalus poliocephalus (Lath.)

THE INDIAN PURPLE MOORHEN.

(*Fauna of British India*, 2nd edition, No. 2028.)
(*Fauna of British India*, 1st edition, No. 1404.)

Description—Male. Length 19″; wing 10″; tail 4″; tarsus 3·5″; bill from gap . . .

"Bill red, culmen darker; a blood-red spot at base of each mandible; casque cherry-red; irides dull red; legs dull pale brick red." (*Barnes*).

Lores, cheeks and nape grey; hind neck, back and upper tail-coverts purple; wings blue on outer webs, dusky on inner webs-wing-coverts paler blue tinged with ashy; tail black edged dull blue; cheeks, sides of throat and neck pale blue; chin and centre of throat greyish; neck and upper breast deeper blue; lower breast, sides of body and abdomen, and vent purple; thigh-coverts dull blue; under tail-coverts white "but with a smaller casque"—(*Fauna of British India*).

Female. Similar to male "but with a smaller casque—(*Fauna of British India*).

Nestling. "Black with white shafts to the down of the head and wings"—(*Fauna of British India*).

Locality, habits, etc. A common permanent resident on the plains, frequenting lakes and large tanks. They also frequent paddy-fields, and do a lot of damage to the green paddy by cutting it down to form their nests. They get about easily in thick rushes or bushes and rise with a slow flapping flight, their long red legs dangling down behind and give easy shots. Their note is, according to Jerdon, loud and fowl-like. They feed on grain and other vegetable matter, causing more havoc thus to the rice than if they only used it for their nests. They are easily kept in captivity and feed on paddy. I had a tame bird that used to run about near the bungalow; it occasionally attacked Indians who came to the bungalow, jumping up at them—(*C.M.I.*).

Breeding season. "The time during which they breed depends entirely on the rainfall"—(*Stuart Baker*). They breed when the rains break and continue for several months.

Nest. A pad of rushes or paddy placed in water amongst rushes and weeds or thick rice.

Eggs. 3 to 9; pinkish stone-colour, to warm buff speckled and spotted, sometimes blotched with dark red-brown; average "one hundred eggs; average 50·5 × 35·7 mm."—(*Stuart Baker*). "8 is the largest clutch I have taken"—(*C.M.I.*).

Genus **FULICA** Linn., 1766.

"The Coots, which constitute this genus, are distinguished by having their long toes fringed by a broad membrane divided into convex lobes corresponding to the phalanges, and by the tarsus which is considerably shorter than the mid-toe without claw, bearing a membranous fringe behind. The bill is of moderate length, compressed and rather deep terminating on the forehead in a frontal disc of varying form. The plumage of all species is dark grey or blackish. Sexes alike"—(*Fauna of British India*).

(397) Fulica atra utra Linn.

THE COOT.

(*H. L. No.* 1889.)
(*Fauna of British India*, 1st edition, No. 1405.)

Description—Male. Length about 16″; wing 7·75″; tail 2″; bill from gape 1·5″.

"Bill dead white in winter, tinged slightly with rosy in the breeding season. Frontal disc white; irides blood-red; feet dull green, with a garter of yellow-green and red above the joint in summer"—(*Barnes*).

The whole head and neck black; upper plumage bluish-slaty with an olive tinge and minutely vermiculated with black; wings dusky edged white; tips of primary-coverts white; lower plumage ashy; tail black.

Female. Similar to male.

Nestling. "Black, rather a greyish-black beneath; the down with hair-like tips, white over the body, yellowish on the wings, orange on the neck and throat and crimson-scarlet on the fore-crown and round the eye"—(*Fauna of British India*).

Locality, habits, etc. Found throughout India where there are large jheels. This bird is well known and disliked by sportsmen who go in for duck-shooting. It congregates in considerable numbers on the large jheels and when one is busy trying to circumvent a nice bunch of Teal, it is annoying to have a number of Coots get up some distance in front of one with a scurrying, flapping of wings and striking along the water, putting up all the other birds within a radius of a hundred yards. It has difficulty in getting off the water, but when once off it flies well; it is an excellent swimmer and diver. Dresser says, on land, it runs with ease, but personally we have only seen it on the water where it

rests during the middle of the day. It feeds on seeds and shoots of water plants, molluscs and insects ; it is a noisy bird, its call, as Dresser says, being "a clear, loud, almost trumpet-like cry uttered abruptly."

Breeding season. Though migratory in many places, and then only found in the cold weather, it breeds in India. Regarding its breeding in the Madras Presidency we quote what the Rev. W. Howard Campbell says in the *Journal of the Bombay Natural History Society, Vol. XIV, page* 392 :—"I am under the impression that it breeds freely in most parts of the Madras Presidency. I have found nests in several places in the Cuddapah District. In 1892, I found a nest in a small tank near the town of Cuddapah on the 30th September ; it contained three eggs hard set. On the 30th October of the same year, I found several nests in a small, reedy tank at Occhaveli, containing fresh eggs. There are evidently two broods, for I have seen a clutch of young birds following their parents on a tank early in April." Mr. A. M. Primrose found it breeding on tanks at Bangalore.

Nest. A large mass of rushes, weeds, etc., placed amongst reeds, etc., in the water.

Eggs. 3 to 10 in number ; pinkish, drab or whitey-brown in colour, spotted and speckled reddish-brown and purplish-grey. "One hundred eggs average 53·1 × 35·6 mm."—(*Stuart Baker*).

Sub-order **JACANÆ.**

"Characteristics those of the family *Jacanidæ*"—(*Fauna of British India*).

Family JACANIDÆ.

"Schizorhinal ; nostrils pervious and situated some distance from the base of the bill, but nearer to it than to the tip ; basipterygoid processes present ; cervical vertebræ 16 ; a spur or tubercle on the carpal joint of the wing. Four toes all greatly lengthened and with very long and straight claws, that of the hallux or hind-toe especially long. According to Gadow, despite the long hallux, the deep plantor tendons are of the same type as in three-toed birds, the two tendons uniting and the united tendon dividing into three to supply the three anterior toes, besides sending off a short branch to the hallux"—(*Fauna of British India*).

Genus **METOPIDIUS** Wagler 1832.

"Head small, bill moderately long, straight, compressed, culmen curved at the tip ; a lappet at the base of the bill resting against the forehead and rounded behind ; tail short ; wing with a small tubercular spur at the end ; first and second quills longest ; middle toe without the claw longer than the tarsus ; hind claw excessively long ; tarsus transversely shielded before and behind"—(*Fauna of British India*). In Jaçana, the "C" is soft and pronounced like "S", and the accent is on the last letter. There is no distinct breeding plumage.

THE RED-WATTLED LAPWING
(*Lobivanellus indicus indicus*).
One-quarter Nat Size.

THE BRONZE-WINGED JACANA
(*Metopidius indicus*).
One-third Nat. Size.

(398) Metopidius indicus (Lath.,)

THE BRONZE-WINGED JACANA.

(*Fauna of British India*, 2nd edition, No. 2031.)
(*Fauna of British India*, 1st edition, No. 1428.)

Description—Male. "Length 10"; wing 6"; tail 1·6"; tarsus 2·4"; bill 1·12"; middle toe 3·6"; hind toe 3·25"; claw alone 2·5"—(*Barnes*).

Bill light yellow; lappet greenish-grey; irides dark brown; eyelids white; legs greenish-grey.

A broad white superciliary stripe; head and neck dark metallic green; back the same, paling into purplish-bronze; lower back bronze-brown; rump and upper tail-coverts brownish-purple; tail brown; wings bronze-brown; chin whitish; the rest of the lower plumage dark metallic green; the feathers edged with brown; under tail-coverts chestnut.

Female. Similar to male but larger.

The young bird has the face white with a pale supercilium; top of head chestnut; back of head and hind neck purple glossed copper or bronze; back olive-green glossed bronze; upper tail dull bronze; quills black, tertiaries like the back, but sparingly edged white; throat white; neck and breast pale buff with a mesial white stripe; abdomen white; flanks dull blackish. The young bird lacks the lappet.

Locality, habits, etc. A permanent resident on the plains, found on most large reed and lily covered tanks where its long toes and claws enable it to run over the broad leaves with surprising ease and grace in search of food which consists of flies and all sorts of water-insects.

The cry is rather harsh and sounds something like the vernacular name *Pipi* given to it."

Breeding season, etc. The monsoon months.

Nest. A large pad composed of weeds, rushes, grasses, etc., placed amongst rushes and lotus leaves.

Eggs. 4; broad ovals often pointed at one end; very glossy, of a rich *cafe au-lait*, dark stone or rufous-brown colour, the whole surface being covered with a network of fine and coarse brown or blackish-brown lines; some eggs have blotches of the same colour; average measurement 1·45" × 2·03".

Genus **HYDROPHASIANUS** Wagler 1832.

"This is distinguished by having a slenderer bill than *Metopidius*; no lappet, and a shorter hind-claw, and also by the first and fourth primaries being produced at the end, the first into a filamentous lanceolate appendage about an inch long, the fourth into an attenuated point. There is a strong sharp spur on the wing at the bend. An important character of this genus is that the breeding plumage is quite distinct from that worn at other seasons, and that in the nuptial garb which is assumed by a change of colour in the feathers without any moult, the tail-feathers are greatly elongated. Sexes alike in plumage at all times, but the female larger than the male"—(*Fauna of British India*).

(399) Hydrophasianus chirurgus (Scop.,)

THE PHLASANT-TAILED JACANA.

(*Fauna of British India*, 2nd edition, No. 2032.)
(*Fauna of British India*, 1st edition, No. 1429.)

Description—Male. Length 16·5 to 18″; wing 9″; tail 8 to 10″; tarsus 2·5″; bill at front 1·1″; bill from gape 1·3″.

Bill pale plumbeous, tip greenish; irides dark brown; legs pale bluish-green.

In winter, the upper plumage is brown, the head paler and freckled with white anteriorly; a broad white supercilium; a pale yellow line down the sides of the neck from the eyes bordered by a blackish line passing under the eyes from the gape and crossing the lower breast where it forms a pectoral band; wing-coverts, face, chin, throat and neck white; the first primary blackish-brown with a lanceolate appendage, the second and third primaries the same colour but with white on the inner web; the remaining primaries, the secondaries and tertiaries white, margined and tipped blackish-brown, the fourth primary attenuated and prolonged; tail blackish-brown, plumage below dark brown, profusely washed with white; under tail-coverts deep chestnut.

In summer, the fore-head, top of the head, face, chin, throat and neck white, with a black line on the top of the head; hind neck and sides of neck glistening golden yellow; upper plumage dark umber-brown with purple reflections; the rest of the plumage as in winter except that there is no white below. There is a gradual change from the winter to the summer or breeding plumage, birds in the intermediate stages being more or less washed with white below.

Female. Similar to male but larger.

Locality, habits, etc. A permanent resident on the plains and frequents much the same localities as the preceding species, *i.e.*, weed and lily-covered tanks and jheels.

It is more inclined to take to wing than the former and is a delicately made and beautiful bird especially during the summer. It has a mewing note and the Hindustani name '*Piho*' fairly represents it.

Breeding season. During the rains or a little later. "I have taken eggs as early as May"—(*C.M.I.*).

Nest. A pad of weeds, rushes, etc., placed in the water in a clump of grasses or rushes.

Eggs. 4, peg-top shaped, highly glossy, of a greenish bronze, deep bronze or *café-au-lait* colour; average measurement 1·4″ × 1·1″.

"I have taken a very beautiful pure french-blue or sea-green coloured egg, the remaining three being normal-coloured. I have also had eggs of the normal olive-brown colour but spotted with brown"—(*C.M.I.*).

Sub-order ROSTRATULÆ.

"The one genus, *Rostratula*, is schiozortional; the sternum has two notches on the posterior border as in the *Jacanæ* and *Grues*; the oil-gland is tufted as in the *Grallæ* generally as well as many of the *Limicolæ*; there are two carotids: the ambiens muscle is present and the cæca are well developed."

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"Its natural affinities seem to be with the Rails, whilst its anatomical characters show it to be a more or less half-way house between the *Grallæ* and the *Limicolæ* "—(*Fauna of British India.*).

Family ROSTRATULIDÆ.

"The bill is slender and long but shorter than in most species of Snipe and not pitted at the end as it is with these birds; the tip is slightly swollen and bent down; both mandibles are grooved at the base and the nostrils basal; tarsi strong but of moderate length, the tibia partly naked and the toes long; the wings are short, broad and rather lax, the first and second primaries being longest and subequal; tail of fourteen feathers; sexes dissimilar in plumage "—(*Fauna of British India*).

Genus **ROSTRATULA** Vieill., 1816.

"*Characters* those of the family "—(*Fauna of British India*).

(400) Rostratula benghalensis benghalensis (Linn.,)

THE PAINTED SNIPE.

(*Fauna of British India*, 2nd edition, No. 2033.)
(*Fauna of British India*, 1st edition, No. 1488.)

Description—Male. Length 9·5″; wing 5·5″; tail 1·5″; tarsus 1·75″; bill from gape 2″. "Weight 3·5 to 4·9 oz."—(*Hume*).

Bill pale fleshy brown in the centre, darker brown at tip, greenish at base; irides brown; legs greenish or grey-green.

A pale buff stripe from base of upper mandible over centre of head to nape; another round and behind the eyes; head olive-black with a few white specks; neck and upper back brown with very fine darker brown transverse bars; back, scapulars and wing-coverts olive-brown with fine zigzag dark brown crossbars, the scapulars with pale buff streaks and broad black bars; the inner wing-coverts edged white and streaked with buff; rump and tail grey with narrow black crossbars and buff spots and tip; wings grey, the primaries banded with buff and blackish-brown on the outer webs, narrowly barred and freckled with brown on the inner webs; secondaries with narrow blackish and pale buff cross-bars on both webs, and with white ocelli on the terminal portion, the basal portion being black with buff ocelli on the outer webs; chin and throat pale grey-brown minutely speckled with brown; lores, cheeks, ear-coverts and neck white or buffy-white spotted and freckled with brown; upper breast light brown streaked with white; breast blackis-hbrown, the feathers broadly tipped buffy white forming a band, continued upwards to the sides of the neck, which interrupts the dark brown feathers of the centre of the breast; lower parts creamy or buffy-white.

Female. "The circle round the eye and the band behind it are pure white. The chin, throat, neck and extreme upper breast a rich chestnut, with a broad pectoral band of blackish-brown running up as far as the scapulars and succeeded by a pure white band, which is again followed by another brown band, interrupted in the centre with white.

The scapulars and the back have not the buff markings of the male; but the underlying scapulars are pure white, forming a tuft of white feathers which show up through the others. The wing-coverts and inner secondaries are a rather bright olive-green, closely barred with black and more or less tinged reddish. The general aspect of the closed wing is thus green in the female, whilst it is a game-bird vermiculated brown in the male. The remainer of the plumage is like that of the male"—(*Stuart Baker*).

Young male. "Has the throat entirely white, the lower throat and fore-neck washed and streaked with brown."

Young female. "Has the chestnut of the head and neck very dull and the feathers margined with dusky brown"—(*Fauna of British India*).

Locality, habits, etc. A permanent resident in watery districts, though probably migratory in districts where the water dries up to any great extent; it is reported to ascend the hills to about 2,000 feet. "I have also records of its ascending the Nilgiris to about the same height (2,000 feet) and in Travancore it seems to be found up to 3,000 feet"—(*Stuart Baker*).

They do ascend to a very great height one was fired at on Mount Everest at 17,000 feet—(*Ibid July* 1922).

The following Painted Snipe were got by Major E. G. Phythian Adams:—

Ootacamund, 1923–24, one
Cannanore, 1926, two
Do. 1927, eleven
South Mysore, 1926, five.

As far as we have noticed it appears to associate in pairs and is nowhere, within our limits, so numerous as it appears to be in Bengal and other parts of India. Its favourite haunts are the corners or edges of paddy-fields and the banks of streams or back waters where the weeds and grass are long and tangled and intermingled with scrub. Its flight is heavy and slow in comparison to the other Snipe, and when flushed the Painter seldom flies far but usually hurriedly seeks cover again. As in the Bustard Quails it is the cock which sits on the nest the hens being polyandrous.

Breeding season. It is reported to breed the whole year round, though naturally the actual season differs in different districts.

Nest. The favourite nesting-sites are patches of rank grass, rushes and weeds bordering the bunds of paddy-fields, and the sides of tanks and streams, and in swampy ground. The nest is a pad of grass, rushes or weeds, generally flat, but cup-shaped if built in a depression, and nearly always placed on the ground though occasionally resting on a tuft of grass or weeds.

Eggs. Almost always 4; to quote Mr. Stuart Baker:—"The ground-colour is generally yellowish, ranging from a pale stone-yellow to a bright yellowish *café-au-lait*; the tint is nearly always bright and the dominant colour is nearly always yellow, but the actual tint varies much, and there may be a grey, green, olive or even a pink tinge in it. The markings are always very bold in character and generally consist principally of very large blotches with a varying number of specks,

spots and lines of deep vandyke brown. The centres of the larger blotches and where they overlap one another are almost black, but the outer edges are sometimes paler and more of a sienna-brown. The secondary markings are but few in number and of the same shape as the others, but in colour are a grey brown or sienna-brown more or less washed out in appearance . . . in all eggs normally marked, the markings are most numerous towards the larger end, often forming there an irregular cap, sometimes a broad, irregular zone . . . All my eggs were within the limits of size given by Hume, 1·29″ to 1·49″ in length and from 0·89″ to 1·05″ in breadth, but the 120 eggs which I have measured average 1·36″ × 0·97″ as against this 1·39″ × 0·99″ . . . ."

Sub-order **GRUES.**

"Schizognathous and schizorhinal birds with 17 to 20 cervical vertebræ, and as a rule without notches on the posterior border of the sternum. Oil-gland tufted. Cæca present. Deep flexors Galline; ambiens present, also the semi-tendinosus and accessory semi-tendinosus; the femorocaudal and its accessory are wanting in one genus, *Balearica*, present in others. The young are hatched clad in down and run at once"—(*Fauna of British India*).

Family GRUIDÆ.

"The true Cranes are birds of large size with long necks and legs, 19 or 20 cervical vertebræ; the bill as long as the head or longer, and a depression which extends on each side half or more than half the length of the upper mandible, and contains the nostril shut in by a large membrane on the posterior side. Tail-feathers 12; primaries 11. Aftershaft present, but small; no fifth secondary; the lateral bare tracts extend some distance up the neck. Trachea passing into a hollow space between the bony walls of the sternal keel and more or less convoluted; furcula anchylosed to keel of sternum"—(*Fauna of British India*).

Genus **GRUS** Pallas 1767.

"The crown of the head is bare, but the sides of the head and neck are feathered and not bare as in *Antigone*. The wings are long with the inner secondaries lengthened and considerably exceeding the primaries; tail short; the tibia naked on the lower half; toes short and strong with short blunt claws. The sexes are alike in plumage"—(*Stuart Baker.*)

(401) Grus grus lilfordi Sharpe.

THE EASTERN CRANE.

(*Fauna of British India*, 2nd edition, No. 2034.)
(*Fauna of British India*, 1st edition, No. 1407.)

Description—Male. "Length about 45″; wing 22″ to end of primaries; tail 8″; tarsus 9·5″; bill from gape 4·6″"—(*Fauna of British India*).

"Weight (evidently of both sexes) 9·5 to 13 lb."—(*Hume*).

"Skin of crown blackish with a broad band of dingy red across the occiput ; bill dingy horny green, yellowish towards the tip ; irides orange-red to reddish brown ; legs and feet black ; soles brown to fleshy "—(*Fauna of British India*).

Crown and lores nude, with black hairs ; a blackish-grey patch on the nape ; a broad line from below the eye and upper neck white, the band joins the latter ; remainder of head and neck blackish-grey ; remainder of plumage ashy-grey ; primaries and their coverts black ; secondaries and tertiaries grey tipped with black, the latter have the barbs of the uppermost feathers decomposed except at the tips ; the tail has some black at the tip.

Female. Similar to male.

"**Young** birds are brownish owing to the grey feathers having isabelline edges, and the head is feathered throughout.

"The *nestlings* are covered with down of a yellowish-buff colour "—(*Fauna of British India*).

Blanford says :—"It is unknown generally in Southern India."

Locality, habits, etc. The *Kallang* or *Kullum* is a cold weather visitant to India. Major Campbell of the 26th M.N.I., wrote to Hume from Quilon (as mentioned in Hume and Marshall's Game Birds) that it is not uncommon in Travancore ; this is probably a mistake as it is not mentioned by Ferguson as occurring in that State nor has it, apparently, been found there since. We give it in case Major Campbell was correct. Hume says that "they resort to rivers in preference to tanks and feed regularly in the grain fields in the early morning besides making excursions there during the night. In the heat of the day they may be found sleeping, standing on one leg. In the North, he says, flocks of from one to three hundred are not uncommon, but that to the Southward more than 20 are seldom seen together." They have a fine trumpet-like call. Before settling, they circle round and round in the air uttering their call the whole time. As Hume says, they are very wary birds when feeding and require to be stalked cautiously. He says :—"When they have not recently been shot at, you may, with a native blanket over your head, approach within sixty or seventy yards by walking as if you meant to pass them, when a heavy duck gun with wire cartridge and very large shot will generally drop three or four out of the flock as they rise. As a rule, however, on the land, a small-bore rifle is to be preferred, and they often stand so thick that a single bullet secures two or even three. But when you approach them by water drifting down on them in a small native boat such as they continually see passing, you and everyone in the boat lying quiet and only one man wading behind the boat guiding it and hidden by it, you may get as close as you like to the outermost files, fire your gun into the densest patch, distant from fifty to seventy yards, and knock over three or four of the closer ones with your ordinary doubler." They are mostly grain and vegetable feeders and, according to Hume, indulge in water-melons, for drinking purposes, where that commodity, water, is distant. Grain-fed birds are excellent eating. Jerdon says they are occasionally hawked by the Peregrine and give a good chase.

Genus **ANTIGONE** Reichenbach 1852.

"Crown of head bare, sides of head and neck not feathered"—(*Stuart Baker.*)

(402) Antigone antigone antigone (Linn..)

THE INDIAN SARUS CRANE.

(*Fauna of British India*, 2nd edition, No. 2038.)
(*Fauna of British India*, 1st edition, No. 1409.)

Description—Male. "Length about 58"; wing to end of primaries 25"; tail 10½"; tarsus 12"; bill from gape 6·5"—(*Fauna of British India*). "Weight 15 lb. 12 oz. to 20 lb. 6 oz."—(*Hume*).

"Bill pale greenish horny with dark tip; skin of crown pale ashy green; papillose skin of head and neck orange-red; iris orange; legs reddish or flesh colour"—(*Tickell*).

Head and upper neck nude and covered (except the crown) with papillæ, with the exception of a few scattered black hairs on the cheeks and throat, and more thickly covered near the nape; there is also a small patch of grey feathers forming the ear-coverts; remainder of neck white blending into the greyish-blue plumage which is rather darker on the lower than on the upper surface of body; the primaries and their coverts are brownish-black, and portions of the secondaries and tertiaries nearly white.

Female. Similar to the male. "Weight 15 lb. 1 oz. to 17 lb. 6 oz."—(*Hume*).

Young birds. Emerging from the down stage have the head and neck covered with rufous feathers above and buff below; and the grey feathers of the upper plumage are fringed with rusty coloured down. "The nestling is covered with down, rich deep brown above, rufous on the sides and head, whitish beneath"—(*Fauna of British India*).

Hume says:—"The white collar immediately below the crimson papillose skin of the neck is . . . a seasonal ornament, assumed as part of the nuptial plumage about April. At this time the crimson above this becomes brighter as does the red of the legs, and the tertiaries and longer scapulars become whiter and more or less elongated, though never to the extent observable in the Common Crane."

Locality, habits, etc. Hume says:—"The Madras Presidency, North of the Gōdāveri (and perhaps between the Kistna and the Gōdāveri)." Found on the Nilambur River.

We again pillage *Hume and Marshall* for remarks on their habits:—"It much prefers the neighbourhood of cultivation, but it may be found far away from this in places where wide level plains are entered by streams or rivers, or dotted about with ponds or lakes. Water in abundance it must have, and although not in any degree normally migratory in India, it will, in years of great drought, desert whole districts where it is ordinarily plentiful. In most places it feeds during the day in fields and open plains, and in the forenoon at some hour and again in the evening it comes down to water where it mostly spends the night. Some, however, live entirely in swamps and about the larger lakes and rarely leave the immediate neighbourhood of these at

any time. Whether in large or small numbers, they are always in pairs, each pair acting independently of the other pairs . . . During the autumn and cold season most of the pairs are accompanied by one, two, or rarely three young ones, over which they watch with great solicitude. They certainly pair for life, and palpably exhibit great grief for the loss of their mate. . . . On two occasions I have actually known the widowed bird to pine away and die. Where not shot at they are extremely tame and unsuspicious of men, especially of natives, often allowing them to pass within twenty yards without taking wing . . . They rise off the ground with some little difficulty, always taking a run of some yards before actually getting on the wing. But when once off their flight is very strong.

Their food is very varied—frogs, lizards and all small reptiles, insects of all kinds, snails and other land and water shells, seeds, grain and small fruits of various kinds, green vegetable matter and the bulbous roots of various species of aquatic plants.

Their call is very loud and sonorous and may be heard at great distances."

Jerdon says the young bird is not bad eating, but old birds are worthless for the table. The liver is said to be very good.

Breeding season. "July, August and September, though nests and eggs have been found in February and March"—(*Fauna of British India*").

Nest. A large heap of rushes and reeds depressed in the centre for the eggs, usually placed in a jheel, but sometimes on land. If the water rises, the birds raise their nests.

Eggs. Usually 2, sometimes 1 only. In shape they are elongated ovals and pitted all over. In colour they are white or nearly so, generally sparsely blotched or clouded with yellowish-brown and purplish-grey. Hume says:—"The eggs of this species frequently exhibit pimples, warts, creases and wrinkles . . . I should say that not one in twenty are entirely free from such imperfections . . . average 3·96 by 2·56"."

Genus **ANTHROPOIDES** Vieillot 1816.

"The smallest Indian Crane, the Demoiselle, forms the type of a well-marked genus, having the bill and legs shorter in proportion than in *Grus*; the head feathered throughout, with, on each side from behind the ear-coverts, a white plume or aigrette of feathers with dissociated webs. The feathers of the lower foreneck lanceolate and elongate, projecting in front of the breast. Tertiary quills much lengthened"—(*Fauna of British India*).

(403) **Anthropoides virgo** (Linn.,)

THE DEMOISELLE CRANE.

(*Fauna of British India*, 2nd edition, No. 2040.)
(*Fauna of British India*, 1st edition, No. 1411.)

Description—Male. Length 32"; wing 18·8"; tail 6·3"; tarsus 6·75"; bill from gape 2·6"; "Weight 5 to 6·75 lb."—(*Hume*).

Bill dull green, the tip dull pale red ; irides bright red ; legs and feet black.

Forehead, face and sides of head, neck and breast-plumes black or brownish-black ; a lengthened tuft of white feathers extending posteriorly from the eye ; general plumage fine french-grey ; quills blackish-brown ; tertiarties dusky brown.

Female. Similar to the male.

Young birds. "have no black, and want the white ear-tufts"—(*Barnes*).

Locality, habits, etc. A cold weather visitor. "In the central portion of the Peninsula, Mr. Albert Theobald writes that he has only seen it in the neighbourhood of Kollegal in the North of the Coimbatore District and Northward of this, but that he has heard from reliable persons that it has occurred as far South as Tinnevelly."—(*Hume and Marshall*). They are sometimes found in huge flocks. Hume estimating one at fully 2,000 birds. They may be often seen wheeling round and round in the air, uttering their harsh note which sounds like *kurr-kurr-kurr*. In the early mornings they feed in the fields and rest at nights on a sandbank in some river. In Nepal this habit is taken advantage of and they are snared as they approach or leave these places. Their food consist principally of grain and vegetable matter, but we have seen them picking insects from a lawn and also indulging in frogs, etc. They are excellent eating. "A tame bird in my possession often races round and round its aviary and then starts bowing and goes into various postures"—(*C.M.I.*).

Breeding season. May and June, in Southern Europe and Northern Asia.

Sub-order **OTIDES.**

"The Bustards are schizognathous and holorhinal with 16 or 17 cervical vertebræ, and with two small notches on each side of the posterior border of the sternum. No oil-gland. Cæca long. There is no hallux and the deep flexor tendons simply unite and then the united tendon divides into three. Ambiens muscle, accessory femoro-caudal, semi-tendinosus and accessory semi-tendinosus present ; femoro-caudal wanting"—(*Fauna of British India*).

Family OTIDIDÆ.

"Cervical vertebræ 16 or 17. Bill, as a rule, shorter than the head or equal to it in length. Tail-feathers 16 to 20 ; primaries 11. An aftershaft present ; no fifth secondary ; no bare tracts on the neck. Tarsus and bare portion of tibia covered with small scales ; the three toes short, stout, scutellated above ; soles very broad, claws short and blunt. Males of many species with a gular pouch opening beneath the tongue and serving to inflate the neck"—(*Fauna of British India.*)

Genus **CHORIOTIS** Bonaparte 1854.

"Bill long, pointed, nearly straight ; legs long and strong ; wings lengthened and very ample ; male provided with a pouch ; sexes alike in plumage or nearly so, but the female about one-third smaller ; no spring moult ; of very large size."—(*Jerdon*).

(404) Choriotis nigriceps (Vigors).

THE GREAT INDIAN BUSTARD.

(*Fauna of British India*, 2nd edition, No. 2043.)
(*Fauna of British India*, 1st edition, No. 1414.)

Description—Male. "Length of male about 48"; wing 27"; tail 12·5"; tarsus 7·8"; bill from gape 4·5". Length of female 37"; wing 21"; tail 9·5"; tarsus 6·25". Hens weigh 10 to 20 lb., cocks 25 to 35, and even 40 is recorded. The male possesses a large gular pouch opening under the tongue (*Eliot*) as in *Otis tarda*"—(*Fauna of British India*).

Hume gives the weight as 17 to 22 lb.

"Jerdon gives the weight as up to 28 lb. but this weight is unusual. The heaviest I have received any record of is one shot by Major A. B. Burton of 26½ lb., and Col. L. L. Fenton gives the average weight of cocks as 21 lb."—(*Stuart Baker*).

With regard to the weights given in the *Fauna of British India* Stuart Baker remarks :—

"I cannot trace these records and there may possibly be some mistake about them";

"Bill dusky above, yellowish beneath; irides pale yellow some brownish specks; legs and feet dingy pale yellow"—(*Jerdon.*)

"Forehead, crown, and occipital crest black; rest of head and whole neck white in old birds, minutely barred with black in younger individuals; back, scapulars, smaller coverts, tertiaries and rump minutely and beautifully vermiculated with black and buff; median wing-coverts blackish brown more or less tipped with white; greater wing-coverts dark grey, black on outer edge and tipped white; outer primaries dark brown passing into dark grey on inner primaries and secondaries, the inner secondaries becoming vermiculated and passing into the coloration of the tertiaries, inner primaries and all secondaries tipped with white, basal portion of inner webs on the later primaries with white bands; tail greyer than black, but similarly vermiculated, all feathers except the middle pair with a blackish brown end and the outermost tipped with white beyond the brown; lower parts white except a black band across the breast, corresponding to the limit between the white neck and brown back, a few black feathers intervening round the hind neck; feathers around vent, lower tail-coverts and generally some of the thigh-coverts, blackish brown with white tips"—(*Fauna of British India*).

"**Young Male** resembles the female but with buff spots on the crown, hind neck and upper back"—(*Stuart Baker*).

Female is much smaller and has narrow blackish vermiculation, on the neck, the black pectoral gorget is imperfect. "Weight from 8 to 11 running up to 13 lb. but sometimes heavier still as Capt. J. R. J. Tyrrel informs me that in December 1905 he shot a female weighing between 14 and 15 lb. . . . whilst Major Burton records 3 hens between 17 and 18 lbs.'—(*Stuart Baker*).

Young birds have buff tips to the feathers of the crown and mantle, forming pale spots—(*Fauna of British India*).

Nestling. "Covered with down, buff above with black marks on the head and upper back, below white or buffy-white"—(*Stuart Baker*).

Locality, habits, etc. "I myself saw one some years ago on an open plain some 10 miles west of Bangalore, and more recently, when on the march between Seringapatam and Cannanore in January, 1910, I put up a couple of these birds which were feeding in the early morning on a piece of ploughed land situated in the centre of some scrub jungle close to the village of Bilikere ; unfortunately they saw me as soon as I did them, and taking to flight at once did not afford me a chance of a shot. I am also informed that they are found in the neighbourhood of Nellore"—(*H.R.B.*).

Stuart Baker writes "it is found in parts of the Madras Presidency and the Mysore State as far south as Southern Mysore and perhaps further South on the Malabar coast in the South" . . . recently one specimen was killed 10 miles north of Trichinopoly (*Leigh*)—(*Fauna of British India*).

Jerdon says :—"Towards the close of the rains, and in the cold weather before the long grass is cut down, the Bustard will often be found, at all events in the heat of the day, concealed in the grass, but not for the purpose of eating the seeds of the Roussa grass . . . rather for the large grasshoppers that abound so much there and which fly against you at every step you take. During the cold weather the Bustard frequently feeds, and rests during the day likewise, in wheat fields. When the grass and corn is all cut and the bare plains no longer afford food to the Bustard, it will be found along the banks of rivers where there is long grass mixed with bushes, or the edges of large tanks, or low jungle where there is moderately high grass, or it wanders to some district where there is more grass, for, though they do not migrate, yet Bustards change their ground much according to the season and to the supply of grasshoppers and other insects. The hen birds . . . generally collect together during the rains, are very timid, and frequently when a sportsman is pursuing a single one she will attempt to seek safety, fatally for herself in some large bush particularly if the gunner turn aside his head and affect not to see her at the moment of hiding. The cock-birds at this season feed a mile or so apart from the hens, and stretching their magnificent white necks stride along most pompously. Besides grasshoppers, which may be said to be their favourite food the Bustard will eat any other large insect, more especially *Mylabris*, or blistering beetle, so abundant during the rains; the large *Buprestis*, *Scarabæi*, caterpillars, etc., also lizards, centipedes, small snakes, etc. Mr. Elliot found a quail's egg entire in the stomach of one, and they will often swallow pebbles or any glittering object that attracts them. I took several portions of a brass ornament, the size of a No. 16 bullet out of the stomach of one Bustard. In default of insect food, it will eat fruit of various kinds, especially the fruit of the Bhyr (*Zizyphus jujuba*) and Caronda (*Carissa carandas*), grain and other seeds and vegetable shoots.

"The Bustard has another call heard not unfrequently, compared by some to a bark or a bellow ; chiefly heard, however, when the bird is alarmed. This is compared by the natives to the word '*hook*' hence the name of '*hookna*' by which it is known to the villagers about Gwalior. When raised, it generally takes a long flight, sometimes three or four miles, with a steady continued flapping of its wings, at no great height above the ground, and I never found that it had any difficulty in rising, not even requiring to run one step, as I have many times had

occasion to observe when flushing them in long grass or wheat fields. On the open, bare plains it will sometimes run a step or two before mounting into the air."

Hume writes :—"They are very coarse feeders and, in the Punjab, I have found large lizards, desert rats, and all kinds of reptiles in their stomachs besides quantities of the young green shoots of the lemon grass, of which they seem very fond."

Breeding season. "The Bustard is polygamous, and at the breeding season, which varies very greatly according to the District from October to March, the male struts about on some eminence, puffing out the feathers of his neck and throat, expanding his tail and ruffling his wings, uttering now and then a deep moaning call heard a great way off. The female lays one or two eggs of a dark olive-green faintly blotched with dusky. I have killed the young, half-grown, in March, near Saugor"—(*Jerdon*).

He also says they breed during the cold weather in Southern India. Stuart Baker gives the breeding season from the different parts of India as "principally from August to November."

Hume says :—"The way in which the male expands the throat at times during the breeding season is most extraordinary. First the male begins to strut about holding his head up as high as if he wanted to lift himself off his legs ; then, after a few turns, he puffs out the upper part of the throat just under the jaws, then draws it in again, then puffs it again and so on, two, three or four times, and then suddenly out goes the whole throat down to the breast and that part of it next the latter swells more and more ; his tail, already cocked, begins to turn right back over the back and the lower throat-bag gets bigger and longer and longer till it looks to be within six inches of the ground. All the feathers of the throat stand out, and, looked at in front, he seems to have a huge bag covered with feathers hanging down between his legs, which wobbles about as he struts here and there with wings partly unclosed, and with occasional sharp snappings of his bill. From time to time he utters a sort of deep moan, and stands quite still, and then off he struts again close up to the female, and then away from her. On both occasions that I witnessed these antics the excitement seemed gradually to relax and no connubialities resulted. Whether this is usually a prelude to such, or a mere nautch for the edification of the female like the Peacock's grand display, I cannot tell, but I am inclined to believe the latter."

Nest. "A depression in the ground, either bare or thinly lined with grass, at the foot of a bush or tuft of grass, sometimes in a bare plain, or else in grass"—(*Hume*).

Eggs. 1 or 2. Hume writes :—"My impression is that the birds only lay one egg. But sometimes two eggs are found pretty close together, and either the females not unfrequently lay very close to each other, or when a female does lay more than one egg she deposits the second one some little distance from the first."

As regards the eggs, he says :—"The eggs vary much in size and shape. They are all more or less oval, but while some are moderately broad and slightly pointed at one end, others are long ovals, exactly similar at both ends, and others again are long and cylindrical . . . The shells are very thick and strong, closely resembling those of the Sarus in texture, and, like those of the latter species, the eggs very

commonly exhibit pimples and rugosities at the large end, so much so that, out of sixty eggs now before me, only seven are perfectly free from such imperfections. Some of the eggs are dull and with little gloss, the whole surface being closely pitted with small spores similar to, but fewer than, those in the Pea-fowl's egg, while other specimens are brilliantly glossy."

"A clutch of 2 in my collection are light olive, clouded with pale brown ; they measure 3·45 × 2·25″ but Hume gives the average of sixty eggs as 3·11 × 2·24″ "—(*C.M.I.*).

Genus **SYPHEOTIDES** Lesson 1839.

"This is an Indian genus of small or moderately-sized Bustards without a ruff and with longer bill and legs than in the other genera found in India. The chief generic character, however, is that the male in the breeding season assumes a peculiar plumage, with the head, neck and lower surface black, and the wings partly white . . . Females are larger than males. The primary quills are notched on the inner web and alternate towards the end "—(*Fauna of British India*).

(405) Sypheotides indica (Miller).

THE LESSER FLORICAN OR LIKH.

(*Fauna of British India*, 2nd edition, No. 2045.)
(*Fauna of British India*, 1st edition, No. 1416.)

Description—Male. "Length 18″ ; wing 7·75″ ; tail 3·5″ ; tarsus 3·5″ ; bill from gape 2″ "—(*Fauna of British India*).

"Weight 14 oz. to 1 lb. 4 oz."—(*Hume*).

Breeding plumage. "A few (usually three on each side) narrow ribbon-like feathers about 4 inches long, spatulate towards the ends, curved upwards from behind the earcoverts. Head, neck and lower parts black, except the chin and a varying portion of the throat, which are white ; band across the hind neck at the base white ; back, scapulars and tertiaries black, with fine whitish mottling and 'V' shaped marks, the black disappearing on the wing-coverts which are mainly white ; the longer primary and the tips of the larger secondary coverts black ; quills as in the female ; rump and upper tail-coverts black finely speckled with white ; tail pale-whitish and mottled with black at the end, buff towards base, with distinct black bars throughout "—(*Fauna of British India*).

"The male after the breeding season moults into the female plumage, but retains some white on the shoulder of the wing "—(*Fauna of British India*).

Female and male in winter. Length of female 20·3″ ; wing 9·2″ ; tail 5″ ; tarsus 4″ ; bill from gape 2·2″.

"Weight of female 1 lb. 2 oz. to 1 lb. 10 oz."—(*Hume*).

Bill dusky red, culmen dark brown ; gape and base of lower mandible yellow ; irides yellow tinged with red ; legs dull, dirty yellow. Head and neck buff ; crown deep rich brown with an interrupted streak of buff down the centre ; nape spotted with brown and back of neck stippled with the same colour ; a brown streak under the eye ;

back and scapulars deep brown mottled with buff and most feathers marked with a " V "-shaped buff bar towards the tip; coverts buff, slightly marked with brown; first three quills entirely brown, the remainder buff, barred and mottled with brown, and the tips whitish; axillaries black, tail buff, barred and mottled with deep brown; the whole lower plumage white tinged with buff, deeper on the neck and upper breast, the former with two interrupted deep brown streaks, and the upper breast slightly barred with the same colour; the under tail-coverts with a few brown bars.

Nestling. "An almost uniform dirty pale yellow colour with an enclosed V on the crown of the head in dingy black, and blotches, rather stripey, of black on the wings back and sides and about the ears; legs and beak a colour between pale blue and pale pink, and on the tip of the beak a little lump of pale pearly white"—(*Davison* as quoted by *Hume*).

Locality, habits, etc. Found sparingly on the plains and plateaux up to an elevation of about 3,000 ft., but is not, so far as we are aware, found actually on the hills. It affects open grassy places and thin scrub jungle. Dewar mentions it in his "*List of Birds around Madras*," and we have procured it from the outskirts of Bangalore, but it is nowhere common, and indeed appears to be diminishing in numbers owing to its being shot during the breeding season which coincides with the commencement of the snipe season. An interesting article, taken from "*The Field*" of 2nd May 1908, is published in the *Bombay Natural History Society's Journal, Vol. XVIII, No.* 4, from which we take the liberty of extracting the following notes :—

"Writing of Florican shooting in Kathiawar, the author of the article states, *inter alia* :—'In the breeding season the males have a peculiar custom of leaping several feet in the air, at the same time uttering a call very similar to two sticks hit rapidly together or the croak of a frog. This is done with a view to attract the females . Fortunately Florican are of a very skulking nature, and are very difficult to flush. A female is rarely put up, and the males only betray themselves by their antics while love-making, which enables them to be easily marked down. But for this, I fancy they would be as difficult to find as the females. The Florican like all Bustards, lays a large round apple-green egg dashed with rusty red, which is placed in the ground in a depression, no attempt at a nest being made. Four eggs would seem to be the full complement. As a table bird, the Florican is considered a delicacy, but when the Spanish or blister fly (*Cantharides*) is in season, he should be eaten with caution as he is very partial to that insect as food."

Hume says in "*Stray Feathers*" :—"A single specimen was killed on the slopes of the Nilgiris some years ago between Neddivattam and Pykara, going down to the Wynaad."

Jerdon writes :—"It is often to be met with in grain fields, in fields of cotton and dholl, and, in the Carnatic so much in those of the grain called *Warragoo* as to be called in Tamil *Warrago Kolee*, or Warrago Fowl. It feeds chiefly in the morning and is then easily raised, but during the middle of the day it lies very close and is often flushed with difficulty. I have known an instance of one being killed by a horse stepping on it. Now and then an exceedingly wary one is met with, which runs to a great distance and takes wing well out of

shot. When walking or running it raises its tail . . . the lateral feathers diverging downwards, whilst those of the centre are the most elevated, as is seen in domestic fowls, etc. The chief food of the Florikin is grasspoppers. I have also found blister-beetles (*Mylabris*), *Scarabæi*, centipedes, and even small lizards. When flushed suddenly it utters a kind of sharp "quick" or note of alarm, and it is said also to have a feeble plaintive chirp or piping note when running or feeding. Its flesh is very delicate, and of excellent flavour, and it is the most esteemed here of all the game birds. Its pursuit is consequently a favourite sport and from the open nature of the ground it frequents, it is well adapted for being hawked. I have killed it with *Luggur*, but generally with the *Shabeen* . . . I have found the cock-bird commencing to assume the black plumage at the end of April. The full and perfect breeding plumage is generally completed during July and August."

Breeding season. July to November. "Occasionally as late as January"—(*Fauna of British India*).

Nest. None, the eggs being laid in a depression in the ground behind a bush or a clump of grass.

Eggs. 3 or 4; they vary very much in colour from dark olive-green to pale stone-colour, sometimes unspotted, sometimes spotted and blotched with light brown or reddish-brown. Hume gives the average of 23 eggs as 1·88" by rather more than 1·59." It is rather peculiar that whilst their closest ally, the Bengal Florican (*Syph. bengalensis*) *never* lays more than 2 eggs, this species usually lays 4.

Order CHARADRIIFORMES.

"In the *Charadriiformes* the wings are long, there are eleven primaries, though the terminal one is very short in the *Laro-Limicolæ*; the fifth secondary is wanting; tail-feathers varying greatly in number, except in the *Laro-Limicolæ*, in which they are always twelve; the oil-gland is always present and tufted; spinal feather-tract well defined on the neck by lateral bare tracts, forked on the upper back; the dorsal apterium well developed, an after-shaft to the feathers always present. The skull is schizognathous; sometimes schizorhinal, sometimes holorhinal; basipterygoid processes sometimes present, sometimes absent in the *Oti-Limicolæ*; always present in the *Limicolæ* but always absent in the adult *Laro-Limicolæ*; the furcula is Vshaped; there are always two carotids; cæca present; but small in the *Laro-Limicolæ* and functionless in the *Laridæ*"—(*Fauna of British India*).

Sub-order **OTI-LIMICOLÆ.**

"The *Oti-Limicolæ* are divided form the *Laro-Limicolæ* in having the ectethmoid absent and from the *Limicolæ* in having no basipterygoid processes"—(*Fauna of British India*).

Family BURHINIDÆ.

"Holorhinal; nostrils pervious; no basipterygoid processes; cervical vertebræ 16; no hind toe; the three anterior toes united by a membrane at the base; tarsus long, reticulated all round. Spinal feather-tract not forked on the upper back. Eyes very large, the birds being to a certain extent nocturnal"—(*Fauna of British India.*)

Genus **BURHINUS** Illiger 1811.

"Bill shorter than the head, stout, straight, broader at the base than high; nostrils elongate, in a shallow groove-like depression eyes very large; forehead high; wing long, pointed; second primary as a rule longest; tail of twelve feathers. of moderate length, slightly rounded; only three toes; nail of middle toe broad, dilated on the inner side"—(*Fauna of British India*).

(406) **Burhinus œdicnemus indicus** (Salva.,)

THE INDIAN STONE-CURLEW.

(*Fauna of British India*, 2nd edition, No. 2047.)
(*Fauna of British India*, 1st edition, No. 1418 (part).).

Description—Male. Length 16″; wing 8·5″, tail 3·5 to 4″; tarsus 2·75″; bill from gape 2″.

Bill yellow, tip black; irides and orbits yellow; legs and feet yellow.

Whole of upper plumage pale brown, each feather with a dark brown mesial stripe; wing-coverts and scapulars broadly edged with

white, forming a conspicuous bar ; quills deep brown, the first with a large white spot in the centre on both webs, the second with a smaller spot on the inner web only ; tail with the central feathers barred dark brown, the remainder tipped blackish-brown ; lores, chin and throat, abdomen, vent and thigh-coverts, white; neck and breast very pale earthy-brown with a dark brown mesial stripe to each feather ; moustachial stripe and ear-coverts like the neck.

Female. Similar to male.

Nestling. "Clad in dark sandy-grey down with a few black stripes, especially two down the back"—(*Fauna of British India*).

Locality, habits, etc. Ferguson writes that he has on several occasions seen and shot this bird when snipe-shooting at Valey, four miles from Trivandrum. Jerdon says it occurs in most parts of India down to the extreme South. Mr. A. M. Primrose shot it in Mysore and says it is often miscalled Florican. Very common amongst scrub jungle, also found on stony ground ; we have also seen it amongst bamboos. It is crepuscular, and during the day-time is seldom seen except in the jungle where it may often be noticed standing motionless or else crouching on the ground with head and neck extended. When put up it flies only a short distance, settles, and then runs for the nearest jungle, or else squats amongst clods, stones, etc. In colour it so much resembles the ground that when squatting it is most difficult to discern. The young are just as good at hiding themselves as the adults. After dark the birds may be heard calling, their cry, as Dresser truly says, being a loud and shrill *Curlew*. It is insectivorous, and its flesh is quite edible.

Breeding season. February to August, principally in April.

Nest. "No nest is made ; a clutch I took was situated at the foot of a clump of bamboos and the eggs, two in number, lay on the bare ground, there not even being a depression in the soil, though sometimes the birds do make a slight hollow"—(*C.M.I.*).

Eggs. 2 or 3. "I have on one or two occasions only taken three eggs, and consider two the usual number laid. They vary largely in shape. One clutch before me is a very broad oval, and a second one is extremely elongated. They are both buff colour, but whereas the broad oval eggs are glossy and strongly blotched and spotted all over with deep brown with a few purplish-grey specks, the others have fewer blotches and spots but have a dense sepia cap at one end and are absolutely glossless. The average of the clutches is 1·95″ × 1·5″ and 2·1″ × 1·3″ respectively"—(*C.M.I.*).

Genus **ESACUS** Lesson 1831.

"This genus is distinguished from *Burhinus* by its very large and massive compressed bill, much longer than the head and measuring from the gape nearly twice the length of the middle toe without claw. In other respects the two genera are similar, but whilst *Burhinus* is a bird of dry, open, stony country, *Esacus* haunts the margins of rivers and the sea"—(*Fauna of British India*).

(407) Esacus recurvirostris (Cuv.).

THE GREAT STONE-PLOVER.

(*Fauna of British India*, 2nd edition, No. 2049.)
(*Fauna of British India*, 1st edition, No. 1419.)

Description—Male. Length 20"; wing 10·5" to 11"; tail 4·5"; tarsus 3·25" : bill from gape 3·5".

Bill black, greenish-yellow at base of each mandible ; irides pale yellow; legs yellow or greenish-yellow.

Forehead, supercilium extending to behind the ears, and a stripe from the base of the upper mandible passing under the eyes, white ; a broad stripe above and below the eyes, the ear-coverts and a short moustachial stripe, brown ; plumage above pale brown, slightly darker on head, back and scapulars ; all the feathers with narrow darker shaft-stripes ; quills and median coverts dark brown, the primaries broadly banded, and the secondaries tipped with white ; central tail-feathers like the back ; remainder dark brown barred with white ; plumage below white faintly washed with greyish on neck and breast.

Female. Similar to male.

Nestling. Mr. H. Whistler writes to the *Bombay Natural History Society* :—"Upper parts ashy grey tinged with sandy, much of the down with black tips. A black line divides the forehead and crown extending to the anterior corners of the eyes and curling downwards over the cheeks to the ear-coverts nearly meeting black lines which start from the posterior corners of the eyes and almost join on the occiput. The eyelids are fringed with grey down, the lower bearing a single black spot. An indistinct and broken black line crosses the upper back and extends along the upper portions of the flanks to the tail. There are indistinct black spots on the back. Wing ashy-grey but without the black tips to the down, the anterior edge of the forearm darker, a black spot at the inner angle of the elbow. Lower parts greyish-white.

Bill short and stout ; culmen curved duskly black ; nasal pits lighter. Egg-tooth whitish. Iris lightish-brown. Feet plumbeous grey."

Locality, habits, etc. Jerdon says he has seen it in Southern India at all seasons ; other observers do not, however, appear to have noticed it. This is chiefly a bird of river-beds, but is also said to frequent the seashore. We have usually seen it in pairs, but it is at times solitary. Jerdon says it is also found in small parties, but this has never been our experience. We have found them generally very wary and they are difficult to see as their colour blends with that of the sand and stones. They fly only a short distance, and have a loud note. They are crepuscular and feed on mollusca, crustacea and insects.

Breeding season. "February to end of March, a few birds laying throughout April and early May"—(*Fauna of British India*).

Nest. A mere depression in the sand in the river-bed, but Colonel Marshall found one in a ploughed field.

Eggs. 2 in number. "Those in my collection are drab, fairly well covered over with deep brown blotches, dots and specks, forming a ring near the broad end ; there are also some underlying purplish dots

The colour however varies greatly, running Hume gives the average of; the markings sometimes only a few leaving most of the ground-colour pure, others covered all over as are mine. Hume gives the average of twenty eggs as 2·15″ × 1·6″."—(*C.M.I.*).

Sub-order **LARO-LIMICOLÆ.**

"Distinguishable from the preceding by having no ectethmoid present"—(*Fauna of British India*).

Family GLAREOLIDÆ.

"Schizorhinal (with the exception of *Pluvianus*); nostrils impervious, oval, more or less protected by membrane, situated in a basal depression, not a groove; no basipterygoid processes; cervical vertebrae 15; middle toe, pectinated; tarsus transversely shielded in front and behind"—(*Fauna of British India*).

Sub-family CURSORIINÆ.

"No hind-toe; tarsus long, about $\frac{1}{3}$ wing"—(*Fauna of British India*).

Genus **CURSORIUS** Latham 1790.

"The bill in *Cursorius* is moderately long, slender and slightly arched. The wings are pointed; the first and second quills sub-equal, the first generally the longer. Tail short, nearly even. Tarsus and bare tibia slender and shielded in front and behind; no hind-toe; anterior toes short, middle toe much longer than the others and its claw expanded on the inner side and slightly pectinated."—(*Fauna of British India*).

(408) Cursorius coromandelicus (Gmel).

THE INDIAN COURSER.

(*Fauna of British India*, 2nd edition, No. 1422.)
(*Fauna of British India*, 1st edition, No. 1422.)

Description—Male. Length about 9·5″; wing 5·75″; tail 2·25″; tarsus 2·2″.

Bill black; irides dark brown; legs white; soles of feet dirty grey.

Head and nape chestnut; lores continued through the eyes and meeting in a large patch at the back of the neck, black; a white stripe down the sides of the neck; upper plumage isabelline-brown; wings and primary-coverts black, the latter and the secondaries tipped white; rump feathers which are much elongated, like the back; upper tail-coverts isabelline-brown, tipped white; tail the same, slightly tipped on the central feathers, more broadly progressively towards the outermost ones; all the feathers of the tail have also a large sub-terminal black spot; chin, vent, flanks and under tail-coverts white; neck and breast ferruginous, deeper on the breast; abdomen grey paling to white, with a large black patch in the centre.

Female. Similar to male.

"Birds from Southern India are slightly darker on breast and flanks; but these differences are not sufficiently constant to warrant their separation as a sub-species"—(*A. C. Meinertzhagen*).

Nestling. "Whole head, wings and upper parts mottled ginger creamy white and black with no definite pattern. Underparts creamy-white, pectoral region ginger; legs greyish"—(*C. B. Ticehurst*).

Locality, habits, etc. A permanent resident on the higher portions of the Presidency, but does not ascend the hills, nor is it found along the coasts. It frequents open, bare waste-lands, stony plains and such like places, where the colouring of the bird blends so well with its surroundings that the Courser would often be passed unnoticed if it were not for its habit of constantly making short sprints along the ground. It is by no means a shy bird and takes to flight only when too perseveringly followed by the sportsman. "Common in the deforested parts of Travancore but is rare on the Malabar coast"—(*Fauna of British India*).

Breeding season. March to July. "In Travancore principally in May and June"—(*Fauna of British India*).

Nest. None; the eggs being laid in a depression in the ground. "I have taken the eggs; they were on flat hard paddy land amongst some *doob* grass"—(*C.M.I.*).

Eggs. 2 or 3; buff or cream-coloured, with smudges and blotches of pale inky and with streaks and lines of blackish-brown; average measurement 1·18″ × 1″.

Genus **RHINOPTILUS** Strickland 1850.

"From '*Cursorius*' the present form is only distinguished by having the bill shorter than the head, straight and somewhat broader at the base, a rounder wing with the second and third primaries longest, and a band across the breast, the difference being scarcely of generic value. The eyes are large, and the bird may perhaps have crepuscular habits"—(*Fauna of British India*).

(409) **Rhinoptilus bitorquatus** (Blyth).

JERDON'S COURSER.

(*Fauna of British India*, 2nd edition, No. 2053.)
(*Fauna of British India*, 1st edition, No. 1424.)

Description—Male. "Length 10·25″; wing 6·5″; tail 2·5″; tarsus 2·7″ bill from gape 1·05″"—(*Fauna of British India*).

"Bill blackish at the tips of both mandibles, pale yellow at the base and as far as the nostrils; gape yellow; iris umber-brown; legs pale yellowish-white with a fleshy tinge; soles flesh-coloured, nails horny" (*Fauna of British India*).

"Crown dark brown with a buff median band; forehead, lores and long broad supercilia passing completely round the neck, white; a brown band streaked with black beneath the eyes extending over the ear-coverts; upper parts brown; wing coverts slightly paler. Across the wing is a broad white band formed of the outer, median and greater coverts; primary coverts, primaries and most of the secondaries black.

a broad white band crossing obliquely the first two primaries near the end ; a large white spot on the 3rd primary and a small round spot on the 4th ; inner webs of secondaries chiefly white, and white edgings to the outer webs of the brown tertiaries ; upper tail-coverts white ; tail blackish-brown, the feathers white at the base and with white spots at the tips, the amount of white increasing on the outer feathers ; chin and throat buffy white, passing on the fore-neck into pale chestnut, followed by two narrow white bands, both dark-edged behind, the posterior in front also ; the two divided by a much broader brown gorget ; remainder of lower parts creamy white "—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. Jerdon discovered this bird in the hilly country above the Eastern Ghats off Nellore, and in Cuddapah, and says that " it frequents rocky and undulating ground with thin forest jungle and is found in small parties, not very noisy, but occasionally uttering a plaintive cry. I believe it to be a permanent resident." Blanford says " Forest country from the Gōdāvari valley to the neighbourhood of Madras " ; and " their appearance on the ground is Courser-like, but their flight is more rapid, more like that of *Sarciophorus* "—(*Fauna of British India*). Dewar includes the bird in his list of "*Birds found in and around Madras.*" " in 1900, Howard Campbell saw it near Anantapur"—(*Fauna of British India*).

Breeding season. Nothing absolutely reliable seems to be known about its nidification, and it is a moot question whether the bird is or is not a permanent resident within our limits.

" There was an advertisement some time ago in a Calcutta paper of a collection of eggs for sale somewhere the Madras side and one of the eggs specially mentioned as being in it was of this Courser"—(*C.M.I.*).

Sub-family GLAREOLINÆ.

" A hind toe, tarsus moderate about $\frac{1}{3}$ wing "—(*Fauna of British India*).

Genus **GLAREOLA** Brisson 1760.

" In this Genus the bill is short, broad and rather high at the base ; the culmen much arched and the gape wide ; the nostril is in a depression at the base of the bill ; wings long and narrow, generally when closed extending some distance beyond the tail ; 1st primary longest ; tarsus short, scutellate before and behind ; hind toe well developed, raised above the anterior toes at the base ; lateral toes short, the outer and middle toe united by a short web ; claws long, that of the middle toe distinctly pectinated on the inner margin "—(*Fauna of British India*).

(410) Glareola maldivarum maldivarum Forst.

THE LARGE INDIAN SWALLOW-PLOVER.

(*Fauna of British India*, 2nd edition, No. 2055.)
(*Fauna of British India*, 1st edition, No. 1425.)

Description—Male. Length 10" ; wing 7·5" ; tail 4·5" ; tarsus 1·25". Bill black ; gape sealing-wax red ; irides brown ; legs and feet deep pinkish-brown ; orbits white below and feathered.

The whole upper plumage brown, darkest on forehead, reddish on hind-neck, ear-coverts and sides of neck; rump and wings glossed green; upper tail-coverts white; basal half of tail white, remainder brown to blackish-brown, the central feathers narrowly tipped white; quills blackish-brown, the shaft of the 1st primary white; chin and throat rufous bordered by a white line from the gape; outside this is a black line starting from below the eyes; upper breast and sides of body rufous brown, deepest on the sides; abdomen, vent and under tail-coverts white; under wing-coverts and lining of wings chestnut.

Female. Similar to male.

Locality, habits, etc. A winter visitor, locally found throughout India and Ceylon, may be seen hawking for insects over tanks, rivers, marshes and fields. During the heat of the day it rests on the sand or edge of a tank or marsh. Jerdon's name of Swallow-Plover for the birds of this genus is a much better one than Pratincole, as they are very Swallow-like when on the wing.

Breeding season. April and May in Sind, but does not appear to breed so far south as our Presidency.

Eggs. "Two or three in number are deposited on the ground in a depression and are broad oval or nearly spherical in shape; they are of a light dirty-green colour, or even drab, covered with dark purple blotches and spots occasionally forming a zone at the large end; they measure 1·26″ in length by 0·95″ in width"—(*Barnes*).

(411) Glareola lactea Temm.

THE SMALL INDIAN SWALLOW-PLOVER.

(*Fauna of British India*, 2nd edition, No. 2056.)
(*Fauna of British India*, 1st edition, No. 1427.)

Description—Male. Length 6·5″; wing 5·75″; tail 2″; tarsus ·75″; bill from gape ·5″.

Bill black; gape red; irides dark brown; legs dusky green.

Above pale brownish-isabelline; upper tail-coverts white; tail white, the central feathers broadly, the rest decreasingly tipped dark brown; primaries brown, the first four with white shafts, the inner webs of the innermost four white; secondaries white-tipped brown; chin, throat and breast pale isabelline; abdomen and under tail-coverts white.

Female. Similar to the male.

Nestling. "Whole of the upper parts finely mottled greyish-white, dusky and pale buff, narrow black--line behind eyes; under parts white"—(*C.B. Ticehurst*).

Juvenile. "Not examined. One or two birds examined in autumn have chin and throat spotted sepia; possibly these are first winter birds, as the adult does not appear to have a spotted throat in winter"—(*A. C. Meinertz hagen*).

Locality, habits, etc. It appears to be a permanent resident though I have not noticed it myself, and is said to frequent the banks of large

rivers. Dewar does not record it from Madras, but Sir A. Cardew found it breeding on the sandy banks of a river at Mangalore on the Malabar Coast in April—(*H.R.B.*).

Breeding season. March to May.

Nest. None, the eggs being laid in a depression in the sand on the dry bed or bank of a river.

Eggs. From 2 to 4 in number. In shape they are broad ovate, some broader than others. In colour some are pale fawn, others have a light greenish tinge, and Hume says "buff, reddish brown, pinkish-grey, and white grounds are all common." In markings some have only a few light brownish blotches, others have a dingy cap at the thick end with brownish specks, the remainder of the egg being without markings; others again have underlying dull purple streaks and are rather densely speckled all over with ochraceous-brown, and others have larger blotches of the dull purplish underlying colour and are strongly speckled and streaked with ochraceous-brown; in one egg I have of the latter colour, the thick end is void of markings. They measure 1·05″ × 0·82″—(*C.M.I.*).

Family LARIDÆ.

"No cere to the bill. Cæca small and functionless; sternum with two notches on each side of the posterior margin"—(*Fauna of British India*).

Sub-family LARINÆ.

"Bill stout, compressed, of moderate length; the upper mandible the longer, much curved at the end and usually bent down over the tip of the lower; angle of lower mandible prominent and near the end of the bill; nostrils oblong, some distance from the base of the mandible. Tarsus of moderate length, scutellated.

Genus **LARUS** Linn., 1758.

"In this genus the bill is stout, compressed and of moderate length, with the upper mandible longer than the lower, curved and bent down over the tip · nostrils oblong and placed some distance from the base; tarsus moderate or rather short and scutellated in front; anterior toes long and fully webbed, hind toe small; the wings are long, exceeding the tail when closed"—(*Fauna of British India*).

(412) **Larus ichthyætus** (Pall.).

THE GREAT BLACK-HEADED GULL.

(*Fauna of British India*, 2nd edition, No. 2060.)
(*Fauna of British India*, 1st edition, No. 1489.)

Description—Male. Length 26·4″; wing 19·1″; tail 7·5″; tarsus 3″; bill from gape 3·2″.

Bill deep wax-yellow, orange-red at tip and base, subterminal band black; palate orange-red; irides brown, orbits red; legs and feet dull yellow.

Breeding plumage. The head and upper part of neck black; a small spot above and below the eye; neck, primary coverts, rump, tail and lower plumage white; back and coverts french-grey; wings white; primaries white, the outer web of first, and part of inner web towards the tip, and the others near the tip black; tips of all white, and a white spot on inner web of second primary towards the tip.

Winter plumage. There is no black cap, only some black streaks denser round the eye.

Young birds "are brown above, the feathers with pale edges; head mostly white; lower parts white; spotted and mottled with pale brown on the sides of the neck and upper breast; quills dark brown, secondaries edged white; uppertail-coverts and basal two-thirds of tail white, terminal third of tail blackish brown tipped white. There is a gradual change to grey on the mantle and the amount of black on the earlier primaries decreases with age"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. The Trivandrum Museum collectors, according to Ferguson, got five specimens at the Kayankolam Bar in January. Jerdon saw it on the sea-coast at Madras, from which place Dewar also records it. It is also found inland, as I have secured it on large jheels; here seldom more than one or two are seen on the same jheel, and I have found them shy birds. I have not seen them on land, but flying slowly over the water or else settled on it. They swim as all Gulls do, well, and are very buoyant. One I had in captivity seemed quite at home on land, and walked very well. They feed on fish, insects, and sometimes on weak birds—(*C.M.I.*).

They breed, according to Blanford, in Central Asia from the Caspian Sea to Eastern Turkestan.

(413) Larus ridibundus (Linn.).

THE BLACK-HEADED OR LAUGHING GULL.

(*Fauna of British India*, 2nd edition, No. 2061.)
(*Fauna of British India*, 1st edition, No. 1490.)

Description—Male. Length 15·75″; wing 12″; tail 4·5″; tarsus 1·75″; bill from gape 1·9″.

Bill red, sometimes dusky at tip, irides dark brown; legs and feet dull red; inside of mouth red.

Summer. The head is sooty-brown; neck, rump, tail and lower plumage white; back and wing-coverts french-grey; primary coverts and first five primaries white; outer web and inner margin of inner web and tip black; the black of the outer webs of the other primaries decreases towards the inner primaries, and the black margins to the inner webs increase, remaining quills grey with black inner webs.

Winter. The head is white, with french-grey on nape, and with the tips of the ear-coverts blackish, forming a patch there.

Female. Similar to male.

Young birds "are at first brown above, but soon become white on the head and grey on the mantle, some of the wing-coverts and the tertiaries remaining brown longest; the end of the tail is black, the

black bar diminishing on the outer rectrices; the primaries have the borders and the ends black, and a white band running down the middle"—(*Fauna of British India*).

Locality, habits, etc. Ferguson says "fairly common on the Kayankolam Bar in January. In flight, etc., it is like all the Gulls, but, unlike most other species, it breeds inland." Dresser says "its note resembles *kree*, *kree*, or *kech*, *kech*, and when uttered by many resembles harsh laughter. Its food consist of small fish, insects, larvæ and worms."

Breeding season. It breeds in temperate Europe and Asia.

(414) Larus brunnicephatus (Jerdon).

THE BROWN-HEADED GULL.

(*Fauna of British India*, 2nd edition, No. 2062.)
(*Fauna of British India*, 1st edition, No. 1491.)

Description—Male. Length 17″; wing 13″; tail 5·25″; tarsus 1·87″; bill from gape 2·25″.

Bill, edge of eyelids, legs and feet deep waxy-red, the former with a dark tip; irides white.

Winter plumage. The whole head face, ; chin and throat, white mixed with grey; ear-coverts dark grey; neck and upper back whitish; back, rump and wing-coverts fine grey; upper tail-coverts and the whole lower plumage pure white; the primaries black with a broad basal white band on the outer web and on the inner portion of the inner web; the first primary has a large white subterminal spot, the second a smaller one, the others none at all; the secondaries and tertiaries grey, the outer secondaries tipped with black; primary coverts pure white.

Summer plumage. Head to nape, chin, face and neck dusky brown, darkening to black and terminating abruptly at the hind neck and breast which, together with the upper tail-coverts, tail, and the whole lower plumage, are white; back, wing-coverts and scapulars grey; the first primary black with a small white spot or bar at the base and with a large subterminal white spot; the second primary with a larger basal white bar, but smaller subterminal spot; the remaining primaries have the white increasing and the black decreasing inwardly and are without the subterminal spot; the secondaries and tertiaries grey, the outer secondaries margined with black on the inner web and tipped with white.

Female. Similar to male.

Young birds are much like the adult in winter with the following exceptions:—The bill varies between coral-pink, light orange, and orange; the legs and feet between coral, salmon-fleshy and orange with brownish webs and joints; irides brown; tip of both the mandibles dark.

The first and second primaries want the subterminal white spot; the secondaries and tertiaries are brown-tipped grey, the primary coverts brown on the outer webs; shoulders much dashed with light brown; all the tail-feathers with a broad dark brown, terminal band; large blackish patch behind each ear.

Locality, habits, etc. Found on the sea-coast, large rivers and inland marshes, often in large numbers.

Breeding season. They breed on the Subansiri river in Lakhimpur Upper Assam, during March.

(415) Larus fuscus taimyrensis Buturlin.

THE DARK-BACKED HERRING-GULL.

(*Fauna of British India*, 2nd edition, No. 2065.)
(*Fauna of British India*, 1st edition, No. 1494.)

Description—Male. " Length of males 24" ; tail 7" ; wing 17" ; tarsus 2·75" ; middle toe and claw 2·4" ; bill from gape 3". Females are slightly smaller."

" Mantle rather dark, slatey-grey, the scapulars and inner secondaries with broad white tips ; first primary black with a grey base to the inner web and a large white spot near the tip ; second primary black with a wedge-shaped grey mark on the basal half of the inner web and a white tip ; on succeeding feathers the grey increases until the fifth primary is grey with white tip and broad subterminal black band ; innermost primaries and outer secondaries rather darker grey than the mantle ; remaining plumage white."

In winter the crown and neck are generally marked with brown, assuming the shape of a demi-collar of spots on the nape and sides of the neck.

Young birds " have the whole upper plumage dark brown, each feather broadly edged with white, more buffy on the wings ; tail dark brown ; tipped with white and mottled with white on the basal third ; quills dark brown, the wedge-shaped marks of grey replaced by lighter brown and much less in extent; below white everywhere mottled and streaked with dull pale brown. Bill yellow at the base, brown elsewhere ; legs dull fleshy-yellow "—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. Ferguson says that the Trivandrum collectors obtained a single specimen at Kayankolam in January 1903. In habits, this species resembles other Gulls frequenting the sea-coast.

Breeding season. It breeds in " Northern Russia and Siberia "—(*Fauna of British India*).

(416) Larus argentatus cachinnans Pallas.

THE YELLOW-LEGGED HERRING-GULL.

(*Fauna of British India*, 2nd edition, No. 2066.)
(*Fauna of British India*, 1st edition, No.

" Very similar to preceding bird but with a much paler mantle and more white on the wings and scapulars ; first primary black, a white tip and broad subterminal white bar and the inner web with much grey ; succeeding feathers more or more grey, the sixth all grey with a white tip and black subterminal band ; remaining primaries and secondaries like the mantle."

Description—Male. "Wing 415 to 450 m.m. ; tail 150 to 180 m.m. : tarsus 62 to 77 m.m. ; culmen 49 to 63 m.m."

"Iris white to yellow; bill bright yellow with a vermilion patch near the tip of the lower mandible ; orbital ring bright vermilion ; legs bright yellow."

Winter "plumage and that of young birds differ from the adult in the same way as do those of the preceding species."

Locality, habits, etc. "A common visitor . . . along the coast as far as Malabar and it straggles far inland to large rivers and pieces of water."—(*Fauna of British India*).

Breeding season. Breeds in Europe during April and May.

Family STERNIDÆ.

"The bill is straight, generally slender, the mandibles of about equal length with acute tips ; nostrils linear ; tail as a rule distinctly forked, often exceeding the closed wings which are long; legs and feet with but few exceptions, small"—(*Fauna of British India*).

Genus **CHLIDONIAS** Rannesque 1822.

"Bill short and slight, moderately compressed ; legs and feet small ; webs between the toes deeply emarginate so that the feet appear only half-webbed ; claws long and curved ; wings long, exceeding the tail when closed ; tail short, scarcely forked ; all are black or dark grey below in breeding plumage"—(*Fauna of British India*).

(417) Chlidonias leucopareia indica (Stevens).

THE INDIAN WHISKERED TERN.

(*Fauna of British India*, 2nd edition, No. 2067.)
(*Fauna of British India*, 1st edition, No. 1496.)

Description—Male. Length 10 to 11″ ; wing 9″ ; tail 3·4″ ; tarsus ·9″ ; bill from gape 1·6″.

Bill dark red, brownish at tip and base of upper mandible ; irides brown ; legs dull red.

Summer plumage. Head, neck and upper half of face black ; lower half of face white ; upper plumage grey, paler on the outer webs of the quills except the first primary which is there black ; the inner webs of the quills broadly margined with white ; outer tail-feathers edged with white,; chin and throat greyish-white ; the rest of the lower plumage grey, becoming black on abdomen and flanks.

Winter plumage. Forehead white, head and nape dusky-blackish edged with white ; lower plumage white ; remainder of upper plumage as in summer.

Female. Similar to male.

Young birds "have the crown and mantle partly or wholly blackish brown with rufous edges to the feathers"—(*Fauna of British India*).

Locality, habits, etc. A cold weather visitor frequenting rivers, marshes, tanks and paddy-fields.

Breeding season. It lays during July and August in Northern India, Bihar and Cachar.

Genus **HYDROPROGNE** Kaup., 1809.

"This is a genus of Terns distinguished by its stout and long beak and legs and by its very short tail, only about one-third the length of the wing "—(*Fauna of British India.*)

(418) Hydroprogne caspia caspia (Pall.,).

THE CASPIAN TERN.

(*Fauna of British India*, 2nd edition, No. 2071.)
(*Fauna of British India*, 1st edition, No. 1498.)

Description—Male. Length 21″; wing 16·3″; tail 5·5″; tarsus 1·8″; bill from gape 3·8″.

Bill orange to coral-red, tip horny; irides brown; legs black.

Summer plumage. Upper portion of the head to a line from the base of the upper mandible through the eyes and nape, velvety black; hindneck and all lower plumage white; upper plumage grey, inclining to white on upper tail-coverts; tail-quills dull grey on the outer webs, blackish on the inner; primaries white-shafted.

Winter plumage. Similar to that of summer but the head is white with numerous black streaks and the collar is white.

Female. Similar to male.

Locality, habits, etc. A winter visitor frequenting the sea-coast, backwaters and larger lakes. It may, as Blanford says, "be recognised at a considerable distance by its habit, when looking for food, of flying over the water with its bill directed downwards."

Breeding season. It breeds in the Persian Gulf in April; in Ceylon in June.

Genus **GELOCHELIDON** Brehm 1831.

"The genus *Gelochelidon* differs from *Sterna* in its stouter bill; the tail is comparatively shorter and with the outer feathers less prolonged; the feet are fully webbed as in *Sterna*; the tarsus is longer than the middle toe and claw "—(*Fauna* of *British India*).

(419) Gelochelidon nilotica nilotica Gmel.

THE GULL-BILLED TERN.

(*Fauna of British India*, 2nd edition, No. 2072.)
(*Fauna of British India*, 1st edition, No. 1399.)

Description—Male. Length 14 to 16″; wing 11 to 14·5″; tail 5 to 6″; Terns 1·4″; bill from gape 2″.

Bill and legs black; irides brown.

Winter plumage. Forehead and lores white; a ring round the eyes and stripe extending backwards to the ear-coverts black; whole of

upper plumage fine pale grey ; quills dark-shafted, the primaries blackish-grey on the inner webs ; plumage below white.

Summer plumage. Forehead, crown and nape black : otherwise as in winter.

Female. Similar to male.

Locality, habits, etc. A winter visitor to the sea-coast. Dewar records it as very common about Madras. It also frequents marshes and rivers. Dresser likens its note to *ef, ef*, or *af, af* and says it feeds largely on insects, orthoptera, coleoptera and lepidoptera, locusts and grasshoppers

Genus **THALASSEUS** Boie 1822.

"Distinguishable from all our Indian terns by its very long bill, which is slightly curved throughout. The tail is nearly as long as in true *Sterna* and equal to about half the length of the wing ; the feet are small and fully webbed ; the tarsus is equal to about half the length of the culmen"—(*Fauna of British India.*)

(420) Thalasseus bergii edwardsi Mathews.

THE CEYLON LARGE-CRESTED TERN.

(*Fauna of British India*, 2nd edition, No. 2077.)
(*Fauna of British India*, 1st edition, No. 1502 (part).)

Description—Male. "Length 21" ; tail 6·5 to 7·5" ; depth of fork 3 to 3·5" ; wing ·15" ; tarsus 1·25" ; bill from gape 3·6" "—(*Fauna of British India*).

"Bill pale yellow ; irides deep brown ; legs and feet black ; soles yellowish."

"The colouration resembles that of *T. b. bengalensis* except that the present species has a white frontal band and broader white lores, that the black only descends to the level of the lower edge of the orbit, that the crest is rather more distinct and above all that the mantle is much darker at all seasons being grey with olive tinge.

"In the young the quills are greyish brown with white inner borders and the upper parts much mixed with brown "—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. Ferguson writes that "numbers of this fine tern were found at Kayankolam Bar and further north in January and December 1903. Jerdon says it is found at Madras and on the Malabar Coasts at the mouths of rivers and along the coasts and backwaters. In habits, similar to *T. b. bengalensis*. Stuart Baker however does not give it from our area.

Breeding season. May and June in Ceylon.

(421) Thalasseus bengalensis bengalensis Less.

THE INDIAN LESSER CRESTED TERN.

(*Fauna of British India*, 2nd edition, No. 2079.)
(*Fauna of British India*, 1st edition, No. 1501 (part).).

Description—Male. "Length 16·5" ; tail 5 to 6·75" ; depth of fork 2 to ·3" ; wing ·12" ; tarsus 1" ; bill from gape 2·8" "—(*Fauna of British India*).

"Bill orange-yellow; irides brown; legs and feet black; soles yellowish"—(*Legge*).

"Crown with forehead, sides of head to below the orbit (but not including a spot immediately beneath the eye), nape, and distinct nuchal crest black: lores, cheeks, neck all round and lower parts white. Upper parts from neck pale ashy grey with a slight pinkish tinge on the mantle; outer rectrices sometimes whitish or white; primaries blackish, frosted on the outer web near the tip in fresh plumage; inner borders whitish, a very narrow extension of this border to the tip of the feathers soon disappears with wear, most of the inner webs and terminal edge of outer web in secondaries white."

In winter "the nape and a band from the nape to the front of the eye are black, the forehead and lores white. Crown black with white edges to feathers."

Young birds "resemble adults in winter, but have much brown on the smaller coverts, tertiaries and tail-feathers"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. Jerdon says, the Lesser Crested Tern is abundant about the backwaters of Madras and the Malabar Coast. Blanford says:—"This as another Sea-Tern found often in large flocks about bays, harbours, shallow banks and even several miles out at sea, and never met with far inland. Like the other Sea-Terns and unlike the Gulls, it always captures living fish by dashing down on them from some height and it appears very rarely if ever to settle on the sea . . . . It breeds in colonies on sand banks and low coral islands in the Persian Gulf and Red Sea."

Genus **STERNA** Linn., 1758.

"In this genus the bill is normally rather long, slender and straight and more or less compressed; the tarsus is shorter than the middle toe and claw, the feet are small and fully webbed; the wings are long and pointed, the first primary longest; the tail is always deeply forked but the length of the attenuated, lengthened outer feathers varies greatly"—(*Fauna of British India*).

(422) Sterna aurantia Gray.

THE INDIAN RIVER TERN.

(*Fauna of British India*, 2nd edition, No. 2080.)
(*Fauna of British India*, 1st edition, No. 1503.)

Description—Male. Length 16·5″; wing 11″; tail 7″; depth of fork 5 to 6″; bill from gape 2·37″.

Bill orange; irides brown; legs deep scarlet or coral.

Head, nape and neck black; rest of upper plumage grey; lateral tail-feathers white; lower plumage greyish-white.

"After the moult, which does not occur till about December, the forehead is white and the crown dull grey, then black streaks appear, and the black cap is generally assumed in February"—(*Fauna of British India*).

THE RIVER TERN
(*Sterna aurantia*).
One-quarter Nat. Size.

THE INDIAN BLACK IBIS
(*Pseudibis papillosus papillosus*).
One-sixth Nat Size.

Young birds "have the feathers of upper parts dull grey with an inner brown and an outer buff margin"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. This Tern is a permanent resident and as its name implies is generally found hawking up and down large rivers and lakes every now and then dashing down into the water to seize some small fish which it devours while on the wing.

Breeding season. April to May.

Nest. None, the eggs being laid in a depression in the sandy bed or bank of a river.

Eggs. 3 or 4, greenish stone-colour or light greenish-grey blotched and streaked with brown and with underlying pale purplish clouds and streaks or spots; average length 1·74"; average breadth 1·23". Hume gives average of sixty eggs as 1·65" × 1·25".

(423) Sterna melanogaster Temm.

THE BLACK-BELLIED TERN.

(*Fauna of British India*, 2nd edition, No. 2081.)
(*Fauna of British India*, 1st edition, No. 1504.)

Description—Male. Length 12·5"; wing 9"; tail 6·5"; depth of fork 3·5"; bill from gape 1·75".

Bill orange; irides blackish-brown; legs deep orange-red.

Top of head, nape and under tail-coverts black; the rest of the upper plumage grey; chin, throat, upper breast and sides of head white; the rest of lower plumage black or brownish-black; lining of wings white.

In winter, instead of the black cap, there are black streaks and the lower plumage is white.

"According to Hume, the winter plumage is not assumed till December and is only retained for about two months. Very young birds have broad buff outer and blackish inner borders to the feathers of the upper parts"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. This Tern though sometimes found along the sea-coast shores, has like the preceding one, a preference for fresh water, being usually met with on large rivers and lakes.

Breeding season. February, March and April.

Nest. None, the eggs being deposited in a depression in the sandy bed of a river. As these sandy atretches naturally vary in position from year to year according to the silting up of the river-bed during the rains, so the nesting sites of these and the preceding Terns vary; one may find them breeding in numbers at a certain spot one year, and possibly not again there for many years, as occurs, for instance, on large rivers like the Irawadi in Burmah.

Eggs. Usually 3, sometime 4. In shape broad ovals pointed at one end. The ground-colour varies from delicate greenish-cream, light buff to very deep buff with pale brownish or greyish purple underlying blotches and light brown or reddish-brown spots and blotches.

In one delicate greenish-cream egg, the underlying blotches are very pale and the surface ones likewise very light and all very sparsely distributed over the egg. In another deep buff egg, besides the brown spots and blotches, there is a twisted streak of deep blackish-brown nearly circling the thick end. They measure 1·25″ × 0·9.5″—(*C.M.I.*).

(424) Sterna repressa Hartert.

THE WHITE-CHEEKED TERN.

(*Fauna of British India*, 2nd edition, No. 2082.)
(*Fauna of British India*, 1st edition, No. 1505.)

Description—Male. "Length 13·5″; tail 6″; depth of fork 3·25″; wing 9·5″; tarsus ·75″; bill from gape 2″—(*Fauna of British India*).

"Bill black, red at base; irides brown; legs orange" (*Vidal*); legs and feet bright red in adults, dull red in young"—(*Butler.*)

"Forehead and upper lores, crown, nape and sides of the head to the lower edge of the orbit black; chin, gape, lower lores and a streak along the edge of the black cap to the nape white; all the rest of the plumage grey, dark ashy above, vinaceous on the breast and abdomen; upper and lower tail-coverts and tail lighter ashy, except the outer webs of the outermost tail-feathers which are dark; outer web of first primary dark except towards the end, inner web blackish grey near shaft, white near the inner border, the white not extending to the tip; secondaries with white tips and inner borders; wing-lining pale grey."

In winter "the lores and cheeks are white; forehead and anterior portion of crown mixed white and black; wing-lining white, and white is mixed with the grey of the lower parts."

Young birds "resemble adults in winter plumage but have a dark band on the smaller wing-coverts and the under parts white throughout"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. Large flocks appear on the Malabar Coast at times; Dewar also records it from Madras. Hume says it was probably this species or *S. longipennis* that Jerdon got on the lake at Ootacamund. It is a sea-bird often being seen at a very long distance from the shore."

Breeding season. May and June in the Persian Gulf.

(425) Sterna hirundo hirundo Linn.

THE COMMON TERN.

(*Fauna of British India*, 2nd edition, No. 2083.)
(*Fauna of British India*, 1st edition, No. 1506.)

Description—Male. "Length 14″; tail 5 to 7·5″; depth of fork 3 to 5″; wing 10·5″; tarsus ·8″; bill from gape 2″"—(*Fauna of British India*).

"Bill, legs and feet, in the breeding season, coral-red, much duller in winter and blackish in young birds. The tip of both mandibles is always blackish"—(*Fauna of British India*).

"Forehead and upper lores, crown, nape and sides of the head as far down as the lower edge of the orbit black; back and wings ashy grey, first primary with the outer web black, and a strip of the inner web near the shaft blackish, remainder of inner web white; second primary less black and with less white on the inner web; secondaries edged with white; rump, upper tail-coverts and inner webs of tail feathers white, outer webs of the same grey, darkest on the long outermost pair; lower lores, cheeks, chin, throat, wing-lining and under tail-coverts white; breast and abdomen very pale grey with a vinous tinge.

In winter "the forehead is white or mottled with white, the crown streaked with black, and the lower parts whitish.

Young birds "have a broad white forehead, the hind head sooty black, a white collar, a dark band along the smaller wing-coverts and white underparts. Very young birds have the usual broad buff outer and brown inner margins to the feathers of the upper parts"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. Ferguson says:—"An occasional winter visitor to the coast of S. Travancore; I have not met with it at all in the North."

Jerdon says he got it once on the lake at Ootacamund, but Hume thinks he was mistaken and puts the bird down as *S. repressa* or *S. longipennis*, but does not say on what grounds. It is found inland on rivers, etc., as well as on the coast.

Breeding season. "Breeds in Mesopotamia but not nearer than this to India"—(*Fauna of British India*).

(426) Sterna dougalli korustes Hume.

THE EASTERN ROSY TERN.

(*Fauna of British India*, 2nd edition, No. 2086.)
(*Fauna of British India*, 1st edition, No. 1508.)

Description—Male. "Length 15″; tail 5·5 to 7·5″; depth of fork ¼ to 5″; wing 9″; tarsus ·75″; bill from gape 2″—(*Fauna of British India*).

"Bill black, red at base; irides dark brown; legs and feet scarlet."

"In breeding plumage, the crown with the forehead, upper lores, sides of head to lower edge of orbit, and upper part of hindneck, black; lower lores, cheeks, sides of neck white; and a collar round the neck, white; back and wings pale pearl-grey, rump and tail paler, outer tail-feathers white; outer web of first primary black except near the tip, inner web blackish near shaft, inner borders of all primaries and secondaries to the tips, white and also the outer border of the secondaries near the end; lower parts throughout white, suffused with delicate pink, evanescent in dried skins.

In winter "the forehead is spotted with white and the lower parts are nearly white."

Young birds "have the upper parts white with dark brown intermarginal bands on the feathers, and all the primaries dark grey, the first almost black, with conspicuous white inner borders"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. Far from rare in Ceylon and the Andamans, and probably visits the Madras coast. This is a Sea-Tern and has a very graceful flight ; it sometimes sits upon the water and is said to be able to dive. It breeds in the Andamans and Ceylon.

(427) Sterna albifrons sinensis Gmel.

THE WHITE-SHAFTED TERNLET.

(*Fauna of British India*, 2nd edition, No. 2088.)
(*Fauna of British India*, 1st edition, No. 1509.)

Description—Male. Length 10″ ; tail 3·5 to 5·5″ ; depth of fork 1·75 to 3·4″ ; wing 7″; tarsus 65″; bill from gape 1·7″.

"Bill in summer yellow, hardly tipped with black ; in winter dark brown ; irides brown ; by feet orange-yellow in summer, reddish-brown in winter (*Oates*)."

"A broad arrow head-shaped white patch on the forehead, the posterior angles running back above the eyes ; crown, nape, and broad loral band from crown to base of culmen black, including the orbit, and extending above but not beneath it, and separated beneath by a narrow white stripe from the upper mandible ; back, rump and wings pale pearl-grey ; shafts of all primaries white ; outer web of outer primary and inner web near the shaft dark grey or blackish, both primaries and secondaries with much of the inner web whiter and the outer web of the secondaries near the end also bordered with white ; upper tail-coverts, and tail, with the whole of the lower parts and cheeks, white.

In winter the white forehead is broader and the tail shorter.

Female. Similar to male.

Young birds have the crown greyish, lores mostly white, primaries dark grey, the shaft of the first primary white, of others brownish, tail feathers greyish. In very young birds the back feathers, scapulars, and terciaries are brown, with buffy-white borders and centres, the crown mixed white and black, the nape blackish with white edges."

Locality, habits, etc. Stuart Baker does not give it from our area. "Probably the East Coast of India."

"They are found on large rivers and tidal estuaries, on salt lagoons and sometimes on the open coast feeding chiefly on fish"—(*Fauna of British India*).

Breeding season. They breed in Ceylon from June to August.

(428) Sterna albifrons pusilla Temm.

THE RIVER TERNLET.

(*Fauna of British India*, 2nd edition, No. 2089.)
(*Fauna of British India*, 1st edition, No. 1510.)

Description—Male. "Wing 160 to 175 mm. ; culmen 26 to 30 mm. ; much more slender than in preceding species."

"The first primary shaft is light brown, the second darker brown ; the upper tail-coverts and tail are almost concolorous with the grey back and the bill is very small"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. "Rare in the South of India"—(*Fauna of British India*).

This is a river Ternlet.

(429) Sterna albifrons saundersi Hume.

THE BLACK-SHAFTED LITTLE TERN.

(*Fauna of British India*, 2nd edition, No. 2091.)
(*Fauna of British India*, 1st edition, No. 1511.)

Description—Male. "Length 9″; tail 3″; depth of fork 1·1″; wing 6·75″; tarsus ·6″; bill from gape 1·5″"—(*Fauna of British India*).

"Bill yellow, tipped dusky; irides blackish-brown; legs and feet dusky yellowish olive"—(*Barnes*).

"A triangular frontal patch, the angles reaching to within 0·12″ of the eyes, white; a very broad stripe through the lores to the eye, black; a narrow white line intervenes between this stripe and the upper mandible; the whole crown, occiput, short occipital crest and sides of occiput as low as the lower margin of the eye, velvet-black; the central two-thirds of the lower eyelid white, and no black below this; all the rest of the sides of head and neck, chin, throat entire under parts, wing-lining and exterior tail-feathers, pure white; the first three primaries black with black shafts and broad white margins on their inner webs; their greater coverts dusky black; the whole of the rest of the upper surface, including wings and tail, and excepting parts and feathers already described, a most delicate satin-grey, contrasting in the strongest manner with the early black primaries"—(*Barnes*).

Female. Similar to male.

Locality, habits, etc. This species has been obtained at Madras, and one specimen on the coast of North Travancore in January. Stuart Baker does not give it from the Madras Presidency.

(430) Sterna anætheta antartica (Less).

THE SOUTHERN BROWN-WINGED TERN.

(*Fauna of British India*, 2nd edition, No. 2095.)
(*Fauna of British India*, 1st edition, No. 1513 (part).)

Description—Male. "Length 14·5″; tail 6 to 7·5″; depth of fork 3 to 4″; wing 9·5″; tarsus ·8″; bill from gape 2″"—(*Fauna of British India*).

"Wing 218 to 239 mm.; culmen 29 to 26 mm.

"Iris dark brown; bill, legs, feet black"—(*Fauna of British India*).

Forehead and a supercilium white: crown, nape, lores to behind eye black; hindneck light-grey; back, wings rump and tail dark brown; primaries blackish-brown with much white on inner webs, the tail has white on the outer rectrices more or less sullied bird with brown. (*Apud Fauna of British India*).

Winter. "Plumage is less grey, whilst the crown is brown with white edging to the feathers"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. "The Brown-winged Terns are all strictly Sea-Terns, often being found far away from land and not uncommonly taking a rest on passing ships. Their flight is easy and graceful and they alight on the water more frequently than most Terns. Their food consists of small fish and crustacea, such as are obtained in deep water, except in the breeding season, when they subsist in great part on shrimps and shallow-water fry. Their call is a rather hoarse "Krek"—(*Fauna of British India*).

(431) Sterna fuscata infuscata Licht.

THE INDIAN SOOTY TERN.

(*Fauna of British India*, 2nd edition, No. 2096.)
(*Fauna of British India*, 1st edition, No. 1514.)

Description—Male. "Length 17"; tail 6·5 to 7·5"; depth of fork 3·5 to 4·5"; wing 11·5"; tarsus ·9"; bill from gape 2·3"—(*Fauna of British India*).

Bill, legs and feet black; irides dark brown.

"Plumage very similar to that of *S. anætheta*, but much darker; the white frontal band is broader, but the superciliary portion of it only extends to just above the eye; the dark loral stripe is more oblique—it reaches the bill nearer to the gape, and extends above the eye. The upper surface is sooty black, breast and throat white; abdomen and lower tail-coverts more or less suffused with grey."

In winter "the crown and lores are speckled with white"—(*Fauna of British India*).

"An immature male obtained by me in Tirhut is sooty brown above, some of the feathers of the back faintly tipped with white; chin and lower plumage pale sooty brown, except on sides of neck and mixed with white on the breast and ashy on the flanks and thighs"—(*C.M.I.*).

Female. Similar to male.

Locality, habits, etc. "Met with occasionally on the Indian Coast"—(*Fauna of British India*).

"This is essentially an Ocean bird, though it may be got inland, as was the one I secured in North Bihar on the 20th July 1902. The country was flooded when it was obtained and the bird was in a very emaciated condition"—(*C.M.I.*).

Blanford writes:—"This is perhaps even more an ocean bird than *S. anætheta* and is known to sailors."

Breeding season. In India it breeds in the Laccadives.

Genus **ANOUS** Stephens 1826.

"Bill long slender, culmen considerably curved towards the tip; nostril in a groove, much farther from the base of the bill than in *Sterna*; tarsus short, much shorter than the middle-toe without claw; feet large, toes fully webbed. Wings long, first quill longest; tail long, cuneate, the third or fourth pairs of feathers from the outside longest, considerably exceeding the outer feathers. The whole plumage is very dark"—(*Fauna of British India*).

(432) Anous stolidus pileatus (Scop.).

THE PHILIPPINE NODDY.

(*Fauna of British India*, 2nd edition, No. 2097.)
(*Fauna of British India*, 1st edition, No. 1515.)

Description—Male. "Length 16"; tail 6"; wing 10·5"; tarsus 1"; bill from gape 2·3"."—(*Fauna of British India*).

"Bill black, orange at the angle of the gape; irides deep brown; legs and feet dusky vinous purple."

"Forehead and crown pale grey, passing on the nape into greyish brown and this again into the dark smoky or chocolate-brown of the upper and lower surface generally; lores black above, passing into the dark leaden brown of the cheeks and throat; primaries and secondaries blackish; tail-feathers very dark; wing-lining slaty grey."

"Young birds are browner and paler, and have the forehead and crown greyish brown."—(*Hume*).

Female. Similar to male.

Locality, habits, etc. Occasionally found on the Indian coasts.

"The Noddies, as they are called, are a group of tropical Oceanic birds allied to the Terns, but having a much slower, heavier flight and very different habits. They live on the open sea and settle on the water to feed on floating mollusca or dead fish or offal."—(*Fauna of British India*).

Breeding season. Hume found them breeding in the Laccadives on the Cherbaniani reef; they had just started to lay in the second week of February. Dresser gives the breeding season from January to May and September according to the latitude.

(433) Anous minutus worcesteri (McGregor).

THE PHILIPPINE WHITE-CAPPED NODDY.

(*Fauna of British India*, 2nd edition, No. 2098.)
(*Fauna of British India*, 1st edition, No. 1516.)

Description—Male. "Length 13"; tail 4·75"; wing 9"; tarsus 9"; bill from gape 2·1"."—(*Fauna of British India*).

"Bill black; irish brown; tarsi and toes blackish-brown."

"Forehead and crown white, passing into ashy-grey and then into dark brown on the nape; lores and chin jet-black; sides of neck, throat and fore-neck black with a grey wash; rest of plumage blackish brown."

"Younger birds are dark brown; but the lores are black and the forehead and crown white at all ages."—(*Layard*).

Female. Similar to male.

Locality, habits, etc. An occasional straggler to our coasts. Habits similar to those of *A. s. pileatus*.

Genus **GYGIS** Wagler 1832.

"In this genus the bill is stout and longer than the head, the culmen straight, with the nostril placed nearer the base than the tip; the wings are long, with the first primary longest, the tail moderate, less than half the wing in length; the tarsus very short; the toes long and the webs slightly indented. The plumage is white."—(*Fauna of British India*).

(434) Gygis alba monte Mathews.

THE INDIAN OCEAN WHITE TERN.

(*Fauna of British India*, 2nd edition, No. 2099.)
(*Fauna of British India*, 1st edition, footnote, p. 326.)

Description—Male. "Wing 223 to 239 m.m.; tail 105 to 111 m.m.; tarsus 11 to 12 m.m.; culmen 36 to 40 m.m." "A narrow ring of feathers round the eye black; remainder of lower plumage pure white; shafts of primaries and tail-feathers dark-brown."

Locality, habits, etc. "A specimen of this bird obtained in the Bay of Bengal is in the Leyden Museum . . . in 1897, when on my way home to England, a white Tern came about our steamer between Madras and Colombo"—(*Fauna of British India*).

Family RHYNCOPIDÆ.

"Both mandibles greatly compressed, the lower much longer than the upper both convex on the sides toward the base; in the nestling when first hatched the bill is like that of a young Tern"—(*Fauna of British India*).

Genus **RHYNCOPS** Linn., 1766.

"Culmen curved, lower mandible knife-like, flexible, truncated at the end and closely marked on the side with minute oblique ridges; nostrils elongate, near base of upper mandible and near commissure and opening in an irregular hollow. Wings very long, first quill longest; tail short, slightly forked. Feet small, webs between toes with concave edges; tarsus longer than middle toe and claw"—(*Fauna of British India*).

(435) Rhyncops albicollis Swains.

452 THE INDIAN SKIMMER.

(*Fauna of British India*, 2nd edition, No. 2100.)
(*Fauna of British India*, 1st edition, No. 1517.)

Description—Male. Length 16·5″; wing 14″; tail 4·5″; tarsus 1·25″; upper mandible from gape 2·62″; lower mandible 3·5″.

Bill orange-vermilion, yellow and semi-transparent at tip; irides brown; legs deep vermilion-red.

Forehead, lores, cheeks below the eyes, hind neck and the whole lower plumage, white; rump sometimes creamy, sometimes white; crown and nape, back and scapulars black-brown, quills black, lighter on the inner webs; secondaries and tertiaries, broadly tipped with white, forming a conspicuous bar; tail with the two central feathers blackish-brown down the centre; the remainder white.

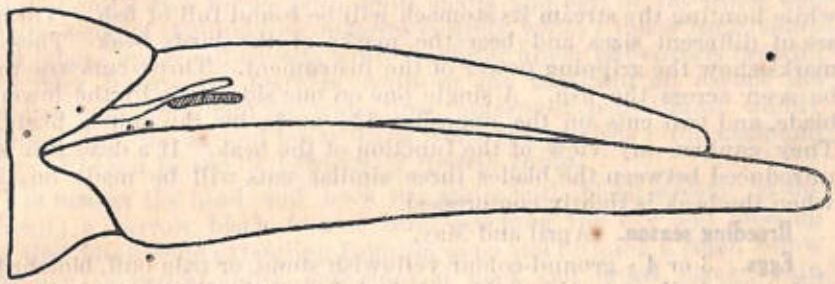
Female. Similar to male.

Locality, habits, etc. The extraordinary shape of the bill renders this bird easy of identification; in addition to the fact that the lower mandible is considerably longer than the upper one, the two mandibles are placed edge-on with reference to one another, so that it is impossible for the bird to pick up anything directly off the ground or water, its mode of feeding being to take in food into its open bill off the surface of the water while it skims along it.

It is not a sea-coast frequenter, but is found on large rivers.

They sometimes congregate in flocks, up to 50 in number, but also sometimes, where the birds are uncommon, only pairs are seen. Jerdon found only some oily substance in their stomachs.

Major R. W. G. Hingston in the *Journal of the Darjeeling Natural History Society* gives an interesting account of the function of the bill. He writes :



The beak of the Scissors-bill is very peculiar, and its function does not seem to be properly understood. Yet it is a simple instrument, but not a pair of scissors as the name of the bird would lead one to believe.

Seen from the side the beak is like a pair of scissors, since it is compressed into flat blades. The lower blade is four inches long, its point is rounded and edge sharp. The upper blade is stouter and stronger, its extremity is more pointed and falls short of the lower blade by about three-quarters of an inch. Thus, looking at it from the side, we see something like a pair of scissors. But this is not borne out by the edges of the blades. That of the lower blade is sharp and cutting, but the edge of the upper blade is much broader and has a groove running along its whole length. Into this groove the edge of the lower blade fits when the beak is tightly closed. The implement, therefore, is not a pair of scissors. The blades do not slice against, they fit into one another. The object between them is not cut across ; it is rather held in a vice-like grip between interlocking blades.

Now let us watch the implement at work. The bird is fishing. It usually hunts over shallow water at the edge of the main stream. Skimming gracefully close to the surface, with head lowered, beak wide open, it thrusts the lower blade of the scissors like a cutwater into the stream. From time to time it jerks its head and the blades come together with a snap. As a rule the beak is empty, but sometimes we see a fish between the blades. The capture is caught transversely in the instrument. But the bird quickly turns it through a right angle swallows it head first. Thus we see that the beak is an instrument for gripping, also, remarkably modified for fishing. For the lower blade as I have said, projects beyond the upper blade, and this allows the tip of the lower blade to be immersed while the upper blade is raised clear of the water. The bird is, therefore, not a "shearsbill" nor a "scissorsbill." Such names do not describe the function of the beak. The lower blade is a cutwater driven through the stream until it happens to strike a fish. When this occurs the blades come together and the capture is gripped in the vice. The beak is thus purely a fish-catching apparatus. So efficient is it that the bird can cut the stream where the water is only one inch in depth.

What has misled observers with respect to the Scissors-bill is the fact that its stomach is almost always found empty, or, at least, containing nothing beyond a little oil. But this does not mean that they do not

catch fish ; on the contrary it is due to their fishing being so effective that they capture enough in a few hours to enable them to enjoy long periods of rest. The evening is the time when I see them fishing. During the day they rest on the sand, and it is then that collectors are likely to get specimens. But this is the time when the birds are inactive and their stomachs contain only oil. If the Scissors-bill is shot while hunting the stream its stomach will be found full of fish. They are of different sizes and bear the marks of the birds beak. These marks show the gripping power of the instrument. Three cuts are to be seen across the fish. A single one on one side made by the lower blade, and two cuts on the opposite side made by the upper blade. They confirm my view of the function of the beak. If a dead fish is introduced between the blades three similar cuts will be made on it when the beak is tightly compressed.

Breeding season. April and May.

Eggs. 3 or 4 ; ground-colour yellowish stone, or pale buff, blotched and spotted all over with pale and dark-brown, and with underlying spots of very pale purplish grey. The eggs in my collection average 1·56″ in length by 1·14″ in breadth.—(*H.R.B.*). A number of eggs of this species have a beautiful pink or salmon tinge and the markings are exeedingly bold and elongated. Hume gives the average of 108 eggs as 1·6×1·18″—(*C.M.I.*).

Sub-order **LIMICOLÆ.**

"In this sub-order Lowe places all those groups of *Charadriiformes* in which the basipterygoid processes persist in the adult."

Family CHARADRIIDÆ.

" Schizorhinal ; nostrils pervious ; basipterygoid processes present ; cervical vertebræ 15. Hind-toe short or wanting "—(*Fauna of British India*).

Sub-family PRE-CHARADRIINÆ.

" In this sub-family the lacrymals are free but have prominent outjutting processes and are not rounded and merged in the line of the orbital rim as in the *Charadriinæ*. There is no foramen for the passage of the nasal duct "—(*Fauna of British India*).

Genus **ARENARIA** Brisson 1760.

Bill conical, pointed, the culmen flattened and straight ; nostrils linear, in a groove that extends nearly half way down the bill ; wings long, pointed, first primary longest ; tarsus short, transversely shielded in front, reticulated behind ; hind-toe well-developed ; toes not connected by web "—(*Fauna of British India*).

(436) Arenaria interpres interpres (Linn.,).

THE TURNSTONE.

(*Fauna of British India*, 2nd edition, No. 2101.)
(*Fauna of British India*, 1st edition, No. 1430.)

Description—Male. " Length 8·5″ ; wing 6″ ; tail 2·35″ ; tarsus 1″ ; bill from gape 1″.

"Bill black ; iris brown ; legs and feet orange-red ; claws black "—(*Fauna of British India*).

In the winter "the head above and at the sides is brown with darker streaks ; the ear-coverts more uniform brown ; upper back, scapulars, tertiaries and wing-coverts dark brown, the feathers with slight pale edges ; some of the under scapulars are partially or wholly white ; quills dark brown with white shafts and part of the inner web white, some of the inner secondaries entirely white ; lower back, rump and longer upper tail-coverts white ; shorter upper tail-coverts brown ; tail dark brown, the feathers white at the base and all except the median pair with buff or white tips, outermost pair almost wholly white ; chin, throat and lower parts from breast white ; foreneck and sides of breast brown "—(*Fauna of British India*).

In summer the head and neck are white with black streaks on the crown ; a narrow black frontal band reaching the eye and meeting another black band extending from the gape and forming a patch below the eye ; a partial collar, and sides of neck and breast black ; chin white ; lower back and upper tail-coverts white with a brown band over the rump ; upper back, scapulars and tertiaries rufous-brown and black ; lower plumage from below the breast white ; wings and tail as in winter plumage.

Dresser says the "young bird has the head and nape dull brown ; upper parts blackish brown marked with buff and brown, the breast dull dark brown."

Young in down. "Upper parts dark grey spotted with black ; under parts greyish white, whiter on the abdomen "—(*Stonham*).

Female. Similar to male.

Locality, habits, etc. It is a sea-coast bird deriving its name from its habit of turning over stones, etc., in search of worms, crustacea, etc., on which it feeds. It flies well ; its note is a loud whistle. Jerdon, and later, Dewar found it fairly abundant on the sea-coast near Madras ; and Cardew records it from the Malabar Coast, so that it seems more than likely that the Turnstone may be found along the whole coast-line of the Peninsula.

Breeding season. Stonham in his "*Birds of the British Islands*" says :—"In Europe it ranges to the Arctic, but is not known to breed South of the Baltic."

Genus **SQUATAROLA** Cuvier 1816.

"In the genus *Squatarola* there is present a small hind-toe and claw ; the bill is straight, stout and about as long as the head ; the nostrils linear and placed fairly close to the base of the bill in a rather deep, broad groove ; the wing is long and pointed and the first primary longest, the tail is short and rounded ; the tarsus is covered with hexagonal scales ; outer and middle toes connected by a small web at the base. The genus is almost cosmopolitan."

"This genus, containing only the Grey Plover, precisely agrees with *Charadrius* in general colouration and structure, and only differs in having a minute hind-toe. It undergoes precisely similar changes of plumage in summer and winter "—(*Fauna of British India*).

(437) Squatarola squatarola hypomelana (Pall.,).

THE EASTERN GREY PLOVER.

(*Fauna of British India*, 2nd edition, No. 2103.)
(*Fauna of British India*, 1st edition, No. 1441.)

Description—Male. "Length 12″; wing 8″; tail 2·9″; tarsus 1·8″; bill from gape 1·4″"—(*Fauna of British India*).

"Bill black; irides dusky brown; feet blackish grey"—(*Jerdon*).

In winter "the upper plumage of adults is grey brown, the feathers edged paler. Forehead, lores and sides of head and neck white streaked with brown. Wing-coverts fringed and indented with white; primary coverts, primaries and secondaries blackish brown; terminal half of shafts of primaries white except near the tip and the adjoining portion of the outer web white in all quills after the first four; part of inner web in all quills white towards base; upper tail-coverts white with a few dark bars; tail white barred with dark brown; outer pair of rectrices generally unbarred; lower parts white; foreneck and breast streaked and spotted with dark brown. Axillaries black."

In Summer "the lower parts from the chin to the middle of the abdomen are black; upper parts black, barred and spotted with white; lower abdomen and under tail-coverts white"—(*Fauna of British India*).

Female. Similar to male.

Young birds "are spotted with pale golden buff above"—(*Fauna of British India*).

Locality, habits, etc. Jerdon obtained it from the Madras market and Dewar includes it in his *List of Birds found in and about Madras*. It principally resorts to the coast, but has also been obtained inland.

Dresser says its call-note is a sharp whistle readily distinguishable from that of the Golden Plover.

In habit it much resembles the latter bird.

Breeding season. Breeds in the North of Eastern Europe, Asia, and America in June and July.

Genus **LEUCOPOLIUS** Bonaparte 1850.

Differs from *Charadrius* "according to Lowe, in having the lacrymals free and presenting outward projecting processes like the Gulls; there is no foramen for the nasal duct, its place being taken by a groove . . . The bill is small and practically straight; the tarsus fairly long and reticulated throughout: there is no hind-toe"—(*Fauna of British India*).

(438) Leucopolius alexandrinus alexandrinus (Linn.,).

THE KENTISH-PLOVER.

(*Fauna of British India*, 2nd edition, No. 2106.)
(*Fauna of British India*, 1st edition, No. 1446 (part).)

Description—Male. Length 7″; wing 4·4″; tail 2″; tarsus 1·1″; bill from gape ·8″.

Bill black ; irides brown ; legs and feet dusky grey ; tibia darker.

In breeding plumage the crown and nape brownish red; sinciput, a streak through the eyes, ear-coverts and pectoral gorget black ; upper plumage ashy-brown ; quills brown, white shafted ; central tail-feathers like the back, the two outermost pairs white, the next partly white ; a collar and the lower plumage white.

In winter the forehead continued in a broad streak as far as the eyes, white ; whole of the upper plumage, including head and neck, the lores, cheeks and ear, coverts earthy-brown ; quills brown with white shafts ; the secondaries with a central patch of white on outer webs ; the tertiaries narrowly tipped white ; wing coverts like the back, but broadly tipped with white forming a wing band ; tail dark brown, except the outer rectrices which are white ; whole lower plumage including collar, white ; sides of upper breast like the back.

Female. Similar to male.

Young in down "are like those of the Ringed Plover (*Æ. hiaticula*) but have a rufous tint"—(*Stonham*).

Young in down of Ringed Plover. "Head and upper parts pale buff with fine black markings ; at the back of the head a narrow black line in front of the white collar ; under parts and collar round the neck, white"—(*Stonham*).

Locality, habits, etc. Ferguson says it is fairly numerous in January at Neendakarai in Travancore. Cardew reports it from the Malabar coast and from Bezwada. It is found on the banks of rivers and on the sea-coast.

Nest. A mere depression in the sand.

Eggs. 2 or 3 ; drab in colour, spotted and irregularly streaked with yellowish-brown, and with bluish-grey spots ; they vary greatly in size, "my two clutches averaging 1·1″ × ·8″, and 1·28″ × ·88″—(*C.M.I.*).

(439) Leucopolius alexandrinus seebohmi (Hartert and Jackson).

THE INDIAN KENTISH-PLOVER.

(*Fauna of British India*, 2nd edition, No. 2107.)
(*Fauna of British India*, 1st edition, No. 1446 (part.).

Description. "Length about 6·25″ ; wing 4·1″ or less ; tail 1·9″; tarsus 1″ ; bill from gape ·7″."—(*W. E. Wait*).

"Similar to the last subspecies, but with a smaller wing-measurement and a smaller bill ; the legs too are slightly paler"—(*W. E. Wait*).

Locality, habits, etc. So far this has only been found on the coasts of Ceylon but there is some probability of its crossing to South India. It is a resident species in Ceylon.

Genus **HÆMATOPUS** Linn., 1766.

"Bill long, compressed, straight, often truncated at the end ; nostril linear, near the base of the bill in a groove that extends more than half ;

way to the tip. Wings long, pointed, first quill longest; tail moderate; tarsus short, thick reticulated throughout; no hind-toe; anterior toes thick, edged with membrane, slightly webbed at the base, especially between the third and fourth toes; soles broad "—(*Fauna of British India*).

(440) Hæmatopus ostralegus ostralegus (Linn.).

THE OYSTER-CATCHER.

(*Fauna of British India*, 2nd edition, No. 2110.)
(*Fauna of British India*, 1st edition, No. 1450 (part).

Description—Male. "Length 16″; tail 4″; wing 10″; tarsus 2·1″; bill from gape 3·25″ "—(*Fauna of British India*).

"Bill bright reddish orange, dingy and yellowish at the tip; irides red; eyelids orange-red; legs and feet brownish purple "—(*Hume*).

Head and neck all round, upper back, scapulars, and tertiaries black; lower back, rump, upper tail-coverts and lower parts from upper breast white; edge of wing, terminal portions of median coverts, the greater secondary coverts and the inner secondary quills white, forming a wing-band; primary coverts black; primaries the same except part of the inner web and a lanceolate white spot on the shaft and outer web, commencing as a streak on the first primary and increasing inwards; tail white at base, black at end."—(*Hume*).

Female. Similar to male.

Young birds "are browner black and have a broad band of white on the throat."—(*Hume*).

Locality, habits, etc. Ferguson says it is a more or less rare winter visitant to the Travancore coast; Jerdon, however, found it far from rare near Tellicherry, a few miles further up the coast. It is a sea-coast bird and is found in small parties feeding on molluscs, worms, etc. It has a loud whistle and is exceedingly shy.

Breeding season. It breeds in England.

Sub-family CHARADRIINÆ.

Dr. Lowe thus diagnoses this sub-family :—

"Pluvialine forms in which the lacrymals are not free but are merged on the supra-orbital rim, in which there is a conspicuous foramina for the nasal duct immediately caudad of the nasals, in which the supra-orbital grooves are deeply sculptured, often perforated with foramina, and extend well back to the anterior margins of the parietals, and in which the supra-orbital rim is conspicuously raised, everted, or conicid "—(*Fauna of British India*).

Genus **CHARADRIUS** Linnæus 1758.

"In the genus *Charadrius* as now restricted we have the Ringed Plovers only, distinguished from the other genera by having a white ring round the neck as well as by certain structural characters. In appearance they are very like the genus *Lencopolius*, containing the Kentish Plovers, but these latter have the lacrymals free; the plumage of the young also differs somewhat. *Charadrius* has three toes and the

tarsi reticulated ; the wing is long with the first primary longest "—(*Fauna of British India*).

(441) Charadrius dubius coronicus Gmel.

THE EUROPEAN LITTLE RINGED-PLOVER.

(*Fauna of British India*, 2nd edition, No. 2114.)
(*Fauna of British India*, 1st edition, No. 1447 (part).)

Description. "Length 7" ; wing 4·5" ; tail 2·5" ; tarsus ·1" ; bill from gape 6"."—(*W. E. Wait*).

This is a larger bird than *C. d. jerdoni* and has less yellow on the bill and round the eye.

Locality, habits, etc. A cold weather visitor with the same habits as other Sand-Plovers.

Breeding season. Breeds in Europe in May.

(442) Charadrius dubius jerdoni (Legge).

JERDON'S LITTLE RINGED-PLOVER.

(*Fauna of British India*, 2nd edition, No. 2115.)
(*Fauna of British India*, 1st edition, No. 1447 (part).)

Description—Male. Length 6·5" ; wing 4" ; tail 2" ; tarsus 8"—(*Jerdon*).

Bill black, with yellow at the gape and at the base of the lower mandible, but without any yellow colouring in summer ; eyelids yellow or orange-yellow ; irides dark brown ; legs fleshy grey, becoming more fleshy-yellow and with the claws and the tips of the toes black in summer.

A white frontal stripe succeeded by a black one which in turn is separated by a narrow white band from the olive-brown of the head ; a white supercilium ; lores and a stripe passing under the eyes and through the ear-coverts black ; upper plumage brown ; wings dark brown ; the first primaries white-shafted, and the secondaries narrowly margined and tipped with white ; tail like the back, the central feathers tipped blackish-brown, the rest tipped white which latter increases towards the outer feathers which are entirely white except for a brownish-black spot in the centre ; chin, throat, lower part of face and a collar white, the latter being succeeded by a black collar broader in front than at the back ; the rest of the lower plumage pure white.

Female. Similar to male.

Locality, habits, etc. A very common winter visitor to the plains both inland and on the coast, where it remains until quite late in the season—till the end of April if not later—in fact it is quite possible that it stays to breed within our limits, especially as Barnes states that it breeds in the Bombay Presidency. It associates in small flocks and may be found on almost any open piece of maidan where there is water near, in sandy river-beds and on stretches of sea-beach.

Breeding season. March to May.

Nest. A depression in the sand near the water.

Eggs. 2 to 4 in number, broad ovals much pointed at one end ; they vary in colour from yellow-stone to light greenish-grey with underlying pale inky purple markings, and with specks, spots and lines of a deep blackish-brown colour, the markings being denser in some than in others ; average measurement 1·14″ × ·84″.

Genus **CIRREPEDESMUS** Bonaparte 1856.

"In this genus there is no white ring round the neck and the bill is decidedly shorter than in *Charadrius* . . . the dertrum is much swollen and occupies about half the culmen ; the legs are comparatively short, the feet medium and the tarsus reticulated throughout"—(*Fauna of British India*).

(443) Cirrepedesmus mongolus atrifrons (Wagler).

THE PAMIR LESSER SAND-PLOVER.

(*Fauna of British India*, 2nd edition, No. 2117.)
(*Fauna of British India*, 1st edition, No. 1443 (part).)

Description. "Wing 124 to 127 mm.; tail 44 to 53 mm.; tarsus 33 to 34 mm.; culmen 16 to 18 mm."

"Iris brown ; bill black ; legs and feet fleshy-grey, yellowish-olive to bluish or olive slate-colour."

"Forehead, lores, cheeks and ear-coverts black, more or less marked with white ; anterior crown, supercilia and hind-neck pale fulvous-chestnut ; posterior crown and upper plumage cinereous-brown, the shafts faintly darker ; sides of the rump and upper tail-coverts white and tail brown with white tip, the outermost feathers nearly all white ; primaries blackish, the whole of the shaft of the first primary and the terminal halves of the others white ; a white patch on the sixth and succeeding primaries on both webs ; outer secondaries tipped white ; chin, throat and foreneck white ; upper breast and sides of lower pale chestnut rufous ; remainder of lower plumage white."

In non-breeding plumage "the forehead, lores and ear-coverts are fulvous, the ear-coverts mixed with brown ; the collar on the hind-neck is obsolete or wanting and the rufous on the breast and flanks is much less in extent."

Young birds "have pale fringes to the feathers of the upper parts."—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. A winter visitor seldom found farther south than Bombay. Ferguson writes from Travancore : "A winter visitor to the coasts but sometimes found inland. Curiously enough one specimen was obtained on the High Range at 6,000 feet elevation." Jerdon obtained it in the Carnatic, at Madras, on the Malabar coast and elsewhere far inland. In habits it resembles *C. leschenaulti*.

Breeding season. Breed in "Ladak and Tibet . . . during June and July"—(*Fauna of British India*).

(444) Cirrepedesmus leschenaulti (Lesson).

THE LARGE SAND-PLOVER.

(*Fauna of British India*, 2nd edition, No. 2118.)
(*Fauna of British India*, 1st edition, No. 1442.)

Description. "Wing 128 to 140 mm.; tail 50 to 57 mm.; tarsus about 35 to 38 mm.; culmen 23 to 25 mm."

"A much bigger bird than the Lesser Sand-Plover and also differs in having a white forehead, less rufous on the breast and flanks and a more rufous sandy tinge to the upper parts"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. Ferguson says it is a rare visitor to the coast of Travancore where a single specimen was obtained at Neendakarai, near Quilon. Dewar includes it in his *List of Birds found in and around Madras*, where Jerdon also procured it, and elsewhere but not inland. The latter writer says "it is found chiefly near the sea-coast and at the mouths of large rivers, in considerable flocks . . . retiring North in April and May to breed." Dresser says: "It feeds on worms, spawn, small insects, etc. and its note is a clear flute-like whistle.

Breeding season. With regard to its breeding habits I find nothing on record. An egg in the British Museum said to belong to this species is figured (*Cat. Birds Eggs, British Museum ii, pl. i, fig. 9*) but I have great doubts as to its authenticity." Blanford says: "It breeds in Japan, Formosa and Hainan."

Genus **PLUVIALIS** Brisson 1760.

"Bill slender and rather short, the dertrum slightly swollen; nostril linear, in a groove that extends about two-thirds the length of the bill; wings pointed, first quill longest; secondaries short; tertiaries lengthened and pointed. Tail short, rounded. Tarsi reticulated throughout with hexagonal scales; no hind-toe; outer and middle toes connected by a short web at the base. A distinct breeding plumage, the whole under-surface becoming black. Sexes alike"—(*Fauna of British India*).

(445) Pluvialis dominicus fulvus (Gmel.,)

THE EASTERN GOLDEN PLOVER.

(*Fauna of British India*, 2nd edition, No. 2120.)
(*Fauna of British India*, 1st edition, No. 1439.)

Description—Male. Length 10″; wing 6·25″; tail 2·37″; tarsus 1·75″.

Bill black; irides dark brown; legs dark leaden or slaty.

As the colouration of these birds varies considerably according to the season of the year in so far as the amount of black in the plumage is concerned, it seems advisable to confine the description given herein to the birds as generally met with fairly late in the season when the largest bags of them are usually made, viz.—

Upper plumage brown almost black on the crown and upper back; all the feathers streaked or spotted with golden yellow and pale fulvous;

lores and supercilium yellowish-white ; ear-coverts and sides of neck ashy-brown streaked with yellow ; primary quills white for their terminal half ; primary coverts brown, edged and spotted with white ; axillæ and lining of wings pale greyish-brown or stone-colour ; breast, abdomen and flanks white blotched with large blackish-brown and ashy spots ; in full breeding plumage from throat to vent is black ; under tail-coverts white.

In winter the upper plumage becomes duller and the lower plumage mottled with brown, the breast mottled with golden yellow.

Female. Similar to male.

Locality, habits, etc. A common cold weather visitor to the plains where it frequents much the same localities as do snipe, namely paddy fields from which the crops have been cut and grass-covered, swampy land. They also affect ploughed fields. Dewar omits it from his *List of Birds found in and about Madras*, but he surely must have overlooked it. It is gregarious and though not particularly shy, at the beginning of the season at any rate, it is difficult to account for more than two or three couple out of a flock, (and then only by " browning " them), as the birds generally fly clean away at the first shot after circling round once or twice, or, if they do happen to alight again within sight, they are not so easily approached a second time, nor is it indeed often worth while attempting to do so, because, although excellent eating, one is pretty certain to disturb several snipe during the approach, and one of these latter is worth a good many Golden Plover from an epicure's point of view.

Major E. G. Phythian Adams writes : " I have several times come across flocks on the backwaiters at Cannanore when after snipe."

Breeding season. " This Golden Plover breeds in Siberia and the Boreal regions of America "—(*Fauna of British India*).

Eggs. " The hen lays four largish stone-coloured eggs, much blotched with blackish "—(*Fauna of British India*). " In size they measure about 1·95″ × 1·32″ "—(*Dresser*).

Jerdon writes :—" Many breed in this country even towards the South as at Nellore ", but Blanford says : " this is very doubtful."

Sub-family VANELLINÆ.

" This sub-family contains a very large number of genera, mostly of the larger Plovers and Lapwings . . . Lowis diagnosis is as follows :— " Pluvialine forms in which the lacrymals are not free but are merged in the supra-orbital ring, in which there is a conspicuous foramen for the nasal duct immediately caudad of the nasals, in which the supra-orbital grooves are deeply sculptured, often perforated with foramina, and extend well back to the anterior margin of the parietals, and in which the supra-orbital rim is conspicuously raised, everted or corniced ".

Genus **CHETTUSIA** Bonaparte 1838.

" The bill is of the usual Plover type ; head not crested ; tarsus fairly long "—(*Fauna of British India*).

(446) Chettusia gregaria (Pall.)

THE SOCIABLE LAPWING.

(*Fauna of British India*, 2nd edition, No. 2122.)
(*Fauna of British India*, 1st edition, No. 1437 (part).)

Description—Male. Length 13″ ; wing 8·25″ ; tail 3·5″ ; tarsus 2·25″ ; bill from gape 1·25″.

Bill and legs black ; irides dark brown.

Forehead and broad stripe over the eyes to the nape white ; head and nape black ; upper plumage earthy-brown with an olivaceous tinge ; primaries black, secondaries white ; tail white with a broad subterminal black band which however is absent from the outermost feathers ; a narrow black line from the lores through the eyes ; sides of head pale rufous passing to brownish-grey on neck and breast ; middle of abdomen black bordered posteriorly with chestnut ; remainder of lower plumage white.

In winter the head and nape become brown the upper breast pale earthy-brown mottled with deeper brown, and the black and chestnut colouring on the abdomen is wanting.

Female. Similar to male.

Locality, habits, etc. Has been obtained as far South as Ratnagiri in the Bombay Presidency on the West, so is likely to be found as far South as Cocanada on the East in our Presidency, both places being on about the degree of latitude. It associates in flocks on open plains, sometimes near marshes and rivers.

Dresser writes : "Its food consists of insects of various kinds especially coleoptera and grasshoppers."

(447) Chettusia leucura (Licht.)

THE WHITE-TAILED LAPWING.

(*Fauna of British India*, 2nd edition, No. 2123.)
(*Fauna of British India*, 1st edition, No. 1438.)

Description—Male. Length 11″ ; wing 7″ ; tail 3″ ; tarsus 3″ ; bill from gape 1·4″—(*Fauna of British India*). "Iris brown or blood-red ; bill black ; legs pale yellow."

"Upper plumage light brown, suffused with a purple-pink, except on the head and hindneck ; forehead and indistinct supercilia pale greyish-white ; upper tail-coverts and tail pure white ; median and greater wing-coverts with broad black bars and white tips forming four wing bars ; primaries black ; outer secondaries white, with broad black bars gradually decreasing until the central feathers are white and thence grading into the innermost, which are like the back ; chin, throat and foreneck ashy-grey ; breast purer grey ; abdomen, vent and under tail-coverts ashy-white or rosy-buff ; axillaries white."

Young. "Birds have the upper parts very dark brown, the feathers with broad fulvous edges ; the under parts like the adult but pale and looking very washed out"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. A winter visitor according to Stuart Baker straggling as far South as Mysore. It may be found on marshes and has a flapping flight.

Breeding season. Breeds in Mesopotamia.

Genus **HOPLOPTERUS** Bonaparte 1831.

"Head crested ; no lappet ; wing armed with a long, curved, black spur on the bend ; second quill longest. Tarsus long and slender, reticulated throughout. No hind-toe"—(*Fauna of British India*).

(448) Hoplopterus ventralis (Wagl.,)

THE INDIAN SPUR-WING PLOVER.

(*Fauna of British India*, 2nd edition, No. 2124.)
(*Fauna of British India*, 1st edition, No. 1435.)

Description—Male. Length 11·5″ ; wing 7·5″ ; tail 3·7″ ; tarsus 2·6″ ; bill from gape 1·2″.

Bill black ; irides deep brown ; legs and feet blackish.

Head and crest, lores, chin, throat and a stripe down the centre of the neck black ; cheeks white, passing into pale ashy on the ear-coverts, sides of neck, back and breast where it forms a broad pectoral band separated from the black of the neck by a large white patch ; back, scapulars and wing-coverts brownish-ashy ; upper tail-coverts white ; tail white with a broad black tip, the outer feathers narrowly edged with white ; quills black with their bases white, which colour increases until the innermost secondary is almost all white ; primary and secondary coverts white ; shoulders speckled with black ; rest of lower plumage white with a large patch or interrupted bar of black on the abdomen.

Female. Similar to male.

Locality, habits, etc. "Found as far South as the Gōdāvari"—(*Fauna of British India*).

"I have never seen it, nor do Messrs. Cardew and Dewar record it"—(*H.R.B.*).

"I have seen this species near a tank a long way from any river, but as a rule they keep to the banks of rivers in pairs"—(*C.M.I.*).

Breeding season. Breeds March to May.

Nest. None ; Simply a depression in the sand.

Eggs. 4 ; stone, greenish-stone, or buff in colour ; some thickly, others sparingly spotted or blotched with blackish-brown or brown and with underlying spots or blotches of pale inky purple. Average measurement 1·6″ × 1·2″.

"I have a clutch of 3 eggs of a pure pale stone colour ; the only markings on one of them are a *few* fine streaks and a couple of small blotches at the thick end ; one of the others has only some underlying blotches of dull lavender and a very few streaks and spots of blackish-brown at the thick end"—(*C.M.I.*).

Genus **LOBIVANELLUS** Strickland 1841.

"The bill is of moderate length, the terminal portion of the upper mandible slightly swollen, the culmen flattened at the base; nostrils linear, in a groove extending beyond the middle of the bill. There is a fleshy wattle or latchet in front of the eye. The wing is long and with a tubercle at the bend, developed into a short horny spur at the breeding season. Tail even; tarsus long, reticulated throughout; a small hind-toe"—(*Fauna of British India*).

(449) Lobivanellus indicus indicus (Bodd.,).

THE INDIAN RED-WATTLED LAPWING.

(*Fauna of British India*, 2nd edition, No. 2125.)
(*Fauna of British India*, 1st edition, No. 1431.)

Description—Male. Length 12·5 to 13·5″; wing 8·75″; tail 4·75″; tarsus 3″.

Bill red tipped black; irides red or red-brown; eyelids and wattles lake-red; legs yellow.

Head, hind-neck, face, chin, throat and breast glossy black; ear-coverts continued in a stripe down the side of the neck, white; upper plumage brownish-green tinged with purple more especially on the wing-coverts; wings black with a broad white band, formed by the greater coverts and a portion of the secondaries; upper tail-coverts pale fulvous-white; tail white with a broad black sub-terminal band, the central feathers tipped greenish-brown; beneath from the breast white with a fulvous tinge, deepest on the under tail-coverts.

Female. Similar to male.

Locality, habits, etc. This bird is a common permanent resident on the plains, where it appears to be more frequently met with on the Eastern than on the Western side of the Presidency; it also ascends the hills but not in any great number. It is not so gregarious in habits as most of the other Lapwings, but is found in pairs or small parties on cultivated lands, swamps and in the beds of nullahs, where it finds its food in the shape of worms, grubs, etc. Though it can hardly be called shy, it is nevertheless a very wary bird and seems to be gifted with a marvellous faculty for accurately gauging the range of a shot gun; for what sportsman, when quietly walking up some marked-down game, has not been exasperated at the persistent way in which these birds wheel and circle overhead and round him, always just out of range, uttering their shrill cry of *Did-ye-do-it, Did-ye-do-it*, thereby giving warning to all and sundry of his approach. They are quite worth while shooting for the table if one can get near enough to them.

Major E. G. Phythian Adams writes: "a few pairs are on the Nilgiri plateau. I have taken several nests here."

Breeding season. March to August.

Nest. None, the eggs being laid in a depression of the ground.

Eggs. 4; typically peg-top shaped; either stone, buff or olive-green in colour, thickly spotted, blotched or streaked with dark brown and with some underlying pale purplish spots. Average measurement 1·61″ × 1·18″.

Genus **LOBIPLUVIA** Bonaparte 1856.

"Bill more slender than in *Lobivanellus*, whilst the tarsus, which is long and slender, instead of being reticulated throughout, has transverse shields in front. There is no hind toe "—(*Fauna of British India*).

(450) Lobipluvia malabarica (Bodd..).

THE YELLOW-WATTLED LAPWING.

(*Fauna of British India*, 2nd edition, No. 2128.)
(*Fauna of British India*, 1st edition, No. 1433.)

Description—Male. Length 11 to 11·75″; wing 7·75 to 8·25″; tail 3·25 to 3·62″; tarsus about 2·5″; bill from gape 1″.

Bill black, yellow at the base; irides pale greyish-yellow or dull yellow; wattles chrome-yellow; legs yellow tinged green at the joints.

Head and nape black or blackish-brown; a white stripe from behind the eyes round the nape; upper plumage pale olive-brown; upper tail-coverts white; tail white at the base and tip with a central broad black band bordered above and below by a narrow grey-brown one; primaries black; secondaries white at the base, the rest brown-black, the white increasing in size interiorly and forming with the tips of the greater coverts a longitudinal wing-stripe; chin, throat and breast pale ashy-brown, remainder of lower plumage white.

Female. Similar to male.

Locality, habits, etc. This Lapwing is met with in much the same localities as the previous one but does not seem to be common; it also shows perhaps a greater partiality than the Red-wattled Lapwing for dry localities; it is also much quieter both when on the ground and on the wing, and does not aggravate sportsmen with its noisy screams as does the preceding species.

Breeding season. March to about August.

Nest. As in the case of *L. indicus*, no nest is made, the eggs being laid in a depression of the ground.

Eggs. "The ground-colour varies from buffy to olive-green and they are thickly blotched, spotted and streaked with pale olive-brown and dingy inky purple; they average 1·45″ in length × 1·07″ in width "—(*Barnes*).

Mr. Stuart Baker has a most interesting article in the Ibis *1918 pp. 73 and 74* on erythrism in eggs and mentions a most interesting instance in this bird's eggs. This Lapwing lays two totally different coloured eggs on the Coast of Travancore, one the usual olive-green and blotched egg and the other is a beautiful warm salmon-buff colour blotched with brownish-red, a typical erythristic egg. According ot Mr. Stewart who found a large number of this bird's eggs a portion of their breeding ground consisits of a "dry red laterite." A large proportion of the eggs laid in this area are red eggs and Mr. Stuart Baker and Mr. Stewart came to the conclusion that these red eggs are laid by resident birds, "and such eggs assimilating with the ground better than the ordinarily coloured eggs had escaped destruction by vermin in a greater degree than the latter," and this appears due to

evolution. They also presume that the ordinary-coloured eggs found there are laid by locally migratory birds, and not being resident their eggs have not taken on the colour of the red soil through evolution. It is, however, interesting to note "that the Red-wattled Lapwing, (*Sarcogrammus indicus*), which breeds freely on the same ground, has made no advance in the evolution of a red egg. Why should this be?"

"I have clutches of both varieties, collected by Mr. Stewart and due o the generosity of Mr. Stuart Baker"—(*C.M.I.*).

Genus **HIMANTOPUS** Brisson 1760.

"Bill long, straight, hard, slender, pointed; nostrils linear, near the base of the bill, each situated in a groove that extends about half the length of the mandible. Wings long and pointed, 1st quill longest; tail short, even; legs very long; tibia bare for a long distance, three-quarters the length of the long tarsi which are reticulated throughout; no hind-toe, outer joined to middle toe by a broad web, a narrower web between the middle and inner toe"—(*Fauna of British India*).

(451) Himantopus himantopus himantopus (Linn.).

THE BLACK-WINGED STILT.

(*Fauna of British India*, 2nd edition, No. 2130.)
(*Fauna of British India*, 1st edition, No. 1451.)

Description—Male. Length 15″; wing 8·5″; tail 3″; tarsus 5″; bill from gape 3·12″.

Bill black (Barnes says, "reddish at base"); irides blood-red; legs lake-red.

Crown and nape ashy; neck and mantle pale ashy; upper back and scapulars brownish-black; wings black, the secondaries tipped and edged with white; wing-coverts black, glossed green; secondary coverts tipped and edged on the inner webs with white; forehead, cheeks and all the lower plumage, rump and upper tail-coverts white; tail pale grey.

Female. Similar to male.

Locality, habits, etc. Though this bird is a permanent resident in many parts of India, it is seemingly a rare visitor to our Presidency, the only record we can find of it being Dewar's "*List of Birds of Madras.*"

"It occurs in small parties or sometimes in large numbers on the edges of tanks, jheels, etc., and has rather a graceful gait. It has a whistling note"—(*C.M.I.*).

Breeding season. In many parts of India and Ceylon from April to August.

Genus **RICURVIROSTRA** Linnaeus 1758.

"Bill very long, flexible, curved upwards towards the end, depressed; both mandibles flattened; nostrils linear, long, each in an ill-marked groove not half the length of bill; wings long, pointed, 1st quill slightly the longest in general; tail short; tarsus and bare tibia

long; tarsus reticulated; hind-toe very small but furnished with a claw; anterior toes deeply webbed, but webs notched in the middle "—(*Fauna of British India*).

(450) Recurvirostra avocetta avocetta (Linn.,).

THE AVOCET.

(*Fauna of British India*, 2nd edition, No. 2131.)
(*Fauna of British India*, 1st edition, No. 1452.)

Description—Male. Length 19″; wing 9″; tail 3″; tarsus 3·25″; bill from gape 3·5″.

Bill black; irides reddish-brown; legs pale-grey or blue-grey.

Lores, forehead, crown, nape and greater portion of hindneck, a narrow line under the eyes, the scapulars, lesser wing-coverts and primaries black; remainder of plumage white, except the tail which is tipped greyish.

Female. Similar to male.

Young in down. "Greyish white with pale brown markings on the head and back, and a black line on the sides and flanks and one through the eye. When first born the bill is straight, but in a few days it is distinctly up-curved "—(*Stonham*).

Locality, habits, etc. Blanford says "rare in the South of India". Mr. A. M. Primrose saw it on the Yellwall tank in Mysore. It is generally found in small flocks by the side of marshes and its food consists of water-insects which it captures by a swaying motion of the bill. "It is an excellent swimmer and I have found it rather wary, one of those that seem to know the range of a gun "—(*C.M.I.*).

"Its note is a loud *kluit* uttered several times in succession "—(*Dresser*).

Breeding season. "It breeds in Denmark, Holland, the South of France and in Spain "—(*Stonham*). In May.

Family SCOLOPACIDÆ.

"In this family the diagnostic characters are the scutillated tarsus and basal groove which extends over more than half the length of the upper mandible "—(*Fauna of British India*).

Sub-family TRINGINÆ.

"The different genera in this sub-family agree in having a slender, and often rather lengthened bill, well provided with nerves. Except in *Numenius*, in which the back of the tarsus is reticulated, the tarsus is scutillated or transversely shielded both in front and behind. There is a distinct Summer and Winter plumage and the sexes are nearly always alike, except in the one genus *Philomachus* "—(*Fauna of British India*).

Genus **NUMENIUS** Brisson 1760.

"Bill very long, slender, curved downwards; tip of the upper mandible, obtuse, projecting beyond the lower; nostril in a groove

that extends three-quarters of the length of the bill or more. Wings long, pointed, 1st quill longest ; tertiaries long ; tail short, rounded ; legs of moderate length ; tarsus reticulated except on the lower portion in front, well-developed ; anterior toes webbed at the base, claws dilated "—(*Fauna of British India*).

(453) Numenius arquata arquata (Linn.,).

THE CURLEW.

(*Fauna of British India*, 2nd edition, No. 2133.)
(*Fauna of British India*, 1st edition, No. 1454 (part).)

Description—Male. Length 23" ; wing 11·12" ; tail 4·5" ; tarsus 3·25" ; bill from gape 6".

Bill blackish-brown ; basal half of lower mandible fleshy ; irides brown ; legs bluish-grey.

Winter plumage. Crown, head and neck all round pale brown with dark brown shaft-stripes ; back and scapulars dark brown-edged pale fulvous ; the long scapulars barred brown and white ; wing-coverts brown edged white ; greater coverts barred and tipped white ; bastard-wing brown tipped white ; primaries dark brown with white shafts, potted with white on the inner webs ; secondaries brown, barred and tipped with white on both webs ; tertiaries dark brown, barred greyish-brown and white ; upper tail-coverts white, some of the feathers with brow shaft-stripes ; tail barred brown and white ; chin, lower breast and the rest of the lower parts white, with faint brown or fulvous stripes on breast and flanks ; upper breast greyish-brown with a wash of pale fulvous and with pale reddish-brown shaft-stripes.

" In breeding plumage the whole bird is darker, and the shaft-lines broader both above and below and they extend to the abdomen "—(*Fauna of British India*).

Female. Similar to male but larger.

Young in down. " Greyish buff, mottled with brown on the upper parts ; the bill is straight "—(*Stonham*)

Locality, habits, etc. A cold weather visitor to the plains where it frequents the muddy fore-shores of the coast, as also the muddy, shallow portions of large rivers and backwaters and marshes. Dewar records that around Madras the Curlew is found in considerable numbers in all places where there is shallow salt water. It is an extremely shy and wary bird, keeping to places destitute of cover, and is in consequence difficult of approach and bring to bag.

Breeding season. It breads on moors and marshes during April and May in the temperate countries of Europe and Asia.

(454) Numenius arquata lineatus (Cuv.,).

THE EASTERN CURLEW.

(*Fauna of British India*, 2nd edition, No. 2134.)
(*Fauna of British India*, 1st edition, No. 1454 (part 7).)

Description. " Differs from the preceding bird in being lighter, more fulvous, less brown above ; the lower parts are streaked with much

finer, paler streaks ; the lower back and rump are often unstreacked white and are never barred as in some specimens of *N. a. arquata*, the axillaries are pure white or very lightly streaked in the longest only."

Locality, habits, etc. "It occurs on all the coasts commonly as far South as Ceylon and also inland wherever there are large areas of swamp and lake."

Breeding season. "Breeds near the Yenesei in May"—(*Fauna of British India*).

(455) Numenius phæopus phæopus (Linn.).

THE WHIMBREL.

(*Fauna of British India*, 2nd edition, No. 2135.)
(*Fauna of British India*, 1st edition, No. 1455.)

Description—Male. Length 17″ ; wing 9·2″ ; tail 3·8″ ; tarsus 2·4″ ; bill from gape 2·7″.

Bill blackish-brown, lower mandible pale lake or pale purplish-black at tip ; irides dark brown ; legs bluish-slate.

Crown and nape dark brown with a whitish median line ; supercilium whitish with brown shafts, and line from lores to ear-coverts brown ; upper plumage dark brown, lighter and of a greyish appearance on the neck ; the back tipped and neck margined with whitish, some of the tips on the back having a fulvous tinge ; rump white ; upper tail-coverts white barred with brown ; tail greyish-brown barred with dark brown ; wing-coverts light brown tipped with white ; primaries brownish-black, outermost primary with quill white, rest brownish ; inner webs of quills marked with white ; chin and throat white ; sides of head, neck and breast white streaked with brown ; remainder of lower plumage white.

Female. Similar to male but larger.

Young in down "are like those of the Curlew but can be distinguished by the light streak down the centre of the crown"—(*Stonham*).

Locality, habits, etc. A winter visitor and one of the earliest to arrive. I first noted their arrival at Cannanore on 5th August 1910, and on the 25th I shot a couple on the maidan near the sea ; the birds judging from the manner in which they ran hither and thither, stopping every now and then to pick up something, were evidently feeding on grasshoppers and insects, and allowed me to approach within about 30 yards, but, as a rule, Whimbrels are shy and difficult to get near. They associate in small parties of from two to seven or eight individuals but are occasionally found singly, and frequent marshy ground, sea-shores and mud-flats.

Dresser says its note is a thrilling *tetty, tetty, tetty tet*, quickly repeated. Those I heard, however, uttered a distinct *whew, whew, whew* uttered quickly and at rather long intervals when flying. When in condition the Whimbrel is an excellent bird for the table"—(*H.R.B.*).

Beeding seasonr. It breads in the Faroes, Northern Scandinavia and Iceland—(*Dresser*).

Genus **LIMOSA** Brisson 1760.

"The Godwits have a very long bill, straight or slightly recurved, with the apex obtuse, both mandibles grooved at the side; nostrils linear, over the base of the bill. Wings long and pointed, 1st quill longest; tail of moderate length, even. Tarsus moderate, transversely shielded in parts both before and behind; hind-toe well developed, a web between the outer and middle toes, but scarcely any between the middle and inner; middle claw dilated, curved outward and often pectinate outside. Winter plumage greyish brown; breeding plumage rufous in both sexes"—(*Fauna of British India*).

(456) Limosa limosa limosa (Linn.,)

THE BLACK-TAILED GODWIT.

(*Fauna of British India*, 2nd edition, No. 2137.)
(*Fauna of British India*, 1st edition, No. 1456.)

Description—Male. Length 16 to 18″; wings 7·5 to 9″; tail 3 to 3·5″; tarsus about 3″; bill from gape 5·25″.

Bill has the basal half reddish, the frontal half black; irides brown; legs leaden-black; the inner side of the claw of the middle toe dilated and pectinate.

Summer. Head, neck and breast yellowish-rufous, head streaked and breast barred with black; upper plumage mixed black and yellowish-rufous; chin and throat white tipped with yellowish-rufous; lower plumage from breast downwards white with a few brownish bars; flanks barred rufous; lower plumage from breast downwards white with a few brownish bars; flanks barred rufous and brownish-black.

Winter. Upper plumage earth-brown, paler on the neck, rump dark brown with darker shafts and pale margins, upper tail-coverts white; tail white at base with a broad black central band and narrowly tipped with white; wings dark brown, the basal portion of some of the primaries white; neck and upper breast pale earthy-brown; the remainder of the lower plumage white.

Female. Similar to male.

Young in down. "Upper parts yellowish buff streaked with black; under parts yellowish white; back, and legs lead colour; irides black"—(*Stonham*).

Locality, habits, etc. A rare cold weather visitor frequenting swampy ground, the edges of tanks and such-like places. It associates in flocks and flies well, often at a considerable height with its long neck stretched straight out. It feeds on insects, molluscs and also grain and in captivity, if fed on the latter, grows extremely fat and is most delicious indeed. Most, but not all, of the birds leave us before fully assuming the summer plumage. Dresser likens its note to a clear *tu-ee-too* oft repeated, and when alarmed it utters a clamorous wail, *gruttoo, gruttoo*. They are excellent eating.

Breeding season. It breeds in the Faroes, in Iceland and from Belgium Eastwards to Southern Russia . . . In Asia Eastwards to Kamaschatka"—(*Stonham*).

Genus **LIMODROMUS** Neuweid., 1833.

"Bill like that of a Snipe, long, straight, slender; both mandibles broader towards the end and pitted; the upper mandible grooved above near the end and both mandibles grooved at the side. Nostrils near the base. Wings long and pointed, 1st quill longest, second sub-equal; tail of moderate length; tarsus shorter than bill, lower part transversely shielded in front; hind-toe well developed; anterior toes webbed near base, the web between the outer and middle toes the larger. Summer plumage rufous; winter plumage grey as in Godwits"—(*Fauna of British India*).

(457) Limodromus taczanowskius (Verreaux.)

THE SNIPE-BILLED GODWIT.

(*Fauna of British India*, 2nd edition, No. 2140.)
(*Fauna of British India*, 1st edition, No. 1458.)

Description—Male. "Length 13·25"; wing 7"; tail 2·5"; tarsus 2"; bill from gape 2·9 to 3·25"—(*Fauna of British India*).

"Bill black, plumbeous at the base; irides dark-brown; legs and feet dark plumbeous"—(*Oates*).

In summer "the upper parts are described as bright rufous with brown streaks and spots and the lower parts uniform rufous."

Winter plumage. "Upper plumage brown with whitish edges to feathers; broad whitish supercilia; forehead and lores dark; quills dark brown mottled with white on inner margin; inner primaries and all secondaries more or less bordered with white; rump and upper tail-coverts white irregular arrow-shaped bars of brown; tail-feathers more regularly barred brown and white; lower parts white; sides of head, chin, throat, foreneck and upper breast streaked with brown, sometimes forming wavy bands; axillaries, flanks and under tail-coverts irregularly spotted and barred with brown"—(*Oates*).

Female. Similar to male.

Locality, habits, etc. Jerdon procured one in the Madras market. Said to frequent marshes, but nothing seems known about its habits which probably correspond to those of *M. griseus*, the Red-breasted Snipe, the latter bird occurring in flocks on marshy ground and feeding on insects, etc. Jerdon's bird was probably obtained on the sea-coast.

According to Wilson they resemble Godwits in flight and voice—(*Fauna of British India*).

Breeding season. Blanford says it breeds somewhere in Siberia; its breeding haunts being however unknown.

Genus **XENUS** Kaup., 1829.

"The bill is distinctly curved upwards, rather wide at the base; the upper mandible slightly bent downwards at the tip; lower mandible but slightly grooved. Wings long, 1st quill longest; tail moderate nearly even; tarsus scutellated, short, but longer than middle toe and claw; anterior toes slightly webbed; middle claw dilated, not pectinated"—(*Fauna of British India*).

(458) Xenus cinereus cinereus (Gülden.,)

THE WESTERN TEREK SANDPIPER.

(*Fauna of British India*, 2nd edition, No. 2141.)
(*Fauna of British India*, 1st edition, No. 1451 (part).)

Description—Male. "Length 9·5″; wing 5″; tail 2·2″; tarsus 1·1″; bill from gape about 2″"—(*Fauna of British India*).

"Bill blackish-brown, orange-yellow at base; irides brown; legs and feet orange-yellow"—(*Legge*).

"Forehead and supercilia not extending behind the eyes, white; lores brown; whole upper plumage including rump and upper tail-coverts greyish-brown, with dark shaft-stripes; lesser coverts and all outer coverts with the primaries, blackish; secondaries brown broadly tipped and bordered with white; tail-feathers coloured like the back, the outer rectrices more or less mottled with white; lower parts white; cheeks, sides of neck, foreneck, and sides of breast more or less sullied and streaked with brown; axillaries white."

In summer "broader black shaft-stripes are developed, especially on the scapulars; the sides of head and neck and the breast are distinctly striated with brown"—(*Legge*).

Female. Similar to male.

Locality, habits, etc. Jerdon says: "Not very abundant in the South of India." In habits it resembles the Sandpiper, frequenting marshes, etc., but in India is generally found on the sea-coast. It feeds on insects, worms, etc., and is said to swim well. Dresser says: "Its call note is a clear, loud, musical whistle."

Breeding season. "Breeds N.-E. Europe, North Asia"—(*Hand List*).

Genus **TRINGA** Linn., 1766.

"Bill long, slender, straight; both mandibles distinctly grooved at each side; tip of upper mandible hard and bent down; wings long, pointed, 1st quill longest; tertiaries long; tail moderate, slightly rounded; legs and feet variable; the tarsus always scutellated in front and behind, generally of nearly the same length as the bill, but occasionally slightly longer, and more frequently a little shorter. Hind-toe present; anterior toes united by web which is in some species rudimentary between the middle and inner toes"—(*Fauna of British India*).

(459) Tringa ochrophus Linn.

THE GREEN SANDPIPER.

(*Fauna of British India*, 2nd edition, No. 2143.)
(*Fauna of British India*, 1st edition, No. 1462.)

Description—Male. "Length 9·5″; wing 5·5″; tail 2·5; tarsus 1·5″.

Bill dusky, black at tip; irides dark brown; legs dusky green.

Upper plumage ashy-brown tinged green, the feathers of the back, scapulars and wing-coverts with minute white spots; lower back with very narrow white bars; upper tail-coverts white; tail white at base, the rest barred white and blackish-brown; outermost pair of feathers wholly white or with a minute dusky spot; wings blackish-

brown ; a white supercilium and a pale brown streak from nostrils to eyes ; chin, throat and lower breast and abdomen white ; neck, upper breast and sides streaked with ashy-brown, denser on the sides ; flanks and wing lining richly barred white and dusky brown.

In summer "the feathers of the crown and hind neck have white edges ; back, scapulars and tertiaries are spotted with buff or white and the brown streaks on the sides of the face, foreneck and upper breast are very broad and distinct"—(*Fauna of British India*).

Female. Similar to male.

Young in down. "Upper parts greyish-buff, very rufous on the back and the rump ; a black streak on each side runs from the base of the bill to the eye beyond which it widens ; a streak of black on each side of the crown and one through its centre unite in the broad nuchal patch ; a broad black streak down the middle of the back ; two similar ones on each side ending in black tail-tuft ; under parts greyish-white"—(*Yarrel*).

Locality, habits, etc. A somewhat uncommon winter visitor, found on the sea-coast, muddy river banks and edges of tanks, etc., of solitary habits, it is usually met with singly or in pairs.

Breeding season. "It breeds in the Northern and North Central districts of Continental Europe"—(*Stonham*). The most interesting feature in this bird is its breeding habits which are quite unlike those of any other member of the family, placing their eggs in deserted nests of Thrushes, Fieldfares and Redwings.

(460) Tringa stagnatilis (Bechst.,).

THE MARSH SANDPIPER.

(*Fauna of British India*, 2nd edition, No. 2144.)
(*Fauna of British India*, 1st edition, No. 1463.)

Description—Male. Length 11″ ; wing 5·6″ ; tail 2·3″ ; tarsus 2″ ; bill from gape 1·7″.

Bill dark brown ; irides brown ; legs and feet dingy yellow-green.

Forehead, lores and cheeks creamy or yellowish-white ; plumage above pale ashy-brown, streaked darker on head and neck ; all the feathers narrowly tipped and edged with white giving the plumage a mottled appearance ; rump pure white ; upper tail-coverts barred brown and white ; tail white with ashy-brown sub-margins to both webs of all feathers, forming an elongated ring ; primaries dark brown, the first white-shafted, the inner webs pale and freckled with white ; the long scapulars ashy-brown with dark shaft-stripes and barred darker on basal half of some ; sides of neck and breast spotted and freckled ashy-brown ; plumage below white.

In summer "the feathers of the upper parts have marked dark centres which form conspicuous angulate spots on the back and "herring-bone" markings on the tertiaries ; the general colour of the upper parts is sandy grey ; the foreneck and upper breast are spotted with brown, and the flanks irregularly barred"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. Rather an uncommon cold weather visitant. Jerdon saw it in large flocks on the banks of the Trichur lake in South Malabar.

"The breeding area of this species extends from South eastern France, through South Russia and Central Asia to Southern Siberia"—(*Fauna of British India*).

(461) Tringa hypoleucos Linn...

THE COMMON SANDPIPER.

(*Fauna of British India*, 2nd edition, No. 2145.)
(*Fauna of British India*, 1st edition, No. 1460.)

Description—Male. Length 7·5″; wing 4·5″; tarsus 1″.

Bill dusky; irides brown; legs dull green.

Above brown tinged green, the shafts darker; wings and back finely barred with dark brown, all but the two outer feathers of the wing with a large white spot on the inner web, tail like the back, the outer feathers barred and tipped with white, below white, tinged light brown on the breast.

In summer "the upper parts are darker and less olive, with broader dark shaft-stripes and cross-bars, and the foreneck and breast are strongly striated with brown"—(*Fauna of British India*).

Female. Similar to male.

Young in down "ash-brown above, streaked with black on the head neck and back. Under parts pale greyish white"—(*Stonham*).

Locality, habits, etc. A common winter visitor to the plains and hills, arriving early and departing late. It is met with practically everywhere inland as well as along the coast wherever there is any water, even though only the remnants of a water hole or tank, there will the Common Sandpiper certainly be found, generally alone or in pairs. An interesting account of this bird's power of swimming under water is given by Mr. A. L. Butler in his list of the "*Birds of the Andaman and Nicobar Islands.*" (*Bombay Natural History Society Journal, XIII-1, page 148*), which we take the liberty of quoting *in extenso*.— . . . "One that I shot on Car Nicobar fell into a large clear pool in the coral rock and being only slightly wounded dived repeatedly on my approach. In the crystal clear water I could see it most distinctly, swimming hither and thither about two feet below the surface with quick strokes of its wings. It remained under water for 8 or 10 seconds together and dived again immediately on coming to the top. I had no idea they are such capital divers, having two or three times seen them fall into water only slightly shot and never before having seen one dive as this one did."

Breeding season. Breeds in the Himalayas.

(462) Tringa glareola Linn.

THE WOOD SANDPIPER.

(*Fauna of British India*, 2nd edition, No. 2146.)
(*Fauna of British India*, 1st edition, No. 1461.)

Description—Male. Length 9″; wing 5″; tail 2″; tarsus 1·5″; bill from gape 1·3″.

Bill greenish, dusky at tip ; irides dark brown ; legs pale greenish.

In winter the upper plumage, except the nape and upper tail-coverts deep brown ; back spotted with white and greyish ; upper tail-coverts white ; tail narrowly barred black and white, the two outer pairs of feathers all white ; throat and supercilium white ; a dusky bar from the gape to eye ; cheeks and nape whitish with ashy-brown spots ; breast the same but with some streaks as well as spots in abdomen and under tail-coverts white.

In summer the whole upper plumage (except the upper tail-coverts, which are white) streaked and spotted with dark brown, pale brown and whitish ; wings unspotted brown, the first primary with a white shaft ; tail barred brown and white ; a dusky streak from gape to eye, and an indistinct whitish supercilium ; face and sides of neck, and breast greyish streaked and spotted with brown ; chin, throat, abdomen and under tail-coverts white.

Female. Similar to male.

Young in down. "Reddish-buff above, mottled with black ; chin white ; rest of under parts buff-white"—(*Stonham*).

Locality, habits, etc. The Wood or Spotted Sandpiper is a fairly common cold weather visitor to the hills and plains, being found in much the same localities as the preceding species.

Breeding season. Breeds on Continent of Europe and North Asia.

(463) Tringa totanus totanus (Linn.,)

THE REDSHANK.

(*Fauna of British India*, 2nd edition, No. 2147.)
(*Fauna of British India*. 1st edition, No. 1464 (part).)

Description—Male. Length 11″ ; wing 6·25″ ; tail 2·37″ ; bill from gape 2″.

Bill blackish, lower mandible reddish or reddish-orange ; irides brown ; legs orange-red.

"Upper plumage dark brown, the feathers of the crown and neck edged with fulvous, the inner secondaries and scapulars with bars of black and notches of fulvous ; wing-coverts much barred black and rufescent white ; lower back and rump white ; upper tail-coverts white barred with brown ; tail barred pale rufous and brown, the lateral tail-feathers white and brown ; primaries dark brown, the first with a white shaft, inner primaries mottled with white on the inner webs and tips ; outer secondaries pure white, the latter mottled with brown on the inner webs ; chin and throat white ; sides of head, neck, breast and flanks white streaked with brown, varying much in extent ; centre of abdomen and axillaries pure white ; under tail-coverts white streaked with blackish."

Winter. "The black markings and fulvous spots on the upper parts disappear and the general tint is more grey, less brown ; the underparts have the streaks much smaller and restricted to the sides of the neck, lower foreneck and breast ; the forehead is white and the sides of the head and neck much less heavily streaked"—(*Fauna of British India*).

Female. Similar to male.

Young birds. "Have reddish-brown edges to the feathers of the upper parts and fulvous markings on the wing-coverts and tertiaries; there are also brown spots on the foreneck and breast, and bars on the flanks"—(*Fauna of British India*).

Locality, habits, etc. A winter visitor, generally found in small flocks and according to Jerdon often in large flocks on marshes, paddy-fields and the muddy banks of tidal rivers. During flight, as Jerdon remarks, it shows a lot of white on turning.

Breeding season. Breeds in India "in Ladak, Kashmir and Tibet in June and July"—(*Fauna of British India*).

(464) Tringa totanus terrignotæ (Meinertzhagen).

THE CENTRAL ASIAN REDSHANK.

(*Fauna of British India*, 2nd edition, No. 2148.)
(*Fauna of British India*, 1st edition, No. 1464 (part).)

Description. "Much paler than the Western race both in breeding and non-breeding plumage, whilst in the former it is much more marked and suffused with rufous on the mantle. It is also rather less heavily spotted below in some cases."

Locality, habits, etc. "Winter migrating South to India. The two forms are found together in winter over a very wide area"—(*Fauna of British India*).

(465) Tringa erythropus (Pall.,).

THE SPOTTED OR DUSKY REDSHANK.

(*Fauna of British India*, 2nd edition, No. 2149.)
(*Fauna of British India*, 1st edition, No. 1465.)

Description—Male. Length 13″; wing 6·5 to 6·75″; tail 2·5″; tarsus 2″; bill from gape 2·25″.

Bill blackish, base of lower mandible orange; irides brown; legs orange-red.

In summer the plumage altogether becomes more dusky or blackish with the same white frecklings and narrow bars above, and the white below is reduced to narrow edgings; the flanks and under tail-coverts more broadly barred white and dusky and tipped rufous.

Winter plumage. Head, neck, back and scapulars dull ashy tinged olive, back and scapulars with faint and very narrow white frecklings and spots; a dark spot between the upper mandible and each eye with a white spot above; rump white mottled with rufous; upper tail-coverts barred white and rufous; tail ashy-brown barred on the edge of both webs with white; quills dusky brown freckled with white on inner webs; first quill white-shafted; secondaries, tertiaries, greater and primary coverts barred dusky brown and white; lower plumage white tinged with ashy on face, neck and breast.

Female. Similar to male

Young birds "have more white edges and spots on the upper parts, and the lower parts are broadly barred dark brown"—(*Fauna of British India*).

Locality, habits, etc. A cold weather visitor frequenting the same places as the next species. "Many birds assume the breeding plumage before leaving India"—(*C.M.I.*).

Breeding season. "Breeds North of the Arctic circle in Europe and Asia"—(*Fauna of British India*).

Genus **GLOTTIS** Koch 1816.

"The bill is upturned over the terminal half of its length; the grooves and nostrils are as in the genus *Tringa*, the web between the outer and middle toe is well developed; that between the inner and middle toe obsolete; the wing is long with the first primary longest; the other characters are as in *Tringa*"—(*Fauna of British India*).

(465) **Glottis nebularia** (Gunner..).

THE GREENSHANK.

(*Fauna of British India*, 2nd edition, No. 2150.)
(*Fauna of British India*, 1st edition, No. 1466.)

Description—Male. Length 14″; wing 7″; tail 3·25″; bill from gape 2·25″.

Bill dusky greenish; irides brown; legs yellowish-green.

In summer "the head throughout, sometimes even including the chin, is streaked with brown; the feathers of the back on the scapulars have broad black centres; the foreneck and sides of the breast are spotted with dark brown and there are a few spots on the middle of the breast"—(*Fauna of British India*).

Winter plumage. Head, cheeks, back and sides of neck ashy-white with brown stripes; upper back, scapulars and wing-coverts brown tinged olive, the feathers dark-centred and tipped and edged with dark brown and white spots; lower back and upper tail-coverts white; quills black, the first white-shafted, the inner ones narrowly margined with white; tail white with dusky interrupted bars and frecklings; whole of lower plumage white tinged ashy on neck.

Young in down. "Upper parts buff marked with longitudinal black streaks. Under parts greyish-white"—(*Stonham*).

Female. Similar to male.

Locality, habits, etc. A winter visitor frequenting the same places as the Redshanks, but far seldom met with.

"It is a shy bird and specially fond of the sandy banks of rivers, where, when disturbed, it flies up with a loud syllabic cry and keeps on crying, uttering a different note while on flight. They are excellent table birds"—(*C.M.I.*).

Breeding season. "Breeds Northern Europe and Northern Asia"—(*Fauna of British India*).

Genus **PHILOMACHUS** Gray 1841.

"Bill moderately long, flexible, almost straight; both mandibles grooved, the upper almost to the tip; nostrils linear, close to the base; wing long, pointed, first quill longest; tertiaries elongate; tail moderate, rounded. Tarsus longer than the bill from the gape, transversely shielded in front and behind; hind-toe moderate, outer and middle toes connected by a short web"—(*Fauna of British India*).

(467) Philomachus pugnax (Linn.).

THE RUFF AND REEVE.

(*Fauna of British India*, 2nd edition, No. 2152.)
(*Fauna of British India*, 1st edition, No. 1468.)

Description—Male. Length about 12″; wing 7·5″; tail 2·5″; tarsus 2″; bill from gape 1·5″.

Bill black, pale at base of lower mandible; legs and feet dull orange.

In winter the head and hindneck ashy-brown, the former streaked with darker brown; rest of upper plumage earthy-brown with dark centres, the upper back margined pale brown; the lower back, wing-coverts, scapulars and tertiaries margined with white, the latter also with a few black spots near the tip; tail brown, dark centred and white-tipped; quills blackish, the outermost one with a white shaft; forehead, chin, throat, lower part of face and the lower plumage from the breast, white.

Female. Is much smaller than the male, measuring only some 10 inches in length; wing 6″; tail 2″; tarsus 1·5; bill from gape 1·25″. Plumage generally darker than in the male, there is no white on the forehead, chin or throat and the quills are brown instead of blackish.

In breeding dress "acquired partially by moult, the male has the sides of the face and part of the crown covered with yellow tubercles and develops a ruff of long feathers and occipital tuft. Scarcely any two birds are coloured alike; the head, throat and breast with the ruff are either white, black with a purple or green gloss, chestnut or orange-buff, or any combination of these colours in the form of patches, spots or bars. The back, scapulars and inner wing-coverts are variegated with the same tints, and the tertiaries are barred or mottled towards the ends."

"Females in summer have the feathers of the upper parts blackish with sandy buff borders, the tertiaries usually with mottled buff and black bars, feathers of the foreneck and upper neck with buff edges and blackish centres giving a patchy appearance to the region."

Young birds. "In autumn closely resemble females in summer dress except that the tertiaries are not barred and that the lower parts are mostly isabelline-buff, only the abdomen and under tail-coverts being white"—(*Fauna of British India*).

Locality, habits, etc. Blanford says it is rare in the South of India; we ourselves have nowhere met with it. It is a cold weather visitor associating in flocks near marshes or in grass-lands. It is an excellent table-bird.

"The Ruff is a silent bird, but in the Spring and during migration, the note, a low *kack*, *kack*, *kick*, *kack*, may be heard. The Ruff is polygamous, and in the Spring the males assemble, or as it is termed "hill," and fight or rather spar for the possession of the females or Reeves which alone undertake the cares of incubation"—(*Dresser*).

Breeding season. Breeds in the temperate zone of Europe and Asia.

Sub-family EROLIINÆ.

"In this sub-family are contained three genera in which the anterior toes are divided to the base. In one genus there is no hind toe but in the others this is well developed. The wing is shaped as in the *Tringinae*, with the first primary the longest; the bill is slender, flexible and either quite straight or slightly bending downwards; the inner secondaries are very nearly as long as the primaries; the tail is moderate and nearly square, some species having the median rectrices slightly acuminate and projecting beyond the others of which they, in consequence, have been placed in a separate genus by some authors"—(*Fauna of British India*).

Genus **CROCETHIA** Billberg, 1766.

"The Sanderling resembles *Erolia* in almost all respects, but is generically distinguished by the absence of a hind-toe"—(*Fauna of British India*).

(467) Crocethia alba (Pall.).

THE SANDERLING.

(*Fauna of British India*, 2nd edition, No. 2153.)
(*Fauna of British India*, 1st edition, No. 1469.)

Description—Male. "Length 7·5″; wing 4·75″; tail 2″; tarsus 1″; bill from gape 1·1″"—(*Fauna of British India*).

"Bill black; irides deep brown; legs black"—(*Jerdon*); "Leg dusky-grey"—(*Vidal*).

Winter plumage. "Forehead, lores, face and whole under plumage including axillaries, white; upper plumage light brownish-grey, the feathers with dark shafts and pale edges; greater coverts blackish-brown; with broad white ends; smaller coverts and all outer coverts, primaries and secondaries blackish-brown; inner webs of all quills towards base, and basal portion of outer webs of inner primaries, white; all shafts of quills pure white; rump coloured like the back in the middle, white at the sides; middle upper tail-coverts dark brown; tail-feathers greyish brown, middle pair blackish near tips, all more or less edged with white, and the outer rectrices with white inner webs except at the end."

In summer "the upper parts become blackish with rufous edges to the feathers and rufous spots; foreneck and breast rufous buff with spots and imperfect bars of brown."

Young birds "have the upper parts blackish, the feathers of the crown black with pale grey edges ; scapulars, tertiaries and wing-coverts with whitish broken borders forming spots ; lower parts pure white "—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. A rare winter visitor, the only record we can find of its occurrence being that Jerdon obtained it on the sea-coast at Nellore. It associates with Stints, etc., on mud-flats and has much the same habits ; it feeds on insects, crustacea, etc., and flies well. Its note is a shrill but distinct "wick."

Breeding season. It breeds in the Polar regions in June and July.

Genus **EROLIA** Vieill. 1816.

"Small Waders with long decurved bills, long wings, short tails, short legs, and short toes.

The long slender culmen is decurved, with the groove in the upper mandible extending almost to the tip, which is not expanded. The culmen is longer than the metatarsus, and almost exactly twice the length of the middle toe. The wings are long and pointed, the first primary longest. The tail is short, doubly emarginate, much less than half the length of the wing and not much longer than the culmen. The metatarsus is short, about three-fourths the length of the culmen ; it is regularly scutellate, both in front and behind. The toes are all cleft to the base, the middle toe about two-thirds the length of the metatarsus, a long hind-toe present "—(*fide Mathews*).

(469) Erolia minuta minuta (Leisl.).

THE LITTLE STINT.

(*Fauna of British India*, 2nd edition, No. 2155.)
(*Fauna of British India*, 1st edition, No. 1471.)

Description—Male. Length 6″; wing 3·8″; tail 1·5″; tarsus ·75″; bill from gape ·75″.

Bill blackish ; irides deep brown ; legs plumbeous ; upper parts ashy-brown, the feathers with broad dusky shaft-shreaks ; a brown streak from the gape to the eye, and a whitish supercilium ; quills dark brown with white shafts and secondaries are partly white, the inner ones nearly wholly that colour ; the two central tail-feathers brown, the outer ones ashy-brown, edged with whitish ; throat, foreneck, middle of the breast and all lower parts white ; sides of the breast brown.

In summer "the feathers of the upper parts are black with broad rufous edges ; the foreneck and upper breast are indistinctly spotted with dark brown and tinged with dull rufous "—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. Dewar records it from Madras, and it is probably common during the cold weather. It is found in flocks on marshy ground or on the edges of rivers and on the seashore.

Breeding season. "Breeds in Northern Europe and Siberia" —(*Fauna of British India*). The eggs are laid during June and July.

(470) Erolia temminckii (Leisl.,).

TEMMINCK'S STINT.

(*Fauna of British India*, 2nd edition, No. 2158.)
(*Fauna of British India*, 1st edition, No. 1474.)

Description—Male. Length 6 to 6·25″; wing 3·8″; tail 1·8″; tarsus ·65″.

Bill black; irides brown; legs and feet dull yellowish olive-green.

Upper plumage greyish-brown, the feathers centred darker and edged paler; the lores with a white streak above not reaching over the eye; the four central tail-feathers brown, the others whitish-brown except the outermost which are pure white; wing brown, shaft of first primary white, others brown, secondaries tipped white; breast brownish-grey and rest of lower plumage white.

In summer "the upper plumage is darker and the edges of the feathers slightly rufous; the breast is light sandy brown with small dark spots."—(*Fauna of British India*).

Female. Similar to male.

Young in down. "Are like those of the Dunlin, but generally greyer in colour"—(*Stonham*).

Locality, habits, etc. A somewhat rare winter visitor. Dewar records it from Madras. In habits it is like the former species and the flight of both is rather swift; whilst flying it utters a shrill note which Dresser likens to *Tirrii*; he likewise says "in the breeding season it indulges in a peculiar butterfly-like flight, at the same time uttering a peculiar churring sound which may also be heard when the bird is sitting on some elevated perch."

(471) Erolia testacea (Pallas).

THE CURLEW STINT OR PIGMY SANDPIPER.

(*Fauna of British India*, 2nd edition, No. 2160.)
(*Fauna of British India*, 1st edition, No. 1477.)

Description—Male. Length 8·2″; wing 5·1″; tail 1·75″; tarsus 1·2″; bill from gape 1·4″.

Bill and legs black; irides dark brown.

In summer "the crown, neck, back and scapulars are rich rufous, with black centres to the feathers; both upper and lower tail-coverts with large dark spots; the lower parts chestnut with hoary edges to the feathers, especially on the abdomen"—(*Fauna of British India*).

Winter. "Broad supercilia, generally meeting across the forehead, white; lores, sides of head and neck brownish, streaked darker; upper plumage ashy brown, with more or less distinct dark shaft-stripes; wing-coverts with light edges; greater coverts tipped with white; bastard-wing, primary coverts, primaries and secondaries dark brown; outer webs of later primaries and of all secondaries with a white border; secondaries white at the base, the amount of white increasing on the

inner secondaries ; lower back and middle of rump dark brown, the feathers with a pale or white edge ; sides of rump and upper tail-coverts white ; tail ashy brown ; lower parts and axillaries white ; foreneck and upper breast brownish streaked with dark brown.

Female. Similar to male.

"A specimen procured by me on the 8th August had a very few rufous feathers on the head, slightly more on the back, but the lower plumage was nearly all chestnut mixed with some white, especially on the throat "—(*C.M.I.*).

Locality, habits, etc. Ferguson writes "This fine Stint is found from October to April on the coast of North Travancore especially about Manakodam Bar. When it associates with *Tringa minuta* only a few individuals are found, but it forms flocks of from eight to twelve when alone." Jerdon says it is rare in the South. Dewar records it from Madras. It keeps mostly to the coast, but is obtained inland during migration. In habits it is similar to the other Stints. It feeds on insects, crustacea, etc., and is said to be excellent eating.

Breeding season. Mr. H. L. Popham found it breeding in North Siberia at the mouth of the Yenesei.

Genus **CALIDRIS** Cuvier, 1800.

"Stout medium Waders with short straight bills, long wings, short tail, short stout legs and feet. The culmen is short, stout and straight, the tip decidedly expanded but not punctulate ; the groove in the upper mandible extends almost to the tip. The culmen is noticeably depressed, in the terminal half, to the tip ; is longer than the metatarsus, and a little more than half the length of the tail. The wings are long and very pointed, the first primary longest. The tail is short and even less than half the length of the wing. The tarsus is short and stout, regularly scutellate in front and behind ; it is about the same length or a little less than the culmen, but longer than the middle toe. The toes are short, strong, and widely margined, though cleft to the base ; the middle toe is about two-thirds the length of the tarsus. A strong hind-toe and claw are present "—(*Mathews*).

(472) Calidris tenuirostris (Horsf.).

THE EASTERN KNOT.

(*Fauna of British India*, 2nd edition, No. 2162.)
(*Fauna of British India*, 1st edition, No. 1476.)

Description—Male. "Length 11·5" ; wing 7·25" ; tail 2·5" ; tarsus 1·4" ; bill from gape 1·9" "—(*Fauna of British India*).

"Bill dusky-black ; irides dark-brown ; legs and feet greenish-dusky."

Winter. "Upper parts light brownish-grey with black shaft-stripes which are broadest on the crown ; sides of head and neck whitish with dark streaks, supercilia and cheeks paler ; wing-coverts with pale edges, greater coverts with white tips ; bastard wing, primary coverts and primaries blackish-brown ; secondaries brownish-grey like back, but with white borders outside and at the end ; lower back and

rump dark-brown, with white edges to the feathers ; upper tail-coverts the same, but the white borders are much wider, the white sometimes occupying the greater part or whole of the feathers ; tail ashy-brown ; lower plumage white, foreneck and upper breast streaked and spotted with dark-brown."

In summer "the plumage is blackish above, with whiti shedges to the feathers, the scapulars with large chestnut spots ; upper and lower tail-coverts white with dark-brown spots and bars ; chin, throat, breast and flanks so thickly spotted as to be almost covered in the middle of the breast with blackish-brown ; there is no rufous on the lower plumage"—(*Armstrong*).

Female. Similar to male.

Locality, habits, etc. Another rare winter visitor ; Dewar records it from Madras, and Blanford says this is probably the bird obtained by Jerdon at Madras. In habits similar to the Knot, frequenting the sea-shore and mud flats, and feeding on worms, insects, etc.

Genus **LIMICOLA** Koch., 1816.

"Bill with a broad and flat culmen ; tapering to an awl-shaped point; the tip slightly decurved"—(*Cat., British Museum, Vol. XXIV*).

(473) Limicola falcinella sibirica (Dresser).

THE EASTERN BROAD-BILLED STINT.

(*Fauna of British India*, 2nd edition, No. 2163.)
(*Fauna of British India*, 1st edition, No. 1479 (part).)

Description—Male. "Length 7" ; wing 4·1" ; tail 1·5" ; tarsus 0·9" ; bill from gape 1·3"—(*Fauna of British India*).

"Bill brown tinged with olive ; irides dark-brown ; legs olive-brown."

In winter "very similar to that of *T. subarquata* and *T. alpina* ; as in the latter, the rump, upper tail-coverts and middle tail-feathers are blackish-brown ; the dark shaft-stripes on the upper plumage are broad and ill-defined, and there is not much white on the secondaries. The white supercilia do not meet across the forehead. The lower parts are white throughout and only a few narrow dark streaks occur on the foreneck and upper breast"—(*Oates*).

In summer the upper parts are black, with rather broad rufous margins to the feathers ; tertiaries also bordered with rufous ; middle pair of rectrices each with a rufous margin to the outer web ; throat, foreneck, sides of neck and upper breast tinged with rufescent and thickly spotted with dark brown.

Female. Similar to male.

Locality, habits, etc. Ferguson writes from Travancore "A single specimen of this Stint was shot by my collectors at Manakodam Bar in January 1903." According to Blanford "it is even more restricted to the sea-coast and salt-water inlets and estuaries than other members of the genus" ; but according to Dresser "it differs from the Sandpipers chiefly in affecting at all seasons of the year fresh water and marshes and not the sea-coast." It is found with other Stints in small parties.

Dresser writes: "On the wing it behaves much like a Snipe, but when on the ground it skulks, unlike the Sandpipers. It is a rather silent bird and I have never heard its note, which is described as *too-who* rapidly repeated. Its food consists of insects of various kinds and larvae.

Breeding season. "It breeds in June in the large marshes of Dovrefjeld and in Lapland, but not West of the Lules valley nor in Finmark, in open soft places."

Sub-family PHALAROPINÆ.

"Toes are bordered throughout by a web divided into lobes very much as in the Coots and Grebes . . . the female is bigger and more richly coloured than the male, the latter performing the duties of incubation"—(*Fauna of British India*).

Genus **LOBIPES** Cuvier, 1817.

"Anterior toes bordered throughout by a web cut into the lobes as in Coots and Grebes. In other respects the present genus does not differ materially from *Tringa* and its allies"—(*Fauna of British India*).

(474) Lobipes lobatus (Linn.,).

THE RED-NECKED PHALAROPE.

(*Fauna of British India*, 2nd edition, No. 2166.)
(*Fauna of British India*, 1st edition, No. 1480.)

Description—Male. Length 6·5″; wing 4·5″; tail 2·25″; tarsus ·75″; bill from gape ·75″.

"Bill blackish; irides brownish-black; legs and feet lavender-blue"—(*Butler*).

Barnes, however, says "Bill dusky; irides brown; feet yellowish-green."

Winter. 'Broad forehead, more or less of the crown, lores, supercilia, cheeks, sides of neck and all lower parts white; a black band surrounds the eye, except above, and extends for some distance behind it; nape and hind neck dusky brown; mantle blackish-brown with white or buffy white streaks formed by the edges of the feathers; a broad white bar on the wing composed of the white tips of the greater secondary coverts; inner secondaries mostly white; middle of rump, upper tail-coverts and the tail-feathers black with white edges"—(*Fauna of British India*).

In summer the head, sides of face, back of neck and upper plumage greyish-black; the back mixed with rufous, and rump with white edges; sides of neck and a collar round the neck chestnut; sides of breast ashy grey fringed with white.

Blanford says in males the chestnut collar is interrupted in the middle by dark slaty-grey.

Female. Similar to male.

Young in down. "Upper parts reddish-buff marked with black; a black band passes down the centre of the back and rump; under parts dirty white"—(*Stonham*).

Locality, habits, etc. Dewar records it from Madras where, according to Blanford, it is at times not uncommon. These birds associate in flocks and may be often found on the sea miles from land; they swim well and gracefully and dive well, and their flight is rather swift. Their call-note is a clear and sharp *tirir* according to Dresser. The males incubate the eggs and the females do all the courting. Their food consists of worms, crustacea, etc.; at times they are exceedingly tame but sometimes very wary.

Breeding season. They breed in the Arctic regions during June and July.

Sub-family SCOLOPACINÆ.

"The Woodcocks and Snipes have the toes free like *Tringa*, but they are distinguished by a very different style of plumage which does not change with the seasons, and by their large eyes placed far backward in the head, the ear-orifice being just beneath the hinder edge of the orbit. The bill is long, slender and largely provided with nerves; whilst the tarsus is short, not exceeding the middle toe and claw in length"—(*Fauna of British India*).

Genus **SCOLOPAX** Linnaeus, 1758.

"Bill long, straight, slender, rather soft and swollen at the tip, both mandibles grooved at the side; nostrils linear, basal; the gape in front of the base of the culmen. Wings long, first quill longest.

Tail short, of 12 feathers. Legs short, feathered to the joint at the base of the tarsus"—(*Fauna of British India*).

(475) **Scolopax rusticola rusticola** Linn.

THE WOODCOCK.

(*Fauna of British India*, 2nd edition, No. 2167.)
(*Fauna of British India*, 1st edition, No. 1482.)

Description—Male. Length 13 to 14″; wing 7 to 7·5″; tail 3·5″; tarsus 1·5″; bill from gape 3″.

Bill fleshy-brown, upper mandible more dusky; irides dark brown; legs fleshy-plumbeous.

Forehead and crown ashy-tinged fawn, with minute brown lines; a dark brown stripe from gape to eyes; four black or blackish-brown transverse stripes on head including a broad blackish-brown bar on nape; upper plumage reddish-ashy, deep rusty on outer wing-coverts with numerous zigzag black lines and spots; wings dusky black with triangular spots of rusty-red on the outer edge of webs and of whitish-fawn on the inner edge of all the feathers except the first primary which has ten spots more whitish; chin and throat white; plumage below pale rusty passing into whitish or yellowish-white on the abdomen,

with numerous cross-bars of dark brown ; tail black edged with rusty spots, tipped ashy above, silvery-white below.

Female. Similar to male.

Young in down. "Upper parts rich chestnut with black markings speckled with white. Under parts buff, paler on the abdomen"—(*Stonham*).

To any one wishing to obtain a further description of this bird we would suggest the perusal of the very ample and interesting article by Mr. Stuart Baker, in his "*Game Birds of India, Burma and Ceylon, Vol. II, pp. 3 to 33.*"

Locality, habits, etc. Within our limits the "Cock" is found regularly only on the higher ranges of hills, arriving about the beginning of November and leaving during March, though there are instances on record of the bird having been obtained occasionally on the plains—these, we think, must have been during migration. Mr. W. A. Hasted, for example, tells us that he once shot a Cock at Masulipatam when out after Partridge. Mr. Stuart Baker in his abovementioned work says that "In the Nilgiris, about Ooty, it is quite common . . . " It may be so in certain places, but according to my experience of three shooting seasons at that hill-station, I have not found it so. One is very lucky if one shoots two, or at the most three in a day, though I have been fortunate enough on three occasions to bag 6, 5 and 5. I have heard from my shikari of a bag of a dozen having been secured by a local sportsman a few years ago—this, if true, must constitute the record I should imagine. My first bird in the season 1900–01 was shot on the 4th November, and in the season 1920–21, on 11th November. The birds usually frequent the sholas which wholly or partly surround a swamp or wooded nalas through which a sluggish stream is flowing Occasionally they will be flushed in the depths of a shola, but by far the best places are the edges of the sholas or the wooded nalas as above-stated. In my experience it is useless to look for Cock in any nalas where there is a swiftly flowing stream ; they prefer the wooded edges of swamps and nalas where the water only trickles through and where there is plenty of mud. My usual procedure when the Cock is known to be in is to send my shikari on arriyal at a likely spot to examine the muddy patches at the edge of the shola to see if he can find any marks made by the birds when feeding ; if there are marks, the beaters are sent into the shola to the depth of 20 or 30 yards and advance at right angles to the edge of the shola tapping the trees and bushes but making no other noise, while I myself stand at an open spot some distance from the edge of the shola. I have found that if the beaters make too much noise the Cock is liable to run on ahead and rise out of range. When beating a nala I have found it a good plan to take up my position some way in front of the beaters at an opening and let them advance till they reach me, when they stop while I go on to another spot further on, then they again advance up to me, and so on. In this way one can watch the openings in case a Cock should creep across as the beaters come along—a common occurrence.

When first flushed and if not fired at, or much frightened, Woodcock will usually fly lazily and pitch again at no great distance. On the other hand if fired at and also if slightly wounded, they will often fly some distance and, on alighting, are liable to run considerably and eventually hide under the roots of a tree or in a hole in the ground.

Major E. G. Phythian Adams writes in June 1927 : "' Woodcock seem to come in later than formerly, possibly visiting the Anamalais before arriving here. February is the best month and nearly all are gone by 15th March, or earlier if heavy rain falls. I think 25 to 30 may be considered a good average season's bag, it being remembered that small game shooting on the Plateau is limited to two days a week. Three Woodcock shot on 5th January 1927, *i.e.*, well on in season weighed 10, 11 and 11 ounces." He also sent us extracts from his Game Registers for the last four seasons. Shooting around Ootacamund he got in 1923–24, 14 Cocks ; in 1924–25, 27; in 1925–26, 14 and in 1926–27, 24 birds. The best day was 7.

"As regards the weight of Woodcock, I find in my diary that the average of those shot by me is 9½ oz. while the heaviest bird weighed exactly 16 oz., this was shot in the season 1900–01 at Ootacamund" —(*H.R.B.*).

Breeding season. "They breed in the Himālayas during May, June and July. I took a nest on the 2nd July 1904 at Sandakphu on the Singalila Range at an elevation of 11,000 feet. I had just taken a nest of *Tarsiger chrysaeus* and shot the bird as she flew off the nest when a coolie saw the Woodcock and said "*Sim kukra*", and on looking up I also spotted it, but it was away before I could get a shot.

Nest. "The nest was a cupshaped depression in the ground lined with moss and with an inner lining of fir needles and measured 6″ × 6″. It was situated under a thorny shrub (*Rosa scricea*) and contained 4 very slightly incubated eggs"—(*C.M.I.*).

Eggs. Hume writes :—"The ground-colour varies from pale yellowish-white through various shades of buff and buffy-stone colour to a reddish *cafe-au-lait* colour ; the markings, never very densely set and at times very sparse, consist of different shades of brown, brownish-yellow and brownish-red on the one hand and greys, from sepia to purple, on the other. The former occur in moderate sized blotches, spots and specks as primary markings, often these are more numerous in a cap or zone about the large end. Occasionally not a single blotch or spot is one-tenth of an inch in diameter and nine out of ten are little more than specks, but in other eggs many of the blotches, especially about the large end, are a quarter of an inch and upwards in length. The greys, pinkish, lavender, sepia occur as small clouds, spots and smears, secondary not surface-looking markings rarely either large or thickly set except when amongst the blotches of a zone or cap when the eggs exhibit such."

Mr. Stuart Baker gives the average measurements of his Indian eggs as 1·6″ × 1·32″.

Genus **CAPELLA** Frenzel 1801.

"The Snipes are distinguished from the Woodcocks by a different kind of plumage, and especially by having longitudinal pale bands on the head and scapulars, instead of the transverse head-markings and blotched scapulars of *Scolopax*. The lower part of the tibia is bare, but in this respect there is a gradual passage into the feathered tibia of the Woodcock. The number of tail-feathers varies from 12 to 28"—(*Fauna of British India*).

(476) Capella nemoricola (Hodgs).

THE WOOD-SNIPE.

(*Fauna of British India*, 1st edition, No. 1483)
(*Fauna of British India*, 2nd edition, No. 2168.)

Description—Male. Length about 11·5″; wing 5·5 to 5·75″; tail 2·2 to 2·5″; tarsus 1·5″; bill from gape 2·5″. Weight about 5½ oz. Bill brown, paler at the base beneath and the tip blackish-horny; irides brown; legs and feet plumbeous-green.

Top of head and nape black with an ill-defined pale reddish-fawn coronal stripe; a broad supercilium and the cheeks pale fawn; a brownish-black stripe from the base of the upper mandible to the eyes, and a band of the same colour on the cheeks; upper plumage mottled velvety black and pale fawn; the elongated scapulars edged bright fawn forming a conspicuous line of that colour down each side of the back; wings dusky brown; primary coverts narrowly tipped white, the other coverts beautifully mottled blackish; brown and fawn lower back with lines of black and white tinged pale rufous; upper tail-coverts pale brown indistinctly barred darker; tail black and rufous, the rufous portion broad and near the tip; the outer feathers brown barred buff and tipped white; the tail-feathers are broad in the centre, narrowing outwardly until the outermost ones are almost pin-like; chin pale fawn or whitish; neck deeper fawn spotted with black; whole lower plumage barred brown and white tinged with reddish on the breast.

Female. Similar to male.

"Weight 4·9 to 6·1 oz."—(*Hume*). "Jerdon gives the weight as up to 7 oz. and Hodgson, amongst some 20 birds weighed, obtained one of 6·75 oz."

"The average weight of the Nilgiri bird is 5½ oz."—(*H.R.B.*) That of the Nilgiri-Wynaad one from 7 to 8 oz.—(*F.W.F.*) (*Stuart Baker.*)

Locality, habits, etc. The Wood-snipe can be distinguished from *C. gallinago* and *C. stenura* by its larger size, by its much blacker head and upper plumage, by its deeper wings, the secondaries and tertiaries being a good deal longer than in the latter two species, also by the whole lower plumage being barred brown and white whereas in the Common and the Pintail Snipe the lower breast and abdomen are pure white. Colonel Betham, 101st Grenadiers, reports having shot one near Bangalore on 14th December 1911 (*Bombay Nat. Hist. Soc. Journal, Vol. XXI-2*). Ferguson says the Trivandrum Museum has only one specimen shot on the High Range. Hume says: "To the Nilgiris, Coorg, the Wynaad, the Pulneys, Anamalais, Shevaroys and hilly parts of the Coimbatore District, they appear as numerically scarce but regular visitants during the cold season." Davison, as quoted by Hume, says—"Wood-snipe is a rare bird on the Nilgiris, coming in, I think, later than the Pintail, and leaving earlier. They are usually found singly (though on one occasion I flushed two out of a clump of bamboos about ten feet across). They frequent the outskirts of the sholas where these are marshy—never, as far as I am aware, being found any distance in the inside of the jungles as the Woodcock occasionally is. Scrub-clad ravines through which a stream flows is also a favourite resort, and on one or two occasions I have flushed them from small isolated bushes growing in marshy ground. They rise silently,

fly rather lazily and for only a short distance, and then drop again into cover."

"As to the latter there can be no doubt. They rise in the same dazed, hesitating, blundering owl-like way as the Woodcock often does when first flushed, and like it generally drop abruptly behind the first convenient bush. Very likely when well on the wing they may, as does the Woodcock, when emerging from cover to dart in again a few yards lower down, fly pretty smartly ; but I have never happened to see a Wood-snipe with steam up. From their dazed appearance and sleepy flight when flushed in bright sunlight, I should imagine them to be nocturnal in their habits. Certainly during the brighter hours of the day they are very unwilling to rise, allowing you almost to tread on them before they do so, and being thus very likely to escape notice unless dogs are used. But in the early morning and evening they will rise spontaneously like Common Snipe (though even then sluggishly) when you are still twenty yards distant from them."

"The Wood-snipe does not seem to be such a great worm-devourer as the Woodcock. I have only a record of the contents of the stomachs of a few and these were only large naked, soft grubs, small aquatic insects and remains of insects, especially tiny black coleoptera, small hard black seeds and gravel. Whether the black seeds were eaten by mistake for tiny beetles I cannot say, but they were not merely accidental, for they occurred in two out of five specimens and Hodgson also notes having found them in one bird he examined."

"They are very silent birds. I have never heard them utter any sound, nor have I met with any one who has, except Captain Baldwin who says that they utter a hoarse croak on rising."

"Uncommon on the Nilgiris, at any rate in the vicinity of Ooty.—during the season 1920–21, I did not see a single one, although I hear that a few were shot by other sportsmen, but this season, 1921–22, I was lucky enough to bag five out of six seen, 2 on 13th February, 2 on 6th March, 1 on 10th March ; from this it would appear that Davison (as quoted above by Hume) is correct in stating that these birds arrive here later than the Pintail Snipe, although my son sent me the skin of one he shot in the Chikmagalur District of Mysore early in November 1921. All my birds were flushed at midday ; the first two and the last one (there were two also present then but one went clean away) from the same shola, or rather, long, narrow clump of trees which filled a narrow boulder strewn nala on a hillside near the top of the Sigur Ghat ; the nala had a very small stream flowing rapidly through it with pools here and there, and at the bottom of the nala the trees gradually thinned off and bushes took their place, the stream finally flowing into a small open swamp. The birds were first flushed in the upper part of the clump, and on rising flew a few yards down hill amongst the trees and offered no chance of a shot, dropping as they did abruptly and almost at once into cover again ; each time the beaters came up to them the birds repeated the performance until they reached the last bushes when on again being disturbed they flew out after the manner of ordinary Snipe, though not so rapidly, over the swamp and were easily bagged. The other two, shot on 6th March, I found under some bushes at the edge of two separate sholas not far from where I procured the other three ; each of these sholas bordered a small swamp and the birds came out just like Woodcock. I did not hear any of them utter a cry on rising or when

on the wing. The stomachs of all the birds contained a greenish-black half-digested mass which looked like the remains of grubs; I found no black seeds in them, as mentioned by Davison. The average weight of the 5 birds was 5½ oz."—(*H.R.B.*).

Mr. F. W. F. Fletcher in his book "*Sport on the Nilgiris and in Wynaad*," remarks that these birds "utter a croak on rising"—this, as I have stated, is not my experience. In a letter to me about these birds Mr. Fletcher writes that those he killed on the Nilgiri-Wynaad plateau (where they appear to be found in greater numbers than on the actual Nilgiri plateau) weighed from 7 to 8 oz.; one weighing 8½ oz. was recorded by the late Mr. F. W. Ditmas and were, he thinks, darker in colour than those he killed on the Nilgiri plateau; he is going to try to verify this point this next season; if this colour theory proves correct, I should be inclined to put it down to better feeding which would probably also account for the heavier weight of the birds. He shot his first Wood-snipe last season, 1921–22, on the 17th November.

Major E. G. Phythian Adams writes that they are commoner in the Wynaad than at Ootacamund, where only 4 or 5 are shot each season. He shot one on the 2nd January 1926 and two on the 29th January 1927.

N.B.—The average elevation of the Nilgiri-Wynaad plateau above sea-level appears to be 3,500 feet, whereas the average of the Nilgiri plateau is about 7,006 feet.

Breeding season. Stuart Baker got its eggs in the Khasia Hills, Assam.

(477) Capella solitaria (Hodgs.).

THE EASTERN SOLITARY SNIPE.

(*Fauna of British India*, 2nd edition, No. 2169.)
(*Fauna of British India*, 1st edition, No. 1486.)

Description. For a description of this Snipe we pillage Oates' "*Game Birds of India*" *in extenso*:—

"Primaries plain.

Tip of first secondary quill reaching closely to the tips of the primary coverts.

Outer web of the first three primaries and the tips of all the primaries distinctly margined with white.

Outer tail-feathers narrow and stiff."

"The upper plumage delicately marked and cross-barred throughout, the pale markings being white or nearly so, and there are none of the large black patches on the back and scapulars which characterize the Wood-snipe. The forehead and crown are dark brown mottled with rufous and with an interrupted whitish band down the middle of the latter. There is a broad brown band connecting the eye and the bill and above this on either side of the forehead a whitish band running from the upper mandible backwards to the eye. The whole upper plumage and the lessor and median upper wing-coverts are very beautifully barred with black or brown, chestnut and whitish, the scapulars having a broad whitish margin to the outer web. The upper tail-coverts are rufous grey, the tip of the longer feathers cross-barred. The middle eight tail-feathers are black, terminated with chestnut, a wavy black bar and a whitish tip. The remaining narrower feathers are white with broad black bars. The greater upper wing-

coverts are brown margined with white at the tip. The primaries and the outer secondaries are dark brown, conspicuously margined with white at the tip ; the first three primaries with the margin of the outer web also white. The inner secondaries are richly barred with black and chestnut and notched with white on the outer web. The chin is white. The sides of the head and the throat are white streaked with brown. The foreneck and chest are woodbrown, the feathers edged with white. " The remainder of the under surface is white, barred with brown on the sides of the body and breast. The abdomen is white and the under tail-coverts only slightly barred. The axillaries are diagonally barred with white and dark brown. The under wing-coverts are regularly and very distinctly barred with dark brown and white.

" The sexes are of much the same size.

" Length about $12\frac{1}{2}''$; wing about $6\frac{1}{4}''$; tail $2\frac{1}{2}''$; bill about $2\frac{1}{2}''$.

" The bill is yellowish-brown with the terminal third black ; the irides are dark brown ; the legs and feet are olive or greenish.

" Weight up to 8 oz.

" The number of tail-feathers varies considerably ; and is said to be as many as 28 in some birds. Usually the tail-feathers are 18 in number the 8 in the middle being broad, soft and of the usual character ; the lateral ones narrow, short and stiff ; the outermost feather being about one-tenth of an inch in breadth "—(*Oates*).

We include this species on the strength of the statement of Mr. F. W. F. Fletcher, formerly of Rockwood, Nellakotta, Nilgiris, who wrote to the *Asian of February 8, 1898* (as quoted by Oates in his " *Game Birds of India*," and as also mentioned by him, Mr. Fletcher, in his own book " *Sport on the Nilgiris and in Wynaad* ") that he obtained one specimen on the Nilgiri-Wynaad Plateau.

Oates writes :—" Mr. Fletcher, was fortunate enough to shoot this species recently in Southern India, thus extending its range most unexpectedly." For the Asian of February 8, 1898, he wrote :—" Some little time back when shooting near Devala, S.E. Wynaad, with Mr. W. Hamilton, we bagged a good specimen of the Himalayan solitary snipe (*Gallinago solitaria*). I say ' we ' advisedly, as the prize was only discovered amongst our bag after the day's shoot was over and I do not therefore know to whose gun it fell."

This is the only occasion so far as we can find, on which this bird has been obtained so far south.

Breeding season. The breeding season commences in May in the Himalayas.

(478) Capella gallinago gallinago (Linn.,).

THE COMMON OR FANTAIL SNIPE.

(*Fauna of British India*, 2nd edition, No. 2170.)
(*Fauna of British India*, 1st edition, No. 1484.)

Description—Male. Length 10 to 11" ; wing 5 to 5·5" ; tail 2·25 to 2·5" ; tarsus 1·25" ; bill from gape about 2·5".

Weight 3·3 to 5·1 oz. ; average 4·15 oz.—(*Hume*).

Bill dusky brown, tip black, base greenish ; irides dark brown ; legs yellowish-green to dusky green.

Head black with three longitudinal yellowish-white stripes from the base of the upper mandible, one passing over the centre of the

crown and one passing over each eye; a broad brown stripe from the bill to the eyes; hind neck fulvous with long brown spots; back and scapulars velvety black with rufous crossbars and longitudinal streaks of rusty fulvous; wing-coverts dusky brown tipped with white, forming a white bar on the primary coverts; quills blackish-brown, the first one margined with white externally; rump and upper tail-coverts fulvous narrowly barred dark brown; tail which consists of 14 to 16 ordinary-shaped soft feathers black with the terminal one-third red-brown narrowly barred and streaked with blackish-brown; chin, throat, abdomen and flanks white; neck, breast and sides mottled dusky brown and fulvous.

"The so-called Sabine's Snipe is merely a melanistic variety of the Fantail"—(*Stuart Baker*).

About pale Snipe in the Indian Museum, Stuart Baker writes:—"They are all of a very pale fawn, almost white, ground colour, and have the usual markings but all of a pale fawn or rufous fawn tint."

He also mentions a very beautiful variety—"the whole plumage consists of various to nd shades of grey, ranging from pure white on the under par ie deep velvety-black of the scapulars."

Female. Similar to male. "Weight 3 to 5·5 oz.; average 4·27 oz."—(*Hume*).

Young in down. "Chestnut, marked with black and speckled with white on the upper parts"—(*Stonham*).

Locality, habits, etc. The common Snipe though met with in fewer numbers within our limits than the Pintail is nevertheless fairly abundant in certain places on the plains from about the beginning of October to the middle of March, bags of 50 couple to a single gun in a day's shooting being heard of in the more favoured localities; the dates of arrival and departure, however, vary greatly in different localities and in different years, for one hears of birds being occasionally shot as early as August and as late as May. It appears to be rarely met with on the hills, all last season, 1921–22, I shot one specimen only at Ootacamund compared with 139. Pintails. In four years Major Phythian Adams only shot one Fantail against 295 Pintails. As is well-known, the best places in which to look for them are paddy-fields, the grassy edges of tanks and swampy ground generally; during the heat of the day, however, the birds are fond of lying up in sugar-cane brakes and scrub bordering their feeding grounds and many a couple may be added to the bag by beating such places.

Major Phythian Adams registers show the following statistics:—

	Year.	Fantail.	Pintail.
Cannanore	1925	18	53
Do.	1926	33	172
Do.	1927	38	134
Three years ...		89	359
South Mysore	1926	29	65
Do.	1926–27	15	8
Two years ...		44	73

Major J. C. Macrae in 1908 shot the first Snipe in Coorg on the 14th September.

Hume writes that some birds may be seen both in North and South India in May and June.

"In Southern India they also seem to frequent ponds, jheels and river edges far more than in Bengal"—(*Stuart Baker*).

The biggest bag on record was made by Mr. W. K. Dods near Calcutta where he shot 131 couple and a quail on the 18th February 1900.

Breeding season. Breeds in the Himalayas in May and June. Stuart Baker has taken eggs in the Santal Perganahs.

(479) Capella gallinago raddii (Buturlin.)

RADDE'S SNIPE OR THE EASTERN FANTAIL SNIPE.

(*Fauna of British India*, 2nd edition, No. 2171.)
(*Fauna of British India*, 1st edition, No. 1484 (part).)

Description. "Differs from the preceding bird in being somewhat paler above, the buff longitudinal stripes more conspicuous; the under wing-coverts often have a patch of white with no barring and the axillaries are pure white or nearly so"—(*Fauna of British India*).

Locality, habits, etc. Major E. G. Phythian Adams obtained several more or less typical specimens of this Snipe in South Mysore.

Breeding season. In India it breeds in the Himalayas.

(480) Capella media (Lath.,).

THE GREAT SNIPE.

(*Fauna of British India*, 2nd edition, No. 2172.)

Description. "Like *C. g. gallinago*, but larger; feathers of lower breast with broad sepia bars partially concealed by white tips of feathers, sides of body and flanks more broadly barred; greater and median wing-coverts broadly tipped white; tail with 16—18 feathers and characterized by the three outer pairs of tail-feathers, which are white with broad olive-brown bars, far apart on outer webs, not extending beyond two-thirds or half the length of the feather from its base.

"Bill dark brown, pale yellowish at base; legs and feet greyish-green or very pale yellowish; iris dark hazel.

Male. "Wing 140—150 mm.; bill 65—74 mm.

Female. "Wing 139—149 mm; bil 170—81 mm.; average weight of 43 adults shot in August and September 7 oz. 5 drs., 3 over 9 oz.; and 15 over 8 oz., largest 1 dram short of 11 oz." (*N. F. Ticehurst*) (*A. C. Meinertzhagen*).

Adult female. Similar to male.
"Culmen 2·5″; wing 5·3″; tail 2″; tarsus 1·5″"—(*Sharpe*).

Winter plumage. "More sandy buff than in summer, the buff edges to the feathers of the upper surface broader and more conspicuous, the

blackish markings on the foreneck larger and coarser, and either circular or horse-shoe shaped"—(*Sharpe*).

Locality, habits, etc. "The first record of its occurrence in India is that in the *Bombay Natural History Society's Journal, Vol. XII, p.* 782, by Capt. Donovan.

"This gentleman recorded that on the 5th September 1899, he shot a bird near Madras, weighing over 8 oz., and with a wing of about 6 inches in length, which he sent to the Madras Museum for identification. The Museum authorities pronounced the bird to be *Gallinago nemoricola*, and then, as it was far advanced in putrefaction, threw it away.

"Fortunately before sending the bird away, Capt. Donovan carefully examined it and made copious notes. The main features noticed by him in his examination of the bird were :—

(1) Its outer tail feathers were soft.

(2) Not attenuated.

(3) Were white with only two or three bars near their bases on the outer webs, and

(4) In addition to this the Snipe had conspicuous white tips to the wing-coverts.

"These points are ample for the purposes of identification, and there cannot be the least doubt but that the bird shot by Capt. Donovan was a specimen of the *Double* or *Great Snipe* (*Gallinago media*).

"A second specimen was obtained by Capt. Boxwell at Bangalore on the 28th October 1910. This bird weighed only 7 oz. and was shot from a patch of mud beside a stream.

"A third bird was killed by Mr. G. L. Peters near Arkonam (Madras) on the 30th March 1913"—(*Stuart Baker*).

"The Great Snipe seems to be even more exclusively nocturnal in its habits than the other members of the genus, feeding almost entirely by night and not moving, unless forced to do so, after the sun has risen at all high.

"It is found in much the same sort of country and ground as *Gallinago gallinago*, but is perhaps rather inclined to lie up in thicker cover than does the latter bird. In their diet the Common Snipe and the Great Snipe resemble one another very closely . . .

"Dresser says that its food consists of worms, small slugs, insects and larvæ.

"The flight of the Great Snipe is very inferior to that of the Fantail or Pintail Snipe and more nearly approaches that of the Woodsnipe, though it does not appear to indulge in the curious side movements and sudden final plunge into cover so characteristic of that bird ; still it is comparatively slow and heavy on the wing and offers an easy shot"—(*Stuart Baker*).

Breeding season. "Breeds in Northern Europe, Western Siberia." (*Stuart Baker*).

(481) Capella stenura (Bonaparte).

THE PINTAIL SNIPE.

(*Fauna of British India*, 2nd edition, No. 2173.)
(*Fauna of British India*, 1st edition, No. 1485.)

Description—Male. Length 10·5″ ; wing 5″ ; tail 1·75″ ; tarsus 1·25″ ; bill from gape 2·37″.

"Stoney gives the average weight of 472 Pintails as 4·014 oz., and of 2,347 birds as 3·93, a net total average of about 3·95 oz., and Mr. W. Gaye records shooting a bird of the extraordinary weight of 12½ tolas (about 7 oz.); this was at Secunderabad on the 6th January 1890" —(*Stuart Baker*).

Bill horny brown, sometimes yellowish-green, blacker at the tip, pale greenish-brown at the base beneath; irides dark brown; legs plumbeous-green to yellowish-green.

It will be noticed that the bill and legs are of the same colour, that is, if the bill is yellowish-green so are the legs, but this colouration appears to be somewhat rare.

Crown deep brown with a pale fulvous line from the base of the bill to the nape; a broad fulvous white supercilium and a dark brown stripe from nostrils to eyes; plumage above velvety blackish-brown with pale chestnut bars and longitudinal lines of whitish-yellow; wings dusky brown with numerous bars of fulvous-white; chin, neck and upper breast mottled with pale rusty and brown; flanks barred white and dusky; lower breast and abdomen white; lining of wings beautifully barred with white and dusky; upper tail-coverts pale brown barred darker; the tail which consists of 10 soft feathers bordered on each side by 5 or more narrow stiff pin-like feathers, black, the terminal one-third rusty, and succeeded by a narrow brown bar and tipped with white.

"The pale, or albinoid specimens as Hume terms them, are almost equally common in both species"—(*Stuart Baker*).

Female. Similar to male. "Weight 3·75 to 5·1 oz.; average 4·2 oz." —(*Hume*).

Locality, habits, etc. "The Pintail Snipe occurs in much the same localities as the Fantail, but within our limits is far more numerous especially on the hills. Its favourite haunts are such spots as clumps of longish grass, etc., left on fairly dry ground after the paddy crops have been cut and the Pintail differs in this respect from the Fantail which seems to prefer wetter and more muddy ground. I have noticed, on the hills, that as the season advances, *i.e.*, from January onwards, the Snipe forsakes the open swamps where they are found on their first arrival and take to the bushy edges of sholas which partly or wholly surround other swamps and marshy places. Such places, in fact, as are frequented by Woodcocks; indeed, I have often flushed Snipe and Woodcock out of the same shola-borders. This, I think, may be due partly to the partial drying up of the swamps and also to the open swamps being too exposed to the heat of the sun"—(*H.R.B.*).

In a letter, dated 2nd May 1922 Mr. G. E. Limornin, of the Dunsardle Tea Estate near Ootacamund, Nilgiris, informed me that he had shot a Pintail the previous day off a swamp on his estate. This seems extraordinarily late for the birds to be still here.

Major E. G. Phythian Adams' remarks are given under the last species and show that the Pintail is the commoner bird in Ootacamund; Cannanore and S. Mysore and in the first two districts greatly predominate.

For a full and interesting account we recommend the reader to study Mr. Stuart Baker's articles in the *Bombay Natural History Society's*

Journal, Vol. XX-3, also his work "The *Game Birds of India, Burma and Ceylon, Vol. II.*

Breeding season. According to Stuart Baker, this Snipe breeds in June in North Cachar.

(482) Capella megala (Swinhoe).

SWINHOE'S SNIPE.

(*Fauna of British India*, 2nd edition, No. 2174.)

Description—Adult male. "Swinhoe's Snipe is, in colouration, undistinguishable from the Pintail Snipe but can always be identified by an examination of the tail. This, in Swinhoe's Snipe contains only 20 feathers, whereas the Pintail Snipe normally has 26 tail-feathers and practically never less than 22. Even, however, when the tail is imperfect, discrimination is easy, for whereas the outer tail-feathers of the Pintail are hardly broader than a pin, those of Swinhoe's Snipe are never under 0·2." Again the Pintail has 8 or 10 of the central feathers non-attenuated, whereas Swinhoe's has only the six central ones showing no attenuation." (*Stuart Baker*).

"Bill light-yellowish brown for the basal two-thirds yellower on the base of the upper mandible, blackish-brown on the apical third; feet light yellowish-grey with blackish brown claws; iris dark umber brown"—(*Swinhoe*).

"Total length 9·5"; culmen 2·3"; wing 5·4"; tail 2·15"; tarsus 1·35" (*Sharpe*).

Adult Female. "Similar to the male but rather larger, legs and feet pale bluish-grey, nail black"—(*A. H. Everett*). A bird sent me from the Shan States has the leg rather bright yellowish-grey. The wing measures 5·64" . . . "—(*Stuart Baker*). Quoting Sharpe, Stuart Baker gives the dimensions of the female as "total length 10·5"; culmen 2·6"; wing 5·6"; tail 2·15"; tarsus 1·35"."

Locality, habits, etc. Some half dozen specimens of this Snipe were shot by Messrs. T. S. Fraser, R. F. Stoney and Graham Ross, in the Chingleput District in 1912, and it would seem highly probable that many others have been overlooked on account of their close resemblance in plumage colouration to the Pintail.

Major E. G. Phythian Adams kindly sent me the tail of a Swinhoe's Snipe with the following remarks in a letter, dated 26th November 1927: "I enclose the tail of a Swinhoe shot at Cannanore last week . . . I got 2 out of some 200 Snipe." He shot two in Cannanore in 1925 and one in 1926.

"It is only within the last two years that its nidification has become known, and even such records are confined to Russian works. Dresser informs me that he has received eggs from Buturline which were taken in Eastern Siberia"—(*Stuart Baker*).

Genus **LYMNOCRYPTES** Kaup., 1829.

"In this genus the central tail-feathers are pointed and project beyond the others, there is no median pale coronal stripe and the plumage of the back and scapulars has an iridescent gloss"—(*Fauna of British India*).

(483) Limnocryptes minimus (Brünn.)

THE JACK SNIPE.

(*Fauna of British India*, 2nd edition, No. 2175.)
(*Fauna of British India*, 1st edition, No. 1487.)

Description—Male. Length 7·75 to 8·25″; wing 4·25 to 4·5″; tail 1·75 to 2″; tarsus 1″; bill from gape 1·5″; weight 1¼ to 2¼ oz.

Tip of the upper and most of the lower mandible dark brown; culmen very light brown or fleshy; remainder slaty-brown; irides brown; legs pale greenish to fleshy-grey.

The crown has a central blackish-brown stripe edged with rufous extending from the base of the upper mandible to the nape where it widens; on each side of this stripe is a similar but shorter one, separated from it by a streak of yellowish or fawn; a dark brown stripe from nostrils to eyes; lower neck and mantle rufous with dark brown vermiculations; back and scapulars blackish-brown with rufous markings and glossed with green and purple, the scapulars broadly edged with yellowish or tawny, forming two long stripes reaching to the rump; wing-coverts variegated deep brown, rufous and yellowish-white; wings dusky brown, all except the first four primaries narrowly tipped with white; secondaries more broadly tipped with white; tail like the back; cheeks, chin, throat, neck, breast and sides mottled dark brown and pale fulvous or tawny; rest of lower plumage white.

Female. Similar to male.

Locality, habits etc. A winter visitor to the hills and plains but very scarce on the former; frequents marshy ground especially places where there are clumps of tangled grass, rushes or scrub. It is a very close sitter allowing the sportsman, as a rule, to almost stamp upon it before it will rise, and when it does rise it does not "up and away" but more frequently drops suddenly into cover again after a short flight, where it can be followed and again kicked up. Mr. Stuart Baker in his articles on the *Game Birds of India, Burma and Ceylon* (*Bombay Natural History Society's Journal, Vol. XX, No. 4*) quotes as follows from Hume concerning the Jack Snipe's favourite haunts:—"Now these pet abodes have a character of their own; they may always be correctly described as *corners*, sometimes they are corners of paddy-fields surrounded on two out of three sides by a low earthern embankment, sometimes they are in an angle formed by a little scrub, or a couple of bushes, often just at the corner of a bed of bulrushes or high reeds; they are always sheltered in secluded spots where the ground is thoroughly moist or marshy and where the cover is pretty high."

With regard to the comparative number of the various species of Snipe met with in our area, Mr. Stuart Baker gives the following information:—"The most carefully compiled table I have received up to the present is one sent me by Mr. R. F. Stoney of the Public Works Department who has been good enough to let me have a complete account showing the Snipe shot by him during the last ten years, 1901–02 to 1910, in the districts of Chingleput, Nellore, Madura, Bezwada, Villupuram, Ellore and Tanjore. From this most interesting table we find that out of 7,131 Snipe shot, only sixty were Jack, and that these were distributed fairly equally throughout the various districts of the Province.

Shooting in Cannanore, Major F. Wall, I.M.S., was even less fortunate in coming across this little Snipe, for, out of 427 Snipe shot, he records that there was only one Jack.

Again, Mr. Saunders, sending me notes on the comparative numbers of the different species of Snipe shot by him, says " . . . that in Bangalore out of 274½ couple of Snipe only four couple were Jack."

From Major E. G. Phythian Adams' game registers for the last four years it appears that he only got one Jack Snipe at Ootacamund in 1923–24, and two in Cannanore in January 1927.

Breeding season. The Jack Snipe breeds throughout Europe and Northern Asia during May and June.

Order STEGANOPODES.

"All four toes united by web, the hallux well developed and turned inwards. Skull desmognathous and holorhinal ; basipterigoid processes absent ; angle of mandible truncated. Furcula generally anchylosed to keel of sternum, least in *Sula* and *Phaëthon*. Oil-gland tufted ; cæca variable ; tongue rudimentary. Deep plantor tendons united by a strong vinculum, and only the slender portion of the *flexor longus hallucis* reaches the hallux. A quincubital after-shaft rudimentary or wanting. Plumage of the neck continuous without apteria. The eggs are somewhat variable. The young are hatched blind, either naked or covered with down, but in all cases undergo a protracted downy stage, during which they are helpless and fed by the parent birds "—(*Fauna of British India*).

Family PELECANIDÆ.

" This family, like *Phaëthonidæ*, *Sulidæ* and *Fregatidæ* consists of a single living genus which is distributed throughout the warm and temperate regions of the earth. There are 17 cervical vertebræ. The ambiens and all other of the characteristic thigh muscles are absent, except the femoro-caudal. No syringeal muscles "—(*Fauna of British India*).

Genus **PELECANUS** Linnaeus 1758.

" Upper mandible depressed, narrower and higher at the base, broader and flattened towards the end, composed of a median bar, convex externally, continuing the whole length of the bill and terminating in a strongly hooked nail, and of two lateral portions, each separated from the median bar by a very narrow but distinct groove, in the basal part of which the small nostril opens. Lower mandible thin, of two flexible arches supporting a large pouch of naked membrane. Sides of head including the eyes, without feathers ; wings ample ; tail short ; tarsus compressed, reticulate in front "—(*Fauna of British India*).

(484) **Pelecanus onocrotalus roseus** Gmel.

THE EASTERN WHITE OR ROSY PELICAN.

(*Fauna of British India*, 2nd edition, No. 2177.)
(*Fauna of British India*, 1st edition, No. 1520.)

Description—Male. " Length about 62″ ; tail 8″ ; wing 27″ ; tarsus 5″ ; bill from gape 14 to 16″ "—(*Fauna of British India*).

" In adults the upper mandible is blue, slightly mottled with white on the median rib, red at the sides, nail coral-red ; basal half of lower mandible blue, red at the margins, terminal half yellow ; pouch gamboge

yellow; face yellow ; iris lake red ; tarsus and toes pink, webs yellow. In young birds the bill is blue, faintly margined with black, nail pale chestnut, pouch ochre yellow, face violet, iris orange ; legs yellowish-white, the front of the tarsus and toes blackish "—(*Oates*).

In this and *P. onocrotalus*, the feathers of the forehead terminate in a point.

"Adults are white deeply suffused with rosy pink when in full breeding plumage; all primaries and primary-coverts black; secondaries black with white outer borders that become broader on the inner feathers, some of which and some scapulars generally have a narrow outer blackish edge; a patch of elongate feathers on top of breast, yellow or ochraceous."

"Young birds have the scapulars, the wing feathers quills and coverts above and below, and the tail-feathers brown ; primaries black ; head, neck and lower parts more or less mixed or tinged with dull ferruginous red."

"There is no true crest in the male ; the feathers, in a line or mane along the back of the neck, are slightly lengthened, and it is only in old females that a crest about 4 inches long occurs. Tail feathers 22 "—(*Oates*).

Female. "Are smaller (than the males) ; length 54″ ; tail 7″ ; wing 24″ ; tarsus 4·5″ ; bill 10 to 12″ "—(*Fauna of British India*).

Locality, habits, etc. There is a skin in the British Museum, presented by Jerdon, from Madras. It is a winter visitor.

(485) Pelecanus philippensis Gmel.

THE SPOTTED-BILLED PELICAN.

(*Fauna of British India*, 2nd edition, No. 2179.)
(*Fauna of British India*, 1st edition, No. 1523.)

Description—Male. "Length 62″ ; wing 24″ ; tail 18″ ; tarsus 3″ : bill at front 12 to 14″."

"Bill pale bluish, tinged with carneous, yellow at tip ; naked face and gular pouch pale livid fleshy, the latter varied with reddish lines and faintly tinged with yellow ; irides pale brown ; legs fleshy."

"Head and neck greyish white, the feathers rather scant and somewhat fur-like ; a short occipital crest of slightly recurved feathers brownish, tipped with greyish white ; upper plumage greyish-white, the feathers of the back, rump and upper tail-coverts being dingy-whitish, tinged with grey ; scapulars grey with black shafts, and the feathers white at the base ; lesser and median coverts greyish-white ; greater coverts grey with black shafts ; primaries dusky grey with black shafts, white at the base with white shafts ; secondaries and tertiaries much the same ; the tail grey, the feathers also black-shafted, and the basal half or two-thirds of the inner webs white, as well as the base of the shaft ; lower plumage greyish white, the feathers lanceolate, pure white in the centre and tip, with grey margins and brownish at the base ; under tail-coverts greyish-white slightly mottled with brownish ; under wing-coverts whitish "—(*Barnes*).

Female. Similar to male.

Locality, habits, etc. A permanent resident in various parts of the Presidency. "Pelicans congregate in numbers and they live wholly on fish which they often combine to drive to shallow water and fill their pouches with them; they consume large quantities and thus do great damage. They occur on rivers and the larger jheels. Their flight is rather slow, and in flying they draw back their heads; at night they roost on large trees"—*(C.M.I.)*.

Breeding season. The Rev. Howard Campbell writes in the *Journal Bombay Natural History Society, Vol. XIV, page 401*:—"In 1890 when in camp in a secluded valley in the extreme East of the Cuddapah District, in the end of March, I found a large number of Grey Pelicans breeding in company with a community of Painted Storks (*Pseudotantalus leucocephalus*). The nests, of which there were several hundreds, were on neem and tamarind trees in a small village called Buchupalle. The people of the village were very much averse to any interference with the nests. The birds trusted them and they would not have them injured, they said; so I did not examine many nests. I got three eggs of the Painted Storks, hardset, from one nest, but in every other nest, so far as I could see, there were young birds. The parent birds of both species kept coming and going, bringing quantities of a fine trailing of water-weed from a tank about two miles off, to feed their young."

Nest. Mr. C. E. Rhenius writing to the same Journal (*Volume XVII, page 806*), also gives a very interesting account of a colony of these birds which he found breeding in June, in the extreme south of the Tinnevelly District, also in company with Painted Storks. Oates found the bird breeding in Burma in November on huge trees, and in colonies, the nests on the same branch touching each other and looking "like an enormous string of beads; nests made of twigs, and eggs three in number."

Eggs. Three; chalky white, becoming brown from dirt during incubation and measure 3·2 × 2·8″.

"Eggs in my collection are elongated ovals pointed evenly at each end white and covered with a chalky substance thicker in places forming a very rough surface. They measure 3·1 × 2·1″"—*(C.M.I.)*.

Family PHALACROCORACIDÆ.

"The Cormorants and Darters are diving fishers with black or blackish plumage on the upper parts, and very often on the lower also. They have a longish neck, a somewhat slender and elongate bill, and stiff tail-feathers. The nostrils are small and not pervious. Cervical vertebræ twenty. Ambiens, femoro-caudal and semitendinosus muscles present, the two accessory thigh muscles wanting. Syringeal muscles present"—(*Fauna of British India*).

Sub-family PHALACROCORACINÆ.

"Bill hooked at tip, margins of commissure smooth"—(*Fauna of British India*).

Genus **PHALACROCORAX** Brisson 1760.

"Bill of moderate length, rather slender, compressed; culmen rounded, sharply hooked at the end, a long narrow groove on each side bifurcating at the dertrum or nail, and the lower branch running to the commissure. A gular pouch, naked anteriorly; wings of moderate length, 2nd quill usually longest. Tail rounded or cuneate, of 12 or 14 stiff feathers. Tarsus short and compressed; toes feathered, claws much curved"—(*Fauna of British India*).

(486) Phalacrocorax carbo sinensis (Shaw and Nod.,)

THE INDIAN LARGE CORMORANT.

(*Fauna of British India*, 2nd edition, No. 2180.)
(*Fauna of British India*, 1st edition, No. 1526.)

Description—Male. Length 33"; wing 14"; tail 7"; tarsus 2·25"; bill from gape 3·75".

Bill brown, paler below; irides green; facial skin pale greenish; pouch yellow; legs and feet black.

Head, neck, the whole plumage below, and the tail black.

Back, scapulars and wing-coverts pale bronze broadly margined with black; face from below the eyes and the chin and a large patch on the thighs, white.

During the breeding season the male assumes a lot of white hair-like feathers on the head and neck.

Female. Similar to male.

Young. "birds of the year are dull brown above with blackish margins to the feathers of the upper back, the scapulars and wing-coverts, the middle of the throat, the whole breast and the middle of the abdomen white. There is a gradual passage from this to the adult plumage which is only assumed in the fourth year, the upper parts at a period when there is still much white or whitish on the lower plumage resembling those in adult birds"—(*Fauna of British India*).

Nestling is naked when born and purplish black in colour but soon acquires a blackish down.

Locality, habits, etc. This bird was found breeding some forty miles from Bellary. All Cormorants, like Pelicans, are most voracious feeders, soon clearing a tank of fish. They swim with most of the body under the water and dive exceedingly well. Their flight is strong, but on land they walk clumsily, unlike Pelicans, they fly with extended necks. They are often seen preening or sunning themselves on a branch or stump. I have never seen them in any numbers but they breed in colonies either on trees or rocks. Captain Horace Terry writing of Southern India, as quoted by Hume says:—"Some thirty or forty miles from Bellary there was a tank near the Madras Railway where we used to go frequently in the cold weather to shoot duck and with usually the result of a very fair mixed bag of duck, teal, snipe, purple coot and bitterns, etc. We generally went a party of five or six and took with us a couple of home-made canoes, rather cranky affairs certainly, but still they would float as a rule and were of great service in keeping the duck on the wing.

Breeding season. "Near the centre of the tank there were some rocks, and one day, the 17th January, one of the party told me the Cormorants, several of which were flying about on the tank, were breeding there. I visited the rocks, two in number, the next day and found I could only climb on to one of them and there was only one nest with three eggs in it, and another with young birds. I could see some four or five nests on the other rock but could not get at them . . . "

Eggs. From 4 to 7 in number. They are elongated ovals, pointed at one end. The shell is greenish-blue in colour but this is only seen in places where the white chalky outer surface is scratched or has broken off. They measure 2·35″ × 1·5″.

(487) Phalacrocorax fuscicollis Steph.

THE INDIAN SHAG.

(*Fauna of British India*, 2nd edition, No. 2181.)
(*Fauna of British India*, 1st edition, No. 1527.)

Description—Male. "Length 25″; tail (of 12 feathers) 6·5″; wing 10·5″; tarsus 1·8″; bill from gape 3·25″"—(*Fauna of British India*).

"Bill dusky-brown, reddish beneath; irides verdigris blue; nude orbits black; gular skin yellow; feet black"—(*Jerdon*).

"Irides green; naked skin of head yellow"—(*Oates*).

In summer the whole plumage is black, except the back, scapulars and wing-coverts which are bronze broadly margined with black; a few white feathers, like specks, behind the eyes and a tuft of hair-like feathers springs from behind the ear-coverts.

In winter the plumage is like the above, but wants the ear-tufts, and has some white on the throat.

Female. Similar to male.

Young "birds are brown above, with black margins to the feathers of the upper back, to the scapulars and wing-coverts; throat white; breast and abdomen partly or wholly white"— (*Fauna of British India*).

Locality, habits, etc. Jerdon procured this bird in the Carnatic. Dewar records it from Madras. It frequents big rivers and lakes and large jheels. Jerdon says: "This is supposed to be the species of Cormorant used by the Chinese to catch fish. They are caught when young, and trained; a line is attached to them and they are put over the sides of the boat and as soon as they have taken a fish are handed in again and the fish taken from them. They are prevented from swallowing their prey by a ring placed round their necks."

Breeding season. July to December.

Nest. Of sticks, placed in tamarind trees or in reeds. They breed in colonies like other Coromants—(*C.M.I.*).

Eggs. 4 or 5; similar to those of *Phal. c. sinensis*, but smaller, measuring 2·15″ × 1·35″.

(488) Phalacrocorax niger (Vieill.).

THE LITTLE CORMORANT.

(*Fauna of British India*, 2nd edition, No. 2182.)
(*Fauna of British India*, 1st edition, No. 1528.)

Description—Male. "Length 20"; wing 9"; tail 6"; tarsus 1·4"; bill from gape 2·3".

"Bill brown, livid purple during breeding season; gular skin and orbits blackish, livid in summer; legs blackish, dusky livid at the same season"—(*Barnes*).

In summer forehead, lores, crown and sides of head, black, very narrowly streaked with white; a line extending from the posterior angle of the eyes, through the ear-coverts, to the sides of the nape whiter than the foregoing; the remainder of the plumage above and below glossy black; the wing-coverts, scapulars, secondaries, and tertiaries with wider or narrower grey or silver-grey centres to the feathers.

In winter chin white; head and neck all round brown, intermingled with black, which latter colour predominates down the centre of the head and nape; back, mantle and the whole lower plumage black narrowly margined with light brown giving the feathers a scale-like appearance; wing-coverts, scapulars, etc., as during summer.

Female. Similar to male.

Nestling. "Head naked; neck, middle of upper back, lower back, and under parts covered with very dark smoky brown down; wing-coverts and scapulars dark grey, margined with black; half-grown quills pointed and narrowly margined with brownish white; a line of feathers down the middle of the lower back black with a slight dark greenish gloss; a similar line from the middle of the breast deep brownish black with a slight gloss"—(*Cat. B.M.*).

Locality, habits, etc. A permanent resident commonly met with on most large tanks and rivers, and even on small patches of water.

"The bird is often shot and eaten in spite of its fishy taste." (*P. Surainathan.*) Presumably by Indians.

Breeding season. June to August.

"The breeding season commences in February and runs up to June"—(*P. Surainathan*).

Nest. A frail platform of twigs. This bird usually builds in company with *Ardeola grayii* and *Bubulcus coromandus*. Barnes says" . . . are placed on trees, standing well out into the water."

"This may be the case sometimes, but not always; in Sambalpur and Raipur in the Central Provinces, these birds together with the other two species above mentioned used to breed in large numbers in the tamarind and other trees which grew in the Sepoys' Lines and in the compound of the Officers' quarters (*H.R.B.*).

The people in whose villages they breed are often very loth to have them disturbed. (*C.M.I.*).

For tree breeding Cormorants near Chingleput see note on *Egretta a. modesta*.

Eggs. Usually 4 in number, pale greenish-blue when fresh, covered with a white chalky coating which soon becomes soiled; average measurement 1·67" × 1·12".

Sub-family ANHINGINÆ.

"Bill straight pointed, margins toothed"—(*Fauna of British India*).

Genus **ANHINGA** Brisson 1760.

"Bill slender, straight, very sharp pointed, both margins of commissure toothed near the tip; no lateral groove; nostrils small, basal, linear; neck very slender, with a bend at the 8th and 9th vertebræ. which, as Garrod has shown (P.Z.S. 1876, page 337), enables the bird, by suddenly straightening the neck, to transfix with its bill the fishes it captures. Wing pointed, 3rd quill longest; scapulars elongate and lanceolate, Tail long, cuneate, of 12 rigid feathers"—(*Fauna of British India*).

(489) **Anhinga melanogaster** Penn.

THE INDIAN DARTER OR SNAKE-BIRD.

(*Fauna of British India*, 2nd edition, No. 2183.)
(*Fauna of British India*, 1st edition, No. 1529.)

Description—Male. Length 32″; wing 13 to 14″; tail 9″; tarsus 1·5″; bill from gape 4·5″.

Bill pale horny above and at tip of lower mandible; rest of lower mandible and the pouch yellowish; irides yellow; legs black.

A minute ridge of white feathers from base of upper mandible over the eyes; a long white stripe from below the eyes reaching down to about half the length of the neck; forehead, head, neck and central portion of back mottled dark brown and tawny or pale brown, the feathers of the lower neck and upper back being scale-like in appearance; the centre of the back of the neck darker than the rest; the sides of the neck separated from the breast by a pale rufous line formed by the tips of the feathers; lower back blackish-brown, the sides and wing-coverts spotted with white oval drops which gradually increase in size and length towards the scapulars; scapulars and wing blue-black, the former with long silvery medial stripes; the tertiaries and inner secondaries with broad silvery white longitudinal bars on the outer webs; tail blue-black, some of the feathers having an undulating surface to the outer webs giving the appearance of black bars to the feathers, face, chin and throat white, spotted with small brown spots; lower neck in front, and all lower plumage rich glossy black-brown.

Female. Similar to male.

Young in down. "Head, neck, upper back and under parts covered with white down, amongst which the plumage of the immature is more or less visible; quill and tail-feathers half grown, pointed and narrowly margined at the extremity with pale brownish-white. Scapulars and wing-coverts much like those of the adult but fringed externally with brown. Total length 28·5"—(*Cat. B.M.*).

Locality, habits, etc. A common permanent resident on the plains frequenting large tanks and jheels where it may often be seen swimming very low with only its head and neck above water; it also dives

well. The bird may also be frequently seen perched on a branch with its wings spread out like a Cormorant. Its food consists wholly of fishes. Single birds are often come across, but in places they congregate in considerable numbers.

Breeding season. In Travancore, September. In Madras, January and February. For breeding near Chingleput see note on breeding of *Egretta a. modesta.*

Nest. Babool trees are said to be the favourite site for their nests which are composed of sticks. These birds breed in colonies with Cormorants and other birds.

Eggs. 3 or 4; similar to those of *P. fuscicollis* but rather more pointed and measure 2·15 × 1·4″.

Family SULIDÆ.

"A powerful pointed bill and the outer nostrils in adults are completely closed. Cervical vertebræ 18. Ambiens, femoro-caudal and semitendinosus muscles present; the two accessory thigh-muscles present. No syringeal muscles"—(*Fauna of British India*).

Genus **SULA** Brisson 1760.

"In this genus the bill is powerful, straight compressed and pointed; the culmen is flattened, hooked at the base, curved at the end but not hooked; the upper mandible has a groove on each side near the culmen; the nostril is completely closed in adults, minute and basal in young birds; the inner margins of their mandibles are serrated, more strongly so towards the tip; the wings are long and pointed; the tail long and wedge-shaped, the tarsus is short but powerful, with the outer and middle toes equal and the claw of the middle toe broad and pectinated"—(*Fauna of British India*).

(490) Sula leucogaster plotus (Forster).

THE BOOBY OR BROWN GANNET.

(*Fauna of British India*, 2nd edition, No. 2184.)
(*Fauna of British India*, 1st edition, No. 1530.)

Description—Male. "Length 32″; tail 8″; wing 15″; tarsus 1·7″; bill from gape 4·7″"—(*Fauna of British India*).

Bill creamy white with a bluish tinge in veins; pouch, gape, lores and orbital space pale hoary greenish yellow; irides white; legs and feet pale yellow"—(*Hume*). Tail-feathers 16 to 18.

"Head and neck, upper plumage, wings, and tail chocolate-brown; median under wing-coverts white, others brown; lower plumage and axillaries pure white"—(*Fauna of British India*).

Female. Similar to male.

Young birds "have the upper parts, head and neck much paler brown; the white on the lower parts is replaced by pale smokey-brown, most of the feathers white edged"—(*Fauna of British India*).

Locality, habits, etc. Occurs in the Bay of Bengal; Jerdon obtained one on the Malabar coast. These are Oceanic birds but as Blanford says:—"They are more commonly found singly or in flocks about reefs and islands and they breed chiefly on isolated rocks in the sea, sometimes near continents, laying a single egg which is extremely white, but bluish green when the outer layer is removed. All have a steady, rather powerful flight, generally to be recognized by the birds habit of alternately making a few rapid beats with the wings and then sailing for some distance with wings extended. They feed upon fish, the tropical species very generally on flying fish, but remains of cuttle-fishes have been also found in their stomachs. The Gannets, or Solan Geese as they are often called, dash into the sea after their prey from a considerable height and with great force, but Boobies appear less addicted to this style of fishing. The name Booby appears to be derived partly from the stolid appearance of the birds, partly from their frequently settling on vessels and allowing themselves to be easily captured.

(491) Sula sula rubripes Gould.

THE AUSTRALIAN RED-LEGGED GANNET.

(*Fauna of British India*, 2nd edition, No. 2185.)
(*Fauna of British India*, 1st edition, No. 1531.)

Description—Male. "Length about 26″; tail 8·5″; wing 15″; tarsus 1·3″; bill from gape 4″."

"Bill, facial skin, legs and feet red (*Sundevall*); irides grey, bill in young bluish pink, orbital area plumbeous, pouch flesh-coloured (*McGillivray*). Tail feathers 14″.

"Primaries, secondaries and greater wing-coverts blackish-brown, the visible portion washed with silver-grey; remaining plumage white, often washed or stained with fulvous"—(*Fauna of British India*).

Female. Similar to male.

Young birds "have the head, neck or under parts silvery yellowish-brown, the under parts more grey and darker towards the vent; rest of lower plumage dark brown."

Nestling in down pure white.

Locality, habits, etc. Blyth said this bird was common in the Bay of Bengal and Jerdon writes that it is occasionally seen there, so perhaps it may occur off our coasts.

(492) Sula dactylatra personata Gould.

THE AUSTRALIAN MASKED BOOBY OR GANNET.

(*Fauna of British India*, 2nd edition, No. 2187.)
(*Fauna of British India*, 1st edition, No. 1532.)

Description—Male. Length 31 to 32·5″; wing 15·5 to 16″; tail 7·5″; tarsus 2·25″; bill from gape 5·25″.

Bill yellow along the commissure, both mandibles feebly serrated, the upper mandible furrowed; irides pale lemon-yellow; the legs and

feet greenish-blue, face to behind the eyes, the chin and the soft part of the lower mandible blue-grey; feet webbed; nails white; claw of middle toe pectinated exteriorly; tail feathers 14.

Head, neck and upper back white with numerous small brown spots; lower plumage pure white, except the sides and flanks which have a few brown spots and smudges; upper plumage from the upper back and the wing-coverts brown tipped and edged with white; wings blackish-brown; tail brown; secondaries and tertiaries brown centred black and with the basal portion white.

Female. Similar to male.

Locality, habits, etc. "The above is a description of a female obtained by me at Cannanore on the West Coast, on the 20th July 1911; this was at the height of the monsoon and the bird had no doubt flown southwards out of its course; it was observed by my servants sitting on the edge of the cliff which abruptly terminated my compound and was apparently much exhausted as it allowed the mali to creep up and hit it over the head with a stick. This, as far as I can discover, is the only record of the occurrence of this species within our limits"—(*H.R.B.*).

Blanford, however, writes:—"Of occasional occurrence on the Indian coasts, both East and West of India."

Family PHAËTHONIDÆ.

"The members of this family are about the size of the smaller Gulls and combine the structure of Gannets or Cormorants with the habits and appearance of Terns. They have a satiny white plumage with a few black markings. The bill is pointed not hooked, the nostrils are narrowly pervious, and the palate is imperfectly desmognathous, the maxilla-palatines being separate behind though united with the nasal septum anteriorly and the vomer being well-developed and conspicuous. Cervical vertebræ 15. Ambiens absent; femoro-caudal, semi-tendinosus, and accessory semi-tendinosus present, the last-named muscle not occurring in other Steganopodous birds. Syringeal muscles present. Members of the present family are also distinguished by laying spotted eggs"—(*Fauna of British India*).

Genus PHAËTHON Linnæus 1758.

"Bill stout, slightly curved throughout, the margins finely serrated. Wings very long, 1st primary longest; middle pair of tail-feathers excessively elongated and attenuated. Tarsus very short"—(*Fauna of British India*).

(493) Phaëthon rubricauda rubricauda Bodd.

THE RED-TAILED TROPIC-BIRD.

(*Fauna of British India*, 2nd edition, No. 2189.)
(*Fauna of British India*, 1st edition, No. 1535.)

Description. "Length 33"; tail 19"; wing 13"; tarsus 1·25"; bill from gape 3·25"."

Bill yellow, legs and basal portion of feet yellow; rest of feet black. Tail-feathers 16.

"White, often tinged with rosy; a patch in front of the eye and a small streak behind, the shafts of primaries and the tail-feathers, except

at the ends, broad shaft-stripes to the latter secondaries and tertiaries, black; there are broad, grey shaft-stripes on the long flank-feathers; the long middle tail-feathers have black shafts and red webs."

young birds "have the upper parts with black"—(*Fauna of British India*).

Locality, habits, etc. Jerdon says its voice somewhat resembles that of *Hydroprogne caspia*, the Caspian Tern. This species has been obtained in the Bay of Bengal.

(494) Phaëthon lepturus lepturus Daud.

THE WHITE TROPIC-BIRD.

(*Fauna of British India*, 2nd edition, No. 2190.)
(*Fauna of British India*, 1st edition, No. 1534.)

Description. "Length 30″; tail 18″; wing 10·75″; tarsus 9″; bill from gape 2·8″.

Bill pale yellow; legs and base of toes olive-yellow; feet black; tail-feathers 12″.

"Coloration white and satiny; a crescentic patch in front of each eye, and a broad stripe behind it to the ear-coverts black, as are the outer webs, shafts, and inner webs near the shafts of the first five or six primaries, with the exception of the white tips, ·75 to 1·5 inches long, in Indian Ocean birds; greater portion of each tertiary and a band along the smaller secondary coverts some distance from the edge of the wing also black."

"Young birds, as usual, are barred above with black"—(*Fauna of British India*).

Locality, habits, etc. Jerdon says:—"It has, it is stated, been killed in the Bay of Bengal." One was once got as far inland as Cachar in Assam.

Blanford writes:—"The Tropic-Birds, called by sailers Boatswain (Bo'sun) birds, because, it is said, the long median tail-feathers recall the Boatswain's marling spike, are truly oceanic and are commonly seen at a distance from land where they attract attention by their habit of flying up to ships, hovering round the masts and sometimes resting on the mast-head. They have a swift and elegant flight and are often seen with their bills pointed downwards but they turn their heads in various directions sideways and even backward when flying. Their visits to ships appear due to curiosity, anything serves to attract them and the firing of a gun will often bring them from a considerable distance. They feed on fish captured on the surface. They breed on Oceanic islands chiefly in holes of rocks laying a single egg . . . ".

FAMILY FREGATIDÆ.

"Although as in other families of the present order, all four toes are united by a membrane, the web is much less developed than in the allied forms. The tarsus is broad, and very short. Furcula anchylosed to keel of sternum; nostrils not pervious. Cervical vertebrae 15; syringeal muscles present; ambiens and femoro-caudal developed, the other characteristic thigh muscles wanting."—(*Fauna of British India*).

Genus **FREGATA** Lacépède 1799.

"Bill long, straight, and strongly hooked at the end, both mandibles being curved downward at the tip; culmen flattened; lateral grooves deep, bifurcating at the dertrum or nail, and the lower branch terminating in a notch in the margin; nostrils in the groove, basal and linear. A large naked gular pouch. Wings very long and pointed; first quill considerably the longest. Tail of 12 feathers, deeply forked. Tarsus very short, feathered; middle toe longest; web between toes deeply emarginate; claws long, curved, that of middle toe pectinated inside"—(*Fauna of British India*).

(495) Fregata andrewsi Mathews.

THE CHRISTMAS ISLAND FRIGATE-BIRD.

(*Fauna of British India*, 2nd edition, No. 2191.)
(*Fauna of British India*, 1st edition, No. 1524.)

Description. "Length up to about 40"; wing 24"; tail up to 19"; depth of fork up to 11·5"; tarsus 8"; bill from gape up to and 5·5": bill bluish grey; iris dark brown; naked skin of throat red; legs and feet red"—(*Wait*).

Male. Black with a white abdomen.

Female. Black with lower throat to vent white.

According to Mathews the largest female has a wing of 635 mm., and a bill of 136 mm.

"In immature birds the head and neck are white; back brownish; feathers of the lower and median wing-coverts brown with black shafts and pale borders. The change to mature plumage is gradual"—(*Wait*).

Locality habits, etc. Jerdon got a specimen shot off Mangalore on the Malabar coast, and it has been seen in the Bay of Bengal.

Blanford says:—"Frigate or Man-O'-War Birds are well known to sea-men from their remarkably powerful flight (which resembles Accipitrine birds) and from the use they make of their speed in pursuing Gannets, Gulls and Terns in order to rob them of their prey. The Frigate-Birds live by piracy in tropical seas, just as the Skuas do in colder latitudes, but the species *Fregata* do not confine themselves to fish taken by other birds, they often capture flying fishes, cuttle fishes crabs or even young turtles . . . They breed on Oceanic islands."

Nest. The nest of sticks is placed on rocks or on bushes, and a single white egg is laid.

Order TUBINARES.

"They may be at once distinguished from all other birds by the nostrils terminating externally in tubes, separate or united. The rhamphotheca or horny covering of the bill is divided into several pieces by deep grooves, as in some *Steganopodes*, and the upper mandible is generally much hooked at the end. The anterior toes are webbed throughout; the hallux is small, rudimentary or absent, being frequently represented by the claw-phalanx alone. The wings are long in the typical forms; the primaries 11; the fifth secondary wanting. Oil-gland tufted. Spinal feather-tract well-defined on the neck by lateral bare tracts; forked on the upper back.

"Petrels are schizognathous and holorhinal. The vomer is large, broad, depressed and pointed. Nostrils impervious. Cervical vertebræ 15. Large supraorbital glands. Two carotids. Caeca rudimentary, or wanting. Femoro-caudal and semitendinosus muscles always present; ambiens and accessory femoro-caudal generally, but wanting in a few genera.

"The majority of the species lay a single egg in a burrow or under stones, without any nest, some as the Albatrosses, make a nest in the open. The egg is either entirely white, or has a faint zone of reddish spots near the larger end. The young are helpless, and clad with down till fully grown. Sexes alike in coloration"—(*Fauna of British India*).

Family PROCELLARIIDÆ.

"Characters those of the order"—(*Fauna of British India*).

Genus **PUFFINUS** Brisson 1766.

"The Shearwaters, as they are generally termed, are birds of moderate size, with a long slender, compressed bill much hooked at the tip, and with both mandibles curving downward at the end. The tubular nostrils terminate in two distinct oblique orifices, directed forward and upward, with a broad division between them. Wings long, first quill longest. Tail of 12 feathers, moderately long, graduated, rounded at the end. Tarsus compressed, sharp in front, reticulated, shorter than the middle and outer toes which are subequal; hind claw distinct"—(*Fauna of British India*).

(496) Puffinus pacificus hamiltoni Mathews.

THE WEDGE-TAILED OR GREEN-BILLED SHEARWATER.

(*Fauna of British India*, 2nd edition, No. 2196.)
(*Fauna of British India*, 1st edition, No. 1538.)

Description—Male. "Length 17″; tail 5″; wing 11; tarsus 1·8″; bill from gape 1·75″; the median rectrices exceed the outer by about 1·5″";—(*Fauna of British India*).

"Bill dusky greenish; iris dusky; legs and feet fleshy white"—(*Legge*).

"Dark smoke-brown, slightly paler and greyer beneath especially on the throat, which has an ashy tinge"—(*Legge*).

Female. Similar to male.

Locality, habits, etc. Legge thinks that this is the bird probably which was obtained by Jerdon at Madras. Dewar also includes it in his *List of Madras Birds*, saying "I have never seen this bird, but Jerdon is supposed to have obtained a specimen in Madras; hence its inclusion in this list."

(497) Puffinus persicus Hume.

THE PERSIAN SHEARWATER.

(*Fauna of British India*, 2nd edition, No. 2200.)
(*Fauna of British India*, 1st edition, No. 1539.)

Description—Male. "Length 13″; tail 2·8″ (median feathers about ·5″ longer than outer); wing 7·9″; tarsus 1·5″; bill from gape 1·75″"—(*Fauna of British India*).

"Bill dusky brown, bluish at base and on three-fourths of lower mandible; irides brown; legs and feet white tinged with pink and lavender; claws, margins of web, outer toe, and part of ridge of mid-toe black"—(*Hume*). The amount of black on the foot varies slightly.

"Whole upper surface uniform blackish brown, the dark colour extending on the head to a little beneath the eye-feathers; around eye whitish; lower surface pure white; flanks, axillaries and under wing-coverts near edge of wing dark brown; remainder of wing-lining white"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. Ferguson writing from Travancore says "A single specimen was taken at Valey, four miles from Trivandrum and was brought to me alive." Not given from our area in the *Fauna of British India*.

Genus **DAPTION** Stephens 1826.

"Bill short, stout, gonys angulate near the end and the extremity inclined upward; nostrils terminating in a single orifice, but divided within. Wings long, first quill longest, secondaries short. Tail rather short, slightly rounded at the end; rectrices 14. Tarsus slender, reticulate, somewhat compressed and shorter than the middle or outer toe; hind claw stout"—(*Fauna of British India*).

(498) Daption capense (Linn.)

THE CAPE PETREL.

(*Fauna of British India*, 2nd edition, No. 2201.)
(*Fauna of British India*, 1st edition, No. 1540.)

Description—Male. "Length about 16″; tail 4″; wing 10·25″; tarsus 1·7″; bill from gape 1·6″—(*Fauna of British India*).

"Bill black; irides brown; legs and feet deep brown, the toes spotted at the side and whitish."

"Head all round and hind neck brownish black ; upper parts white, each feather broadly tipped with black except the smaller wing-coverts and the primary coverts which are black throughout ; quills and tail-feathers white with long black tips, the outer webs of the earlier primaries also blackish ; lower parts from the throat white, the feathers of the throat and lower tail-coverts more or less spotted with dusky "—(*Legge*).

Female. Similar to male.

Locality, habits, etc. Blanford writes :—"This Petrel known to sailors as the "Cape Pigeon" is common throughout the Southern Oceans, but is of rare occurrence north of the Equator. A single individual, of which the skin is preserved in the Hume collection, was shot by Mr. Theobald in the Gulf of Mannar between Ceylon and the Mainland." These birds follow ships and will eat anything thrown overboard especially if it is fat.

Order HERODIONES.

"In the *Herodiones* the skull is desmognathous, and basipterygoid processes are wanting. The nostrils are pervious. There are two carotids; the cæca are rudimentary; the oil-gland is tufted, and the wing aquincubical. Plantar tendons galline as a rule but the vinculum in some Herons and Bitterns is weak or absent, so that the *flexor longus hallucis* passes freely to the hallux as in *Passeres*. The tibia, except in a few Herons, is partially bare, the toes long, the hind-toe well developed and not raised above the other toes. Almost all the genera make nests of sticks in trees, and the young remain in the nest for a time and are fed by the parents"—(*Fauna of British India*).

Sub-order **PLATALEÆ.**

"The members of this sub-order are schizorhinal, an exceptional character amongst desmognathous birds and the posterior portion of the mandible is prolonged behind the quadrate, as in *Anseres* and recurved. In the sternum there are two incisions on each side of the posterior border. Cervical vertebræ 17. All the muscles of the thigh present, including the accessory femoro-caudal which is wanting in Storks and Herons. A pair of intrinsic syringeal (tracheo-bronchial) muscles present as in *Ardeæ*"—(*Fauna of British India*).

Family PLATALEIDÆ.

Genus **PLATALEA** Linn., 1758.

"Both mandibles greatly flattened, especially anteriorly where they become broader, spoon-shaped, and slightly curved down at the tip; nostrils near base, elongately oval, each in a groove that extends from the base, the two grooves parallel at first and diverging at the nostrils and running thence to the tip just inside the curved border of the mandible. Sides of head in front of eye naked. Legs long, tibia half-naked, tarsus reticulated throughout; toes long, bordered by membrane and webbed at the base"—(*Fauna of British India*).

(499) **Platalea leucorodia major** Temm., and Schleg.

THE INDIAN SPOONBILL.

(*Fauna of British India*, 2nd edition, No. 2202.)
(*Fauna of British India*, 1st edition, No. 1545.)

Description—Male. "Length, of male, 33″; tail 4·75″; wing 15″; tarsus 6″; bill from gape 8″".—(*Fauna of British India*).

"Mr. D. Hatchel records the dimensions of a young bird taken off a nest, as follows:—Bill from gape 4·2″; wing 19″; tarsus 7·5″.

"Bill black, more or less yellow at the tip; loral space yellow, gular skin extending 2½ to 3 inches down the throat reddish yellow; legs and feet black. Bill in young birds yellow, later dark ashy"—(*Fauna of British India*).

Plumage pure white, with a tawny patch on the lower foreneck; during the breeding season a large nuchal crest is assumed.

Female. Similar to male.

Locality, habits, etc. A resident in well-watered districts, associating in small flocks as a rule; their food consists of insects, worms, crustacea, varied with water-plants, small fishes and frogs.

Breeding season. They breed in colonies during the winter months. Mr. D. Hatchell found a nest with young amongst rushes in the Kolair lake; Hume writes:—"They always build on trees near to, or on the back of, some broad lake or swamp, and though I have found many parties breeding far away from human haunts, I have found many more nesting on trees actually in, or in the outskirts of, villages . . . all the trees on the right of the village were occupied by spoonbills, certainly at least two hundred pairs were breeding there, but a still larger number of Shell-Ibises had nests in the trees to the left of the village. The neem trees and the mangoes were occupied by myriads of Paddy-Birds, Egrets and White Herons, and a clump of acacias was tenanted by the Little Cormorants and Darters. In a kudun tree were several nests of the Whistling Teal. In a large hollow of an old mango-tree we got a Nuktah on eight eggs."

Eggs. "Usually 4, elongated ovals, chalky white with ill-defined brown spots, and measuring about 2·7″ × 1·81″"—(*Fauna of British India*).

Family THRESKIORNIDÆ.

"The members of this family were long confounded with Curlews. The bill is long, curved downwards and compressed at the sides, and there is on each side of the culmen a longitudinal groove in the basal portion of which the nostril is pierced"—(*Fauna of British India*).

Genus **THRESKIORNIS** Gray 1842.

"The head and neck naked; bill stout, blunt, the nostril linear; tibia half naked; tarsus reticulate, toes long, bordered by a membrane that forms a web towards the base, especially between the third and fourth toes. Tail moderate, of 12 feathers. Tertiaries in the breeding season with elongate plumules forming ornamental plumes"—(*Fauna of British India*).

(500) Threskiornis melanocephalus (Lath.).

THE WHITE IBIS.

(*Fauna of British India*, 2nd edition, No. 2203.)
(*Fauna of British India*, 1st edition, No. 1541.)

Description—Male. "Length 30″; tail 5″; wing 14″; tarsus 4″; bill from gape 6·5″.

"Bill black; irides red-brown; head and neck dark bluish black; legs glossy black; skin of wing blood-red."

"Plumage white, the ends of the tertiaries slaty grey, and generally the tips of the first primaries edged and mottled with brown.

In breeding plumage there are elongate white feathers round the base of the neck and plumes on the upper breast, and the grey tertiaries are elongate and loose-textured."

Female. Similar to male.

Young birds "have the head and neck feathered as far forward as the eyes; the head, except beneath, blackish-grey which passes gradually into the white on the hind neck"—(*Fauna of British India*).

Locality, habits, etc. Found usually in flocks, throughout the Presidency in suitable places such as swamps and large tanks where reeds and trees are growing. Its food consists of worms, insects, molluscs, etc.

Breeding season. November to February. Hume found eggs from the 20th June to the 28th August.

For breeding near Chingleput see note on the breeding of *Egretta modesta*.

Nest. A platform of sticks placed on some large trees. Hume writes:—"They breed generally in small companies and often by themselves and well away from human haunts, but at times in the society of other species and in the outskirts of villages. I have never found, I think, more than a dozen pairs of this species breeding together, and I have more than once found solitary pairs. Large banian, peepul and tamarind trees are what they prefer to build on, and they construct a moderate-sized stick nest, perhaps 20 inches to 2 feet in diameter, with a more or less well-marked central depression."

Eggs. From 2 to 4 in number, generally 3, bluish or greenish white, as a rule without markings, but occasionally delicately spotted with yellowish brown, and they measure on an average 2·54″ × 1·7″—(*Fauna of British India*).

Genus **PSEUDIBIS** Hodgson 1844.

"Two Indian species of Ibis are distinguished by having the head naked in adults but not the neck; the bill is more slender than in the genus *Threskiornis*, the feet shorter and the plumage nearly black instead of white"—(*Fauna of British India*).

(501) **Pseudibis papillosus** (Temm.).

THE INDIAN BLACK IBIS.

(*Fauna of British India*, 2nd edition, 2204.)
(*Fauna of British India*, 1st edition, 1542.)

Description—Male. "Length 27″; tail 7·5″; wing 15·5″; tarsus 3″; bill from gape 5·5″."

"Crown of adults nearly covered with the red papillæ. the area thus ornamented cut off transversely behind and pointed in front; reminder of naked skin of head black; bill greenish leaden; irides dull orange red; legs and feet brick-red."

"Neck and body above and below dark olive-brown, with slight greenish gloss on the back, a large white patch on the inner lesser and marginal coverts of each wing; rest of the wing above and below and tail black glossed with purplish and green."

Female. Similar to male.

The young "has the head feathered on the crown and throat, the feathered area above and below ending in a point; the fore-head, area round the eye, and the chin bare. Feathers of the neck and body with rufous edges"—(*Fauna of British India*).

Locality, habits, etc. Blanford states that this bird is found as far south as Mysore, except on the Western coast, and Mr. Hatchell of the Madras Survey Department reports having shot a couple out of a flock of eight at Peddangopavaram in the Nellore District in November 1902. As regards its habits, Blanford states :—"The Black Ibis is far less of a marsh bird than the White Ibis, and is generally found on dry cultivation or open ground in pairs or small parties. It is said to feed partly on grain, but chiefly on insects, crustacea, etc. It often perches on large trees, and it has a peculiar harsh cry, not very frequently uttered except in the breeding season."

Breeding season. According to Blanford it breeds at various seasons, March and April, and again in August and September in Northern India; about December in the Deccan.

Nest. Hume writes :—"In parts of Southern India, as in Sholapur, this species lays in November and December."

Blanford says that it sometimes lays in a nest that has been used by a Vulture, Eagle or Owl. "I have found such a nest, it was an old one of *Sarcogyps calvus* and the Ibis had lined it with leaves and grass"—(*C.M.I.*).

Eggs. "3 or 4, sea-green unspotted as a rule and measuring about 2·43″ × 1·7″"—(*Fauna of British India*).

"I have generally found either 2 or 3 eggs in a nest"—(*C.M.I.*).

Genus **PLEGADIS** Kaup., 1829

"This genus is distinguished by having the head feathered except on the lores and area in front of the eye. The tarsi are lengthened and scutellate in front; toes long and slender. The bill is much more slender than in the genus *Ibis*"—(*Fauna of British India*).

(502) **Plegadis falcinellus falcinellus** (Linn.,)

THE GLOSSY IBIS.

(*Fauna of British India*, 2nd edition, No. 2206.)
(*Fauna of British India*, 1st edition, No. 1544.)

Description—Male. "Length about 22″; wing 10″; tail 3·5″; tarsus 3·25″; bill from gape 4·5″. Blanford states :—"Length 25″; tail 4″; wing 11″; tarsus 4″; bill from gape 5·25″".

"Bill dull pale greenish; irides brown; lores and nude orbits pale green; legs blackish-green with a blue garter above knee"—(*Barnes*).

"Bill dark livid brown ; facial skin livid, extending round the eye ; irides brown, in some mottled with grey ; legs and feet bronzed brown-bluish above the knee "—(*Fauna of British India*).

Breeding plumage. Head, neck, upper back and all lower plumage rich chestnut, tinged bronze-green and purple on head, face and throat ; some feathers of abdomen tipped dull brown ; remainder of plumage highly glossed with bronze-green and purple.

In non-breeding plumage. The head, neck are brown streaked with white.

Female. Similar to male.

Locality, habits, etc. A permanent resident in the well-watered districts, generally associating in large flocks in the vicinity of large tanks. Its food consists of worms, insects, molluscs, etc. This bird is said to be excellent eating.

Breeding season. We have no information as to its breeding in our area. It has been found breeding in Sind in June "and in Ceylon in January and February "—(*Fauna of British India*).

Nest. Stick nest placed in trees. They have been found breeding in company with *Anhinga melanogaster*, *Pseudibis p. papillosus* and *Platalea leucordia major*, *etc.*

Eggs. Usually 3, elongated ovals of a beautiful blue colour. Hume gives the average as 2·01″ × 1·40″.

Sub-order **CICONIAE.**

"The Storks which constitute the present sub-order are holorhinal the mandible is not produced behind its articulation with the quadrate and there is a single incision on each side in the posterior border of the sternum. Cervical vertebræ 17 ; ambiens generally present but small, occasionally wanting. Accessory femoro-caudal is sometimes wanting. No tracheo-bronchial muscles of the syrinx, hence all Storks are absolutely destitute of voice ; they make sounds by snapping their bills, and some are said to emit a grunting noise. The dorsal bare tract does not extend to the neck. There are no powder-down patches, and the middle claw is not pectinate "—(*Fauna of British India*).

Family CICONIIDÆ.

"Bill stout and long, without any distinct groove at the sides of the upper mandible ; gonys long ; wings long ; tail short ; legs very long ; tibia half naked ; tarsus reticulated with hexagonal scales. Toes of moderate length ; the three anterior toes united by web at the base ; hind toe on same plane ; claws generally short, broad and blunt "—(*Fauna of British India*).

Genus **CICONIA** Brisson 1760.

"The typical Storks have a long, stout, tapering and pointed bill the lower mandible slightly inclined upward towards the end ; nostrils almost linear, basal, pervious ; orbits naked, sides of head feathered around them ; lewer half of tibiæ bare ; tarsi long, reticulated ; feet short, toes broad ; claws very short, broad, depressed "—(*Fauna of British India*).

(503) Ciconia ciconia ciconia (Linn.,).

THE WHITE STORK.

(*Fauna of British India*, 2nd edition, No. 2207.)
(*Fauna of British India*, 1st edition, No. 1546.)

Description—Male. "Length 3½'; tail 9·5"; wing 24"; tarsus 1"; bill from gape 8"."

"Bill fine blood-red; irides brown; naked orbits black; legs red.'

"Plumage white except the quills, primary coverts, larger secondary coverts, and longer scapulars which are black slightly glossed with purple and green; outer webs of secondaries more or less frosted with white"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. A winter visitor from Northern latitudes, common in Northern India and the Deccan, but rarely met with in this Presidency.

"Storks may be seen feeding, in paddy fields, along the edges of swamps, etc., on frogs, fishes, snakes, etc. Many of the inhabitants, especially Muhammadans, eat their flesh. They are said to collect in great numbers before migration"—(*C.M.I.*).

Genus **DISSOURA** Cabanis 1850.

"This is distinguished from *Ciconia* by having the forehead and sides of the head to behind the eyes nude, and the upper tail-coverts stiff and bifurcating, the exterior coverts longest nearly reaching the tip of the tail"—(*Fauna of British India*).

(504) Dissoura episcopa episcopa (Bodd.,).

THE INDIAN WHITE-NECKED STORK.

(*Fauna of British India*, 2nd edition, No. 2210.)
(*Fauna of British India*, 1st edition, No. 1548 (part).)

Description. Length 31·12"; wing 17·5"; tarsus 6"; bill from gape 5·75".

Bill horny brown tinged red; the tips and margins of both mandibles red; irides red with a semi-circle of orange posteriorly; top of upper eye-lids pale yellow; legs and feet red.

Forehead and whole face to behind the ears naked, plumbeous; crown black; nape, chin and neck of white downy feathers; lower abdomen, under tail-coverts and tail, white; feathers of lower neck (which are bushy and long), hind neck and median coverts black glossed with rich purple and dull green; remainder of plumage black glossed with green and with purple reflections on the body.

The above is the description of a female shot by me at the top of the Sigur Ghat, Nilgiris, near Ootacamund on 24th December 1921—(*H.R.B.*).

Male. Similar to female.

Jerdon gives the dimensions as :—" Length 36–37" ; wing 20" ; tail 7" ; bill at front 6" ; tarsus 7" " and his description of the bird tallies very well with the above.

In " *Fauna of British India* " the dimensions given are :—Length 36" ; tail 8" ; wing 20" ; tarsus 6·5" ; bill from gape 6·5".

Locality, habits, etc. A permanent resident frequenting the banks of rivers and tanks, paddy-fields, etc. Blanford states that it is also found on open plains and cultivation and that it feeds on insects, reptiles, frogs, molluscs, crabs, fish, etc. I have seen it in flocks on the shallow tanks outside Trichinopoly and in the paddy-fields near the river which runs parallel to the Railway between Shoranur and Calicut, and, as above stated, I shot a female on 24th December 1921, off a swamp at the top of the Sigur Ghat near Ootacamund, Nilgiris ; the bird was alone and on dissection I found it had two small frogs and a half-digested mass of aquatic insects in its stomach ; this is the first occurrence, so far as I can ascertain, of this bird on the Nilgiris and it was doubtless a straggler on its way to or from the plains—(*H.R.B.*).

This bird is sometimes known as the " Beef-steak-Bird." Ferguson records two from Travancore.

Breeding season. Hume writes :—" In parts . . . of Southern India they sometimes lay as early as March." " End of December to March "—(*Fauna of British India*).

Nest. " Simul trees are often selected as nesting sites but I have also found one on a peepul. I have found two nests on the same branch and *touching* each other. The nests are built about 80 ft. from the ground when on large simul trees. One nest I found measured 52 inches including the protruding sticks ; it was composed of twigs and branches ; the nest proper was 29" × 24" and 20" deep at the part situated in the fork but only 9 inches at the opposite side. The egg cavity measured 14" × 13" and 13" deep without the lining which was wholly composed of green simul leaves to a depth of 6" "—(*C.M.I.*).

Eggs. " Normally 4, bluish white, measuring about 2·5" × 1·83" " —(*Fauna of British India*).

" I have had a clutch of 6 eggs from one nest and after they were taken the birds laid another clutch of 6 "—(*C.M.I.*).

Genus **XENORHYNCHUS** Bonaparte 1855.

" Bill very long, ascending slightly towards the tip ; tarsus very long. Head and neck completely feathered "—(*Fauna of British India*).

(505) Xenorhynchus asiaticus asiaticus (Lath.,).

THE BLACK-NECKED STORK.

(*Fauna of British India*, 2nd edition, No. 2211.)
(*Fauna of British India*, 1st edition, No. 1549.)

Description—Male. " Length 52" ; tail 9" ; wing 24" ; tarsus 12 to 13·5" ; bill from gape 12" "

" Bill black ; gular skin and eye-lids dusky purple ; irides bluish brown ; legs and toes coral-red (*Oates*). Irides dark brown in the male, bright yellow in the female "—(*Gurney*).

"Head and neck black richly glossed with bluish green, except the occiput which is coppery brown passing into purple on the edges; scapulars, tertiaries, greater secondary-coverts, greater under wing-coverts and tail black, richly glossed with metallic green; rest of plumage white"—(*Fauna of British India*).

Female. Similar to male.

"In **young birds** the head, neck, back and wings are brown, many of the feathers with pale edges; the scapulars and wing-feathers darker and glossed with green; the quills whitish towards the base; lower back and rump whitish, middle upper tail-coverts brown; tail-feathers brown, whitish for some distance at the base and white-tipped; sides of breast brown; lower parts from neck white"—(*Fauna of British India*).

Locality, habits, etc. A permanent resident in well-watered districts seen along river banks or near jheels; it feeds on frogs, fish, crabs, etc.

Breeding season. September to December.

Nest. Hume writes:—"They build upon large trees, very commonly on large peepul trees, but I have found the nest on sheeshum, simul and many other kinds. The nest, always a great platform of sticks, is sometimes enormous . . . fully 6 feet long by 3 feet broad, and so deep that three fully-fledged young ones, just able to fly, were able to crouch in it so as to be invisible."

Eggs. "Usually 4 white eggs measuring about 2·91″ × 2·12″"—(*Fauna of British India*).

Genus **LEPTOPTILOS** Lesson 1831.

"Bill very large, high at the base, tapering gradually, culmen and commissure nearly straight, culmen as long as the tarsus or longer; nostrils small, narrow near the culmen. Head and neck nearly naked, having only a few scattered hair-like feathers; crown absolutely nude"—(*Fauna of British India*).

(506) Leptoptilos dubius (Gmel.).

THE ADJUTANT.

(*Fauna of British India*, 2nd edition, No. 2212.)
(*Fauna of British India*, 1st edition, No. 1550.)

Description—Male. "Length 60″; tail 13″; wing 32″; tarsus 13″; bill from gape 13″"—(*Fauna of British India*).

"Bill pinkish flesh-colour; skin of head and chin pale reddish brown, rough and blackish on the forehead; neck saffron-yellow turning to pink at the end of the pouch which is spotted with black; loose skin at back of neck brick-red; irides yellowish white; legs and toes brown, the edge of the reticulations white (*Oates*). Bill pale dirty greenish; legs greenish white (*Jerdon*). The pouch is sometimes 12″ to 16″ or more in length but is capable of extension and retraction to a considerable extent"—(*Fauna of British India*). I have seen birds with necks wholly fleshy pink spotted with black on front portion of neck"—(*C.M.I.*).

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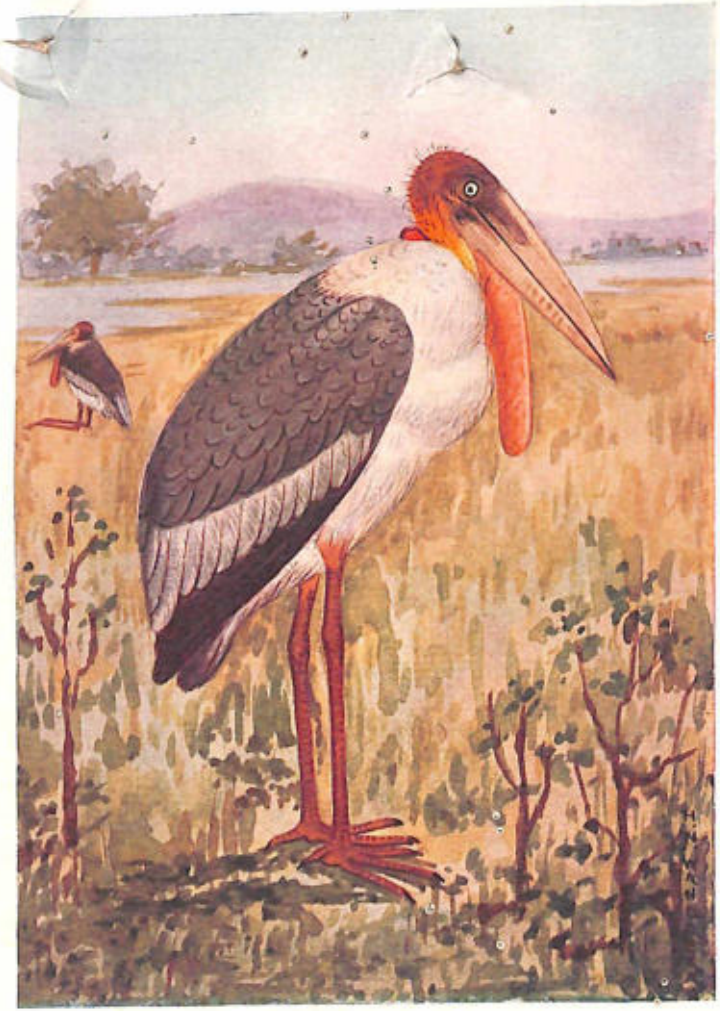
THE EASTERN GREY HERON
(*Ardea cinerea rectirostris*).
One-eighth Nat. Size.



THE ADJUTANT
(*Leptoptilos dubius*).
One-twelfth Nat. Size.

Breeding plumage. "Head, neck and pouch nearly naked, a few scattered dark brown feathers only occurring. A ruff of white feathers round the base of the neck; upper plumage, wings and tail black with a slight green gloss; greater wing-coverts and tertiaries silvery grey; lower parts white, the under tail-coverts soft and downy.

"In non-breeding plumage the tertiaries and greater-coverts are black like the rest of the wing"—(*Fauna of British India*).

Female. Similar to male.

"**Young birds** have the greater wing-coverts and tertiaries brown"—(*Fauna of British India*).

Locality, habits, etc. We have no record of the occurrence of the Adjutant in the Presidency but include it on the strength of Jerdon's statement—"rare in the South . . . it is occasionally met within Mysore." Where found, it frequents the outskirts of towns and banks of large rivers, also along the edges of jheels, feeding on refuse and offal as well as on frogs, fish, etc.

Brigadier-General R. G. Burton found one feeding on the carcass of a gaur along with some vultures in a forest.

Lt.-Colonel Bingham wrote to Hume :—"I was much struck by a curious noise the adjutants made when disturbed, a sort of loud grunting croak not unlike the low of a buffalo."

Breeding season. Breeds in colonies in Burma.

(507) Leptoptilos javanicus (Horsf.,).

THE SMALLER ADJUTANT.

(*Fauna of British India*, 2nd edition, No. 2213.)
(*Fauna of British India*, 1st edition, No. 1551.)

Description—Male. "Length 54"; tail 11"; wing 26"; tarsus 10·5"; bill from gape 12"."

"Bill dirty yellowish; bare top of head dirty green; nude face and neck much tinged with yellow and at seasons with red; irides whitish; legs dusky black"—(*Jerdon*).

"Scattered hair-like feathers and down on neck and on sides of head, much thicker about the nape, dark brown; upper plumage, wings and tail, black glossed with metallic green; feathers of the back, scapulars and wing-coverts closely barred across, a coppery spot in some skins (breeding plumage) close to the tip of each larger secondary-covert; longer scapulars and tertiaries edged laterally with white; lower parts white except the wing-lining which is black; under tail-coverts longer than in *L. dubius*, very soft. Young birds have more feathers about the nape"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. Apparently very rare; Jerdon met with it on the Malabar coast; frequents well-watered localities and feeds on reptiles, fish, etc.

Ferguson wrote :—"By no means common, but may be found about the tanks in South Travancore." He also remarks that a live jackal that got into an enclosure in which one of these birds was kept, was found dead with a pierced skull.

Jerdon says it prefers a wooded country.

Breeding season. "Breeds in . . . Travancore from February to May "—(*Fauna of British India*).

They breed in company and Mr. Hole got a number of eggs in Cachar; he found that the birds deliberately made holes in the eggs with their bills when they saw they were going to be molested. They also breed in the Duars.

Nest. A large structure of sticks, on high trees at a considerable height from the ground.

Eggs. Usually 2, sometimes 3, white; Mr. Stuart Baker gives the average measurements as 2·94″ × 2·2″.

Genus **IBIS** Lacépède 1799.

"Bill long, scarcely compressed, broad at the base, bent down towards the tip; lower mandible slightly concave beneath; culmen rounded throughout; both mandibles sub-cylindrical, anteriorly; nostrils near the culmen, basal, oval; head and throat, naked; nape and neck feathered; legs long; tibia half-nude, toes long. Lower tail-coverts extending beyond the tail "—(*Fauna of British India*).

(508) Ibis leucocephalus leucocephalus (Penn.).

THE PAINTED STORK.

(*Fauna of British India*, 2nd edition, No. 2214.)
(*Fauna of British India*, 1st edition, No. 1552.)

Description—Male. "Length 40″; tail 6·5″; wing 20″; tarsus 9·5″; bill from gape 10″"

"Bill and facial skin orange-yellow, plumbeous at the base of the bill; irides pale yellow; legs, toes and claws brown "—(*Fauna of British India*).

"White, except the primaries, secondaries and tail which are black glossed with green; lesser and median but not greater coverts the same with broad white margins; the under wing-coverts and a broad band across the lower breast black glossed with green, with white edges to the feathers; tertiaries pink with white borders; scapulars and greater wing-coverts white tinged with rosy "—(*Fauna of British India*).

Female. Similar to male.

"In **young birds** the neck and back are light brown, the neck-feathers scale-like with dark edges which are broader behind than in front; lesser and median wing-coverts dark brown, greater coverts paler; quills and tail as in adults; the rump, breast and abdomen sullied white "—(*Fauna of British India*).

Locality, habits, etc. A permanent resident in well-watered districts, frequenting rivers, large tanks and swamps.

Jerdon writes:—"The Pelican-Ibis is extremely common throughout India, Burma and Ceylon, frequenting rivers, tanks, ponds and marshes, generally in parties more or less numerous, occasionally alone. It stalks about the shallows with its bill in the water, partially held open, instantly seizes any fish, frog or crab that comes in its way. If the fish

be a spiny one it crushes its spines between its strong mandibles and then swallows its head foremost. During the heat of the day it stands motionless in water, knee deep, digesting its morning meal."

Mr. Burgess writes :—" Some idea of the quantity of fish caught by these birds may be gathered from what the people told me, that quantities of fine fish were dropped by the old birds when feeding their young, and were eaten by them."

Breeding season. In this Presidency during the early months of the year. " February in parts of Southern India"—(*Hume*).

Nest. The usual platform of small sticks placed on village trees. They nest in colonies ; Hume found some seventy nests on four trees, and writes that the nests are small for the size of the bird.

Eggs. According to Blanford, " usually 4, but sometimes as many as 8," white, measuring 2·77″ × 1·88″.

Mr. Hatchell, in a note on a female shot and presented to him, states that it was found to have two immature eggs of a bright *red* colour ? and measuring 1·1″ in length by 1·05″ in breadth.

Hume writes that the " eggs are typically elongated ovals, and a good deal compressed towards one end . . . of a dull white colour, much stained and soiled as incubation proceeds, and occasionally with a few dingy brown spots and streaks."

Genus **ANASTOMUS** Bonnaterre 1790.

" This genus may be recognized at once by its remarkable bill in which, when adult, an open space is left between the mandibles. These are in contact for a distance from the gape and again at the tip. The bill is strong and stout and the genys considerably curved ; the anterior half of the upper mandible is furnished with lamellæ along the commissure. Face in front of the eyes, and around them with the area below the eyes, and the chin and throat naked in adults, only the lores naked in young birds. Tarsus moderate, about as long as the culmen, reticulate ; toes and claws considerably longer in proportion than in Storks generally "—(*Fauna of British India*).

(509) **Anastomus oscitans** (Bodd.).

THE OPEN-BILL.

(*Fauna of British India*, 2nd edition, No. 2215.)
(*Fauna of British India*, 1st edition, No. 1553.)

Description—Male. " Length 32″ ; tail 7″ ; wing 16·5″ ; tarsus 5·5″ ; bill from gape 6″."

" Bill dull greenish, tinged with reddish beneath ; nude orbits and gular skin blackish ; irides grey or pale brown ; legs pale fleshy."

" In **breeding plumage** the longer scapulars, all the quills, the winglet, primary and greater secondary coverts and the tail are black glossed with dark green and purple ; remainder of plumage white. At the moult after the breeding season the white is replaced by smoky grey, darkest on the occiput and upper back. This becomes white by a change of colour in the feathers at the breeding season. The black parts of the plumage undergo no change "—(*Fauna of British India*).

Female. Similar to male.

Young birds "have the back and shorter scapulars brown ; longer scapulars and tertiaries brownish ; otherwise they resemble adults in non-breeding plumage "—(*Fauna of British India*).

Locality, habits, etc. Occurs in districts where there are lakes, tanks and larger rivers. Mr. D. Hatchell states that it is common in the Nellore District.

Jerdon gives the following interesting account of these birds :— "This curious bird is very abundant throughout those parts of the country which abound in rivers, tanks and marshes . . . where many hundreds may be seen congregated together, roosting on trees overhanging some large jheel. It lives chiefly on mollusca, especially on the large *Ampullaria*, but also on various others. Colonel Sykes states that he found it feeding on a spices of *Unio*. I was formerly of opinion that the open space between the mandibles was mainly caused by a process of wearing down from constant attrition with various shells. I am now inclined to doubt this. Many years ago several Shell-eaters were brought to me alive, for the purpose of training of Bhyri, and these, as is usual to prevent them struggling or fluttering, had their eyes sewn up. To feed them the falconer had a quantity, of the large *Ampullaria* brought, which were placed before the captive and blinded Shell-eaters. The bird secured a shell by its feet, and after sundry alterations of its position, succeeded in cutting off the operculum as cleanly as if it had been done by a razor, but so rapidly that I was unable to see the exact way in which it was accomplished. It then inserted the tip of its clumsy beak into the open mouth of the shell, and after working it about for some time pulled out the entire shell-fish almost to its utmost tip. I saw this process repeated many times, and I cannot conceive that a bird which takes the trouble to extract the animal from the comparatively brittle *Ampullaria* should require to bruise the more hard and solid shell of the *Unio*. Colonel Sykes indeed states that the gaps exist in the young individuals (an observation which I have also confirmed), and that it is a provision of nature to enable them to open the shells of the *Unio*, on which they feed ; as to how this is effected I cannot speak from experience. The Shell-eater in default of its proper food will eat fish, frogs, etc."

Both Sykes and Jerdon must have been mistaken when they state that in the young bird the bill is open.

Breeding season. Said to breed along the East Coast during December. Ferguson believes they breed in June. "In Southern Madras where Packard took eggs early in December "—(*Fauna of British India*).

In most parts of India they appear to breed in June, July and August, but are said to breed in January, July and March in Ceylon.

Also see note in breeding of *Egretta a modesta*.

Nest. A large platform of sticks, a number of birds occupying the same tree ; sometimes in the vicinity of villages.

Eggs. "2 to 5, generally 4 ; white, measuring about 2·24″ × 1·6″ "—(*Fauna of British India*).

Sub-order **ARDEÆ**.

"This sub-order, containing the Herons and their allies, is holorhinal ; the mandible is not produced behind its articulation with the quadrate, and there is only a single incision on each side of the

posterior border of the sternum. Cervical vertebræ 18 to 20. Ambiens and accessory femoro-caudal absent. Femoro-caudal sometimes very small. A pair of tracheo-bronchial muscles present. The spinal bare tract extends far up the neck ; in one genus, *Ixobrychus*, the whole back of the neck is naked "—(*Fauna of British India*).

Family ARDEIDÆ.

"Bill generally slender, straight, grooved at each side of the upper mandible ; nostrils lateral, in the groove ; legs long ; toes long and slender, a slight web between the outer and middle toes, hind toe well-developed, on the same plane as the others. Herons are also distinguished by the presence of powder-down patches on each side of the rump and of the breast and by the middle claw being pectinated "—(*Fauna of British India*).

Genus **ARDEA** Linnaeus 1758

"Bill long, compressed, pointed, culmen nearly straight, both mandibles slightly serrated at commissure, upper mandible grooved on each side of culmen ; nostrils sub-equal, elongate, situated in the groove. Sides of head to behind eyes naked. Tarsus long, scutellate in front ; tibia half-naked. Wings ample ; tail short. Upper surface grey ; the feathers at the base of the neck and the scapulars elongate, forming ornamental plumes ; no dorsal train. Head crested "—(*Fauna of British India*).

(510) **Ardea purpurea manillensis** Meyen.

THE EASTERN PURPLE HERON.

(*Fauna of British India*, 2nd edition, No. 2216.)
(*Fauna of British India*, 1st edition, No. 1554.)

Description—Male. "Length 38″ ; tail 5·25″ ; wing 14·5″ ; tarsus 5·5″ ; bill from gape 4″ ; toes very long, the middle toe and claw as long as the tarsus."

"Bill deep yellow, brownish above ; orbital skin greyish yellow ; irides yellow ; tarsus reddish brown, yellowish behind and on the soles of the feet."

"Forehead, crown, long occipital crest, a streak down the back of the neck, and another streak on each side from the gape to the nape, slaty black ; chin and throat white, rest of head and neck ferruginous red, paler and buff on sides of head and middle of foreneck ; long feathers overhanging upper breast buffy white, streaked with black and chestnut ; lower hind neck, back, rump and upper tail-coverts, wings and tail slaty grey ; the back darker, and the quills and tail-feathers blackish ; scapulars with long pointed rufous ends ; middle of breast and abdomen and lower tail-coverts, slaty black ; sides of breast rich chestnut ; flanks ashy grey ; thigh coverts crimson ; wing-lining mostly ferruginous "—(*Fauna of British India*).

Female. Similar to male.

Young birds "have neither crest nor lengthened plumes on the scapulars or breast; the upper parts are brownish grey with broad rufous edges to the feathers; crown partly grey; neck rufous, foreneck with black streaks; lower surface a mixture of buff and grey"—(*Fauna of British India*).

Locality, habits, etc. "A common permanent resident frequenting tanks, edges of rivers and swamps where there are plenty of rushes and long grass. Mr. Hatchell reports specimens shot at Bhimadole in the Godavari District, at the Nagathur canal, Kurnool District, and at Dharmapuri, Salem District, and it occurs in Travancore. "It rises with a loud, harsh cry which it repeats as it flies along especially it has been alarmed"—(*Jerdon*).

Breeding season. During July and August. Said to breed in the Chingleput District also breeds in Travancore.

Nest. "A large structure of sticks placed in dense clumps of rushes or in thickets."

Eggs. "4 or sometimes 5; bluish green, measuring about 2·17″ × 1·56″"—(*Fauna of British India*).

(511) Ardea cinerea rectirostris Gould.

EASTERN GREY HERON.

(*Fauna of British India*, 2nd edition, No. 2218.)
(*Fauna of British India*, 1st edition, No. 1555 (part).)

Description—Male. "Length 39″; tail 7″; wing 18″; tarsus 6″; bill from gape 6″."

"Bill dusky yellow, culmen brownish; loral skin greenish; iris golden yellow; legs and feet greenish brown, with the tibia and posterior part of the tarsus greenish yellow"—(*Fauna of British India*).

"Head white, with the exception of the occiput, nuchal plumes and a broad band from the occiput to each eye which are purplish black; neck white tinged with greyish lilac, lower foreneck streaked with black; upper parts from neck including tertiaries, wing-coverts and tail-feathers, ashy grey; scapulars with elongate pearly grey or whitish tips; outer wing-coverts pale or whitish; primaries and secondaries, primary coverts and winglet, bluish black; elongate breast-plumes white; middle of breast and abdomen, thigh-coverts and lower tail-coverts, white; a black patch of lengthened plumes on each side of the breast, continued as a black band on each side of the abdomen to near the vent; sides of body, flanks and wing-lining, ashy grey.

"In **females** the black crest-plumes are shorter, and the black feathers on each side of the abdomen less prominent.

Young birds "have the head and neck grey, except a small nuchal crest and white chin and throat; scapulars and breast-plumes wanting, and no black on the breast, though the black streaks on the foreneck are very conspicuous; upper plumage brownish grey"—(*Fauna of British India*).

Locality, habits, etc. A common permanent resident in well-watered districts of the Presidency. Ferguson says:—"It frequents the back-waters along the coast throughout Travancore but is not found in the interior."

"Eaten by Indians"—(*P. Surainathan*).

Breeding season. Varies somewhat; Hume says "more generally, I think, they lay in India during the rainy season." In Ceylon, Legge says, they breed between November and March.

Nest. A platform of sticks, often several pairs of birds build in the same tree, generally in company with Cormorants, Egrets.

Eggs. Usually 3, bluish-green; average measurement 2·27″ × 1·63″.

Genus **EGRETTA** Forster 1817.

"The true Egrets are Herons with pure white plumage at all times and with, in the breeding season, a dorsal train of feathers elongate and "decomposed," *i.e.*, with the barbs or rami separate and distant from each other so as to form the ornamental plumes or aigrettes from which the bird's name is derived. They are slenderer birds than those forming the genus *Ardea* and have a smaller, more compressed bill and a very thin neck. Though all very similar except in the breeding season and only to be distinguished by size, they develop in the nuptial plumage different tufts of ornamental feathers, and on this account, the three Indian species are made by Sharpe, the types of as many genera."

(512) Egretta alba modesta (Gray).

THE EASTERN LARGE EGRET.

(*Fauna of British India*, 2nd edition, No. 2223.)
(*Fauna of British India*, 1st edition, No. 1559 (part).)

Description—Male. Length 33″; wing 13·5″; tail 5·5″; tarsus 5·5″; bill from gape 5·25″. These birds vary a good deal, and the above can be taken as average measurements only.

Bill orange-yellow, tip somewhat dusky; lores and eyelids greenish-yellow; legs and feet, black; tibia feathered for half length, lower feathers tinged with pale brown; toes and claws, black; hind toe 3·25″.

Entire plumage white, skin black.

In the **breeding season** the bill becomes black, the orbital skin bright green, the naked portion of the tibia bluish-black and an elongate train of decomposed feathers is assumed.

Female. Similar to male.

Locality, habits, etc. A permanent resident throughout the Presidency in the well-watered districts, frequently found in company with other Egrets.

Ferguson says the Large Egret is by no means common in Travancore. These and the other species of *Egretta* are the birds that supply the trade with feathers and should be most strictly preserved during the breeding season.

Breeding season. "November to March in Southern India"—(*Fauna of British India*).

Nest. A platform of sticks. Like all Egrets this bird breeds in company.

Hume gives a long account received from a correspondent in Southern India on the breeding of this species, etc.:—"About fifty miles from Madras and twelve miles from Chingleput in a south-easterly direction is a small village called Vaden Thangul . . . To

the south of the village lies one of those small tanks called 'Thangul' by the Tamil ryots . . . The Vaden Thangul tank . . . is three and a half miles distant in a direct line from the great Southern Trunk Road . . . From the north-east to the centre of the bed of the tank there are some five or six hundred trees of the *Barringtonia racemosa*, from about ten to fifteen feet in height, with circular, regular, moderate-sized crowns, and when the tank fills, which it does during the monsoons, the tops only of the trees are just visible above the level of the water. This place forms the breeding resort of our immense number of water-fowl—Herons, Shell-Ibises, Ibises, Water-Crows or Cormorants, Darters and Paddy-Birds, etc., make it their rendezvous on these occasions.

"From about the middle of October to the middle of November small flocks of 20 or 30 of some of these birds are to be seen coming from the north to settle here during the breeding season. By the beginning of December they have all settled down; each tribe knows its appointed time and arrives year after year with the utmost regularity within a fortnight later or earlier, depending partly on the seasons. The nests lie side by side touching each other, those of the different species arranged in groups of five or six, or even as many as ten or twenty, on each tree. The Ibises do not build separate nests, but raise a large mound of twigs and sticks shelved into terraces as it were, and each terrace forms a separate nest; thus eight or ten run into each other. The Shell-Ibises sometimes adopt a similar plan."

Eggs. Usually 3, less often 4; bluish-green; average measurement 2·11″ × 1·55″.

(513) Egretta intermedia intermedia (Wagler).

THE INDIAN SMALLER EGRET.

(*Fauna of British India*, 2nd edition, No. 2224.)
(*Fauna of British India*, 1st edition, No. 1560.)

Description—Male. "Length about 26″; tail 5″; wing 12″; tarsus 4·5″; bill from gape 3·75″."

"Bill yellow with the tip dusky; orbital skin greenish-yellow."

"Bill in breeding season black; facial skin green; iris yellow; legs and toes black; tibia yellowish-brown"—(*Fauna of British India*).

Plumage pure white.

In the **breeding season,** the bird develops a long dorsal train which reaches nearly to the ground; it has also well-developed, decomposed pectoral plumes at that period, but lacks a crest.

Female. Similar to male.

Locality, habits, etc. Found throughout the Presidency wherever there is a sufficiency of water, usually in flocks or in company with other Egrets.

Ferguson says it is fairly common about the edges of the backwaters and lakes from quilon northwards.

Breeding season. See account of breeding of previous species. "In Madras and the south . . . during December and January"—(*Fauna of British India*).

Nest. A platform of sticks ; many birds often build upon the same tree.

Eggs. 4 ; pale bluish-green ; average measurement 1·9″ × 1·44″.

(514) Egretta garzetta garzetta (Linn.,).

THE LITTLE EGRET.

(*Fauna of British India*, 2nd edition, No. 2225.)
(*Fauna of British India*, 1st edition, No. 1561.)

Description—Male. "Length about 25″; tail 3·75″; wing 11″; tarsus 4″; bill from gape 4″."

"Bill black at all seasons, base of lower mandible yellowish ; facial skin greenish-yellow ; tarsus black, toes mixed yellowish and black"—(*Fauna of British India*).

Plumage pure white, dorsal plumes greatly elongated during the breeding season ; pectoral feathers also lengthened but not decomposed like the former ; crest of two long thin feathers.

Female. Similar to male.

Locality, habits, etc. Found in company with other Egrets throughout the Presidency in well-watered districts.

Ferguson writes from Travancore—"Not uncommon about the backwaters along the Coast, going about solitary or in pairs."

Besides feeding on fish, frogs, etc., it has been seen eating a lizard.

Breeding season. See note on breeding of *E. a modesta*. "In the extreme south from March to May or earlier"—(*Fauna of British India*).

Nest. A platform of sticks ; many Egrets of all sorts building indiscriminately on the same tree.

Eggs. 4 to 6 ; pale bluish-green ; average measurement 1·73″ × 1·32″.

Genus **BUBULCUS** Bonaparte 1855.

"This is distinguished from *Egretta* by shorter bill and feet, by the middle portion of the tibia being shorter than the inner toe without claw, and by the changes in the breeding season being quite different. The culmen is much shorter than the middle toe and claw, and these are shorter than the tarsus. In non-breeding plumage birds of this genus are pure white, but in the breeding season buff hair-like plumes appear on the head, neck and back. The habits of the present genus differ greatly from those of *Egretta*"—(*Fauna of British India*).

(515) Bubulcus ibis coromandus (Bodd.,).

THE CATTLE EGRET.

(*Fauna of British India*, 2nd edition, No. 2226.)
(*Fauna of British India*, 1st edition, No. 1562.)

Description—Male. Length about 20″ ; wing 10 to 11½″ ; tail 3·75 to 5″ ; tarsus 3·5 to 4″ ; middle toe and claw 3·7″ ; mid-claw pectinate on the inside ; bill from gape 3 to 3·8″.

Bill fleshy yellow, tip of upper mandible horny ; irides pale yellow; face and eyelids pale greenish-yellow ; legs and feet black.

In non-breeding season the whole plumage is pure white ; in the breeding season the head, neck and dorsal plumes are orange-buff.

"In a breeding colony seen by me some of the birds had not assumed breeding plumage "—(*C.M.I.*).

Female. Similar to male.

Locality, habits, etc. A very common permanent resident wherever there are paddy-fields and wetlands ; usually associates in flocks and is generally found in attendance upon cattle whether single or in herds, feeding upon the grasshoppers and insects disturbed by the animals, also picking ticks off them.

Breeding season. The winter months "The breeding season commences in October and is over in January "—(*P. Surainathan*). "December to March in Southern India "—(*Fauna of British India*).

Nest. A platform of sticks. These birds prefer to build in large colonies and in company with other Egrets, Pond Herons, Little Cormorants, etc., and they appear to be somewhat particular in their choice of nesting sites. One tree will hold a nest on almost every available fork, while the one next to it will hold none.

Eggs. 3 to 5 ; pale green ; average measurement 1·71″ × 1·32″.

Genus **DEMIEGRETTA** Blyth 1846.

"This genus is very much like *Egretta* and is distinguished by having the dorsal train comparatively short, composed of lanceolate feathers, not of plumes with the barbs widely separate, by the pectoral plumes also being lanceolate, by these ornamental feathers not being assumed at the breeding season only but being found on adults throughout the year, by the nude portion of the tibia being less than half its length and by coloration. As a rule the species of this genus are of a nearly uniform dark grey or slaty tint with the remarkable peculiarity that certain individuals are pure white at all times. The difference does not always, as was formerly supposed, depend on age, for many white birds are clearly adults, but some young white birds of *D. s. asha* kept by Mr. Cumming in the Persian Gulf changed to grey between the fifth and eighth month "—(*Fauna of British India*).

(516) **Demiegretta asha** (Sykes).

THE INDIAN REEF-HERON.

(*Fauna of British India*, 2nd edition, No. 2228.)
(*Fauna of British India*, 1st edition, No. 1563.)

Description—Male. Length 24·25 to 26″ ; wing 10·5 to 10·75″ ; tail 3·5 to 3·75″ ; tarsus 4″ ; middle toe and claw 2·75″ ; bill from gape ·4″.

"Bill horny above and at tip of lower mandible, pale yellowish below ; irides pale yellow, golden yellow "—(*Fauna of British India*) ; eyelids and face yellow ; legs and feet dingy greenish-yellow.

Chin, throat and upper portion of neck, white ; remainder of plumage above and below slaty, paler and washed with white below ; quills darker slaty ; primary coverts, white.

"Many birds however, both old and young, are pure white throughout"—(*Fauna of British India*).

Female. Similar to male.

Locality, habits, etc. "This bird is somewhat rare and is, as a rule, only found on the sea-coast, backwaters, etc. I met with it at Cannanore and Mr. Hatchell records obtaining a possible specimen near Ellore"—(*H.R.B.*)."

Ferguson wrote from Travancore:—"A single specimen was obtained by the Museum Collector at Ayrentonga on the coast near Kayankolum; it was perched on a cocoanut palm."

Hume writes:—"The Western Reef-Heron is found as a permanent resident along, and in the neighbourhood of, the whole Western Coast of India from Soomeanee Bay to Cape Comorin and up the Eastern Coast as far as Paumban."

"It has occurred far inland; I got one on the 25th March in Bihar which was said to be feeding with other Egrets"—(*C.M.I.*).

Breeding season. Said to breed during May.

Nest. "The usual nest of sticks on mangrove or other trees near the shore, but nests made on the ground have been found on barren uninhabited islands."

Eggs. "3 to 5, pale sea-green, and measure about 1·85″ × 1·35″"—(*Fauna of British India*).

Genus **ARDEOLA** Boie 1822.

"The Pond Herons, or, as they are often called by British ornithologists, Squacco Herons, are smaller than the true Herons and Egrets, and are somewhat intermediate in plumage between Egrets and Herons. The head, neck and back are always coloured but undergo a complete change of colour in the breeding season; the posterior half of the body with the wings and tail is white. The species are scarcely distinguishable in non-breeding plumage though differing widely in their nuptial garb. The feathers of the neck, back and upper breast are elongate, and those of the last two decomposed in breeding plumage; a crest of elongate lanceolate feathers is only developed in the breeding season. Both the bill and tarsi are shorter than in typical Herons; the bill is stout, the culmen about equal to the middle toe and claw or to the tarsus; wings ample; tail short, of 12 feathers"—(*Fauna of British India*).

(517) **Ardeola grayii** (Sykes).

THE POND HERON OR PADDY-BIRD.

(*Fauna of British India*, 2nd edition, No. 2229.)
(*Fauna of British India*, 1st edition, No. 1565.)

Description—Male. Length 19″; wing 9″; tail 3·5″; tarsus 2·25″; bill from gape 3·25″.

Bill blue at base, yellow in middle, black at tip; irides yellow; orbits yellowish-green; legs and feet greenish-yellow.

Non-breeding plumage. Chin and throat white; neck and upper breast fulvous, striped brown; lower breast and wings white, the latter tinged

yellow ; thigh-coverts fulvous, lining of wings white ; head, crest and neck fulvous, striped dark brown, back dark brown, the shafts and wing-coverts white ; tail white.

In **breeding plumage** the head and neck are light yellowish-brown, the crown darker ; chin and throat white ; occipital crest formed of long, pointed, lanceolate feathers, white ; upper breast ashy-brown streaked whitish ; back and inner scapulars long, decomposed, deep maroon, blackish or dark slaty towards the tips ; outer scapulars buffy ; remainder of body, wings and tail white.

Female. Similar to male.

Locality, habits, etc. The Paddy-bird is so common everywhere on the plains wherever there is any water, that little need be said about it. Paddy-fields especially, edges of tanks, ditches, swampy ground are their favourite haunts. It is frequently difficult to spot them owing to their colouration and to their habit of sitting bunched up and still when not actually seeking for food which consists of crabs, frogs, etc. "Shot and eaten by the majority of Indians"—(*P. Surainathan*).

It occasionally ascends to the summit of the hills and I have observed it during the winter season, flying about the lake at Ootacamund—(*H.R.B.*).

Breeding season. Varies with localities ; nests may be found from December to about May. "December to March in Southern India"—(*Fauna of British India*).

Nest. A platform of sticks, many birds building on the same tree and in company with Egrets and Cormorants.

Eggs. 4 to 6 ; greenish or bluish-green ; average measurement 1·48″ × 1·17″.

Genus **BUTORIDES** Blyth 1852.

"With this genus we pass to the crepuscular and nocturnal Herons, leading to the Bitterns. *Butorides* is distinguished from *Ardeola* by having no separate nuptial plumage, by being dark-coloured throughout, by having the tibia feathered to within a short distance (half an inch in the Indian species) of the joint, and especially by having a shorter tarsus and smaller feet, the middle toe and claw being about equal to the tarsus but much shorter than the culmen. The head is crested ; scapulars and interscapulars elongate and lanceolate, not disintegrated. Rectrices 12"—(*Fauna of British India*).

(518) Butorides striatus javanicus (Horsf.,).

THE INDIAN LITTLE GREEN HERON.

(*Fauna of British India*, 2nd edition, No. 2231.)
(*Fauna of British India*, 1st edition, No. 1567 (part).)

Description—Male. "Length about 18″ ; tail 2·5″ ; wing 7″ ; tarsus 1·9″ ; bill from gape 3″"—(*Fauna of British India*).

Bill horny above, greenish-yellow below ; legs dusky green ; soles of feet orange.

"Forehead, crown, a streak under the eye and long occipital crest black glossed with green ; region between eye-streak and crown white ;

chin and centre of throat white, cheeks white ; remainder of head and neck grey, the centre of the foreneck white marked with grey and browny-grey ; long scapulars and interscapulars grey glossed with bronze-green and the outer feathers all bronze-green ; rump blackish-grey, bronze-tinted ; upper tail-coverts and tail blackish grey, glossed externally with green and the tail-feathers white-shafted and with purer grey centres ; wing-coverts dark glossy green, each feather narrowly edged with white ; primaries black, the outer webs suffused with green and greyish at the tips ; secondaries greener and edged with white ; lower parts pale grey, the white bases to the feathers shining through everywhere ; under tail-coverts white with blackish tips or edges "—(*Fauna of British India*).

Female. Similar to male.

Young birds "have the crown dark brown or black with some whitish shaft-stripes ; upper parts, wings and tail brown, the feathers with triangular buff terminal spots ; lower part white streaked with brown"—(*Fauna of British India*).

Locality, habits, etc. A permanent resident, but not often seen owing to its habit of retiring amongst bushes and trees during the day. Sometimes seen sitting on the branch of a bush overhanging a river or tank. It may be seen feeding in the early mornings and evenings.

Mr. F. W. Bourdillon says of Travancore :—" It is a winter visitor. It is very silent and solitary. During the months November to March it is to be found among the rocks of the larger streams up to about 2,000 feet elevation and always in dense jungle." Ferguson also adds :—" It is common in the low country from November to April, but I have not met with it at any other time of the year."

" I have found it on the edge of a bare tank in broad daylight "—(*C.M.I.*).

Breeding season. From May to August. Generally breeds singly but Doig found in Sind fifteen nests in one clump of babool trees about three hundred yards square.

Nest. A small stick nest placed on a tree.

Eggs. " 3 to 5, pale-green ; they measure about 1·62″ × 1·21″"—(*Fauna of British India*).

Genus **NYCTICORAX** Rafinesque 1815.

" This genus contains the Night Herons which are easily distinguished from all other Indian Herons by their stouter and deeper bill much compressed with the culmen considerably curved ; upper mandible distinctly notched near the tip ; the neck is short and thick ; the head is crested with a few very narrow elongate feathers from the nape ; wings rounded ; tail short, 12 rectrices ; only a small portion of the tibia is bare, tarsus reticulated "—(*Fauna of British India*).

(519) Nycticorax nycticorax nycticorax (Linn.,).

THE NIGHT HERON.

(*Fauna of British India*, 2nd edition, No. 2233.)
(*Fauna of British India*, 1st edition, No. 1568.)

Description—Male. " Length 23″ ; wing 11 to 11·5″ ; tail 4 to 4·5″ ; tarsus 3 to 3·25″ ; bill at front 2·8″."

Bill horny black, bluish-green below and at the sides of the gape; lores and eyelids yellowish-green; irides blood-red; feet greenish-yellow.

Forehead and a narrow stripe over the eyes white; crown, nape, back and scapulars black glossed with green; neck, wings and tail silky grey; plumage below white; a white crest of three feathers, 6½ inches long.

Young birds "have the head blackish, with shaft-streaks of rufous; the upper parts brown, streaked with rufous, the streaks, broadening to white patches on the wing-coverts; primaries and secondaries rather more ashy with white spots on the tips; lower parts white or fuffy-white, broadly streaked with dark brown."—(*Fauna of British India*).

Locality, habits, etc. Found throughout the Presidency in well-watered districts, lying up in numbers in trees by day and flying in search of food at dusk. While on the wing it utters a harsh cry resembling the word *wak* from which it derives its native name.

Breeding season. The usual season is during the monsoon months, but nests may also be found during the cold weather. Hume says they breed on the plains in July and August. "June to September"—(*Fauna of British India*).

Nest. The usual stick-platform; these birds breed in colonies often in company with Egrets and other species of Herons.

Eggs. 4 or 5, pale sea-green; "average measurement 1·92″ × 1·35″"—*Hume*.

Genus **GORSAKIUS** Gray 1855.

"Bill stout and short, culmen shorter than middle toe and claw which measure considerably less than the tarsus; groove on upper mandible large and deep; nostrils large and open. Feet small; hind-toe long; toes bordered by a narrow membrane; tarsus reticulated. Neck short and densely feathered; head crested; tail short, of 12 feathers"—(*Fauna of British India*).

(520) Gorsakius melanolophus melanolophus (Raffles).

THE MALAY BITTERN.

(*Fauna of British India*, 2nd edition, No. 2234.)
(*Fauna of British India*, 1st edition, No. 1569.)

Description—Male. Length 19·5″; wing 10″; tail 3·75″; tarsus 3″; bill from gape 2·62″.

Bill pale greenish-grey, culmen dark brown; bare skin between eyes and nostrils dusky greenish, more yellowish-green close to the eyes; eyelids dusky, the lower one with a conspicuous, though thin, curved pinkish red line in its centre reaching from front to rear; legs greenish-brown in front, greenish-yellow at back; soles of feet gamboge yellow; irides bright yellow.

Top of head and crest black, the latter with a white spot on each feather; from nostrils over the eyes, behind the eyes and at the gape blackish-grey speckled with white and tinged with pale chestnut; ear-coverts, back and sides of neck light chestnut; hind neck dusky

brown with narrow whitish bars and the tips tinged with pale chestnut ; upper plumage deep chestnut or cinnamon, the basal portion of the feathers black, barred with rufous-white on the back ; quills black ; the outer primaries tipped with white and with the subterminal portion freckled blackish-brown and rufous ; the inner primaries broadly tipped with chestnut and freckled with black ; the secondaries and tertiaries blackish, brown freckled with pale rufous and whitish on the outer webs ; primary coverts chestnut, the outer ones tipped with white forming two short wing-bars ; other coverts like the back ; tail black, the coverts blackish-brown ; chin and throat rufescent white ; foreneck and upper breast isabelline, the latter, especially, with black streaks and freckles ; lower plumage freckled and spotted black and white and washed with rufous ; considerably more white on the under tail-coverts.

Female. Similar to male.

Locality, habits, etc. The above description is from a fine specimen shot by me on the 31st October 1921 at the top of the Sigur Ghat, Nilgiris, at about 7,200 feet elevation. I was having a shola beaten for small game at the time, the shola being on the steep side of a ravine with a brook running at the bottom of the latter but not through the shola. Blanford states in *Fauna of British India* that this is a rare bird, found only on the hill-forests near the Malabar Coast (which applies, I imagine, to the Sigur Ghat which is at the northern extremity of the plateau and is 60 miles, I believe, from the Malabarc Coast) where it is also said to breed, but so far nothing appears to be known of its nidification there.

This is the first bird of this species that I have seen or heard of as having been obtained on the Nilgiris, and my shikari and beaters also tell me that they have never seen one before in all their 30 odd years of shikar-work—(*H.R.B.*).

Several specimens have been obtained in Travancore. Mr. F. W. Bourdillon got one at an elevation of 2,500 feet.

Breeding season. "Stewart found it common in Travancore where he took many nests in June"—(*Fauna of British India*).

Eggs. Mr. H. Stevens writes as follows from Assam, in the *Bombay Natural History Society's Journal, Vol. XXIII, pp.* 732, 733:—"Parent bird shot off nest which contained 4 eggs, average size 2″ × 1½″, in colour dirty yellow white, hard set and in one example chipped with the chick on the point of emerging.

Nest. "Nest originally found on 12th May 1908, was placed on the branch of a light tree overhanging a small tree in forest, about 20′ in height from the bed of the stream, and was a flimsy piled-up structure of trim twigs. It was quite impossible to examine the nest without climbing up the tree and with great difficulty lopping off the heavy branch overhanging, whilst my man made a feeble attempt at supporting some of the weight with a forked sapling whilst it was gradually drawn towards me. During this time the rain fell in torrents as only it can during the south-west monsoon in Assam."

Genus **IXOBRYCHUS** Billberg 1828.

"Bill straight, slight ; culmen flat at the base ; grove on each side of the upper mandible broad and shallow ; neck and legs rather short,

the back of the neck bare, but covered over by lengthened hairs from the sides. Head with a short crest. Scapulars and back feathers normal, but the feathers of the upper breast much lengthened and concealing the lower breast, though not forming ornamental plumes. Sexes different in plumage. Only 10 tail-feathers"—(*Fauna of British India*).

(521) Ixobrychus sinensis sinensis (Gmel.,).

THE YELLOW BITTERN.

(*Fauna of British India*, 2nd edition, No. 2237.)
(*Fauna of British India*, 1st edition, No. 1571.)

Description. "Length 15″; tail 1·7″; wing 5·25″; tarsus 1·8″; bill from gape 2·75″."

"Bill dark brown on culmen, pinkish brown below; facial skin green; irides yellow; tarsus dull flesh-colour; toes and tibia-tarsal joint pale yellow."

Male. "Crown and nape black, the grey sides of the feathers often showing and forming streaks; sides of head and neck vinous, becoming deeper rufous near the back of the neck and sometimes grey beside the crown; back scapulars and tertiaries yellowish to greyish brown, wing-coverts yellowish tawny isabelline; primary coverts, primaries, secondaries and tail slaty black; rump ashy grey; chin, throat and forencek pale yellowish buff, upper breast and abdomen buff; lower breast feathers blackish with buff edges but concealed by the long pectoral plumes."

Female. "Only differs in having a mesial buff line down the throat and foreneck and in old birds even this disappears"—(*Fauna of British India*).

Locality, habits, etc. "It is resident in Travancore and Malabar"—(*Fauna of British India*).

A rare bird and seldom seen. Like all *Ixobrychus* it is of retiring habits, hiding by day amongst reeds, thick grass, thickets, etc., and coming out only at dusk to feed. The Trivandrum Museum collectors got several specimens from North Travancore where it was found solitary on the banks of the backwaters about Kottayam and Vycome.

Breeding season. "From June to September"—(*Fauna of British India*).

(522) Ixobrychus cinnamomcus (Gmel.,).

THE CHESTNUT BITTERN.

(*Fauna of British India*, 2nd edition, No. 2238.)
(*Fauna of British India*, 1st edition, No. 1572.)

Description. Length 15″; wing 6″; tail 1·7″; tarsus 2″; bill from gape 2·6″.

Bill yellow, culmen horny black; facial skin of males reddish-purple, of females yellow; irides yellow; legs and feet yellowish-green; soles of feet yellow.

Male. The whole upper plumage and sides of head chestnut; wing-coverts paler; chin, throat and lower plumage tawny; a white stripe on each side of the throat, a broken brown stripe down the centre of the foreneck.

Female. Upper plumage dull brown; crown blackish; wing-coverts and scapulars pale, with faint buff edges spotted with brown; sides of head dull rufous; lower plumage tawny streaked with brown; a dark brown band down the chin and throat.

Locality, habits, etc. A very common resident in all well-watered districts especially in paddy-fields; also in bushes overlooking tanks and in high reeds. It is of a shy, retiring disposition and has almost to be "kicked-up" and is therefore not so often seen as might be expected.

Breeding season. The monsoon months. We found the birds breeding very freely in the paddy-fields on the West Coast during the rains.

Nest. A pad of grasses or paddy-stalks in a clump of grass or paddy; also in bushes overhanging tanks, or in tall reeds.

Eggs. 4 (Blanford says 5 or 6); white. Average measurement 1·28″ × 1.″

Genus **DUPETOR** Heine and Reichen., 1890.

"This genus is distinguished from *Ixobrychus* by its longer bill, the culmen considerably exceeding the middle toe with its claw in length, the tarsus being slightly shorter still. The back of the neck is less conspicuously nude. The members of the present genus are considerably larger birds than *Ixobrychus* and have very different plumage. . . . "—(*Fauna of British India*).

(523) Dupetor flavicollis flavicollis (Lath.,).

THE BLACK BITTERN.

(*Fauna of British India*, 2nd edition, No. 2239.)
(*Fauna of British India*, 1st edition, No. 1573.)

Description. "Length about 23″; tail 2·7″; wing 8″; tarsus 2·5″; bill from gape 4″."

"Bill dusky reddish, brown, lighter below; facial skin purplish brown; eyelids bluish; iris golden brown or pale red; legs dark brown"—(*Oates*).

"Irides yellow, in some with an outer circle of red (*Jerdon*)"—(*Fauna of British India*).

Male. "Crown and upper parts throughout, with the wings, dark slaty grey, sometimes almost black; tail nearly black; sides of head slaty black; a band of ochraceous yellow down each side of the neck; chin and throat white with chestnut blotches which become large and mixed with black on the foreneck, where the feathers are parti-coloured, one web generally buffy white, the other partly chestnut, partly black; breast and abdomen blackish slaty with white streaks on the upper breast and whitish edges to the abdominal feathers."

Females. "Are browner"—(*Fauna of British India*).

Locality, habits, etc. Has been found both on the hills and plains, in Malabar, near Madras, on the Nilgiris and in the Wynaad, and in Travancore ; is nocturnal in habits. It is comparatively common in Malabar and Travancore "—(*Fauna of British India*).

Jerdon got it on the Malabar Coast in rice-fields, and says :—"It frequents swamps, rice-fields and beds of rushes and reeds. It comes out to feed at about sunset and has a low, deep, booming call like the sound of a small drum."

Ferguson writes from Travancore :—"The Black Bittern is not uncommon along the backwaters. It particularly frequents the canals whose banks are densely clothed with trees and bushes, especially where there is a thick growth of screw pines. I have never seen it away from such localities. It remains under cover during the day, but may be flushed by the too near approach of a passing boat. At dusk it comes out to search for food."

Breeding season. Said to breed from May to August.

Nest. "Of twigs, leaves of grass or aquatic plants, generally on a thorny bush in a swamp "—(*Fauna of British India*).

Eggs. "4, very pale green, measuring about 1·66″ × 1·26″"—(*Fauna of British India*).

Genus **BOTAURUS** Stephens 1819.

"This genus containing the typical Bitterns is easily recognized by its comparatively short bill and large feet, and its long lax plumage beautifully mottled with yellow and black. The bill is stout and deep at the base, much compressed, with the culmen considerably shorter than the tarsus which again is much inferior in length to the middle toe and claw ; the nasal groove is broad ; the claws are long, and the tibia naked for a short distance. Tail feathers 10. Sexes alike "—(*Fauna of British India*).

(524) **Botaurus stellaris stellaris** Linn.

THE BITTERN.

(*Fauna of British India*, 2nd edition, No. 2240.)
(*Fauna of British India*, 1st edition, No. 1574.)

Description—Male. Length 28″ ; wing 13″ ; tail 4·75″ ; tarsus 3·8″ ; bill from gape 3·17″.

Bill horny above, greenish below and at lower edge of the upper mandible ; irides pale gamboge yellow ; orbits yellow-green ; legs grey-green, joints yellow-green ; soles of feet pale gamboge yellow.

Head black, the feathers of the nape with bars and tips of yellow ; hind neck yellow barred with tawny and blackish-brown ; back and wing-coverts mottled and spotted with yellow, black and brown ; rump ferruginous ; upper tail-coverts tawny barred brown ; tail mottled ferruginous and brown ; shoulders barred rufous and brown ; primaries the same ; ear-coverts pale tawny with faint brown bars ; moustachial stripe black tipped tawny where it meets the neck ; chin and throat

white with a mesial red-brown stripe speckled with brown ; lower plumage pale yellow or pale tawny, each feather with a long brown stripe ; the feathers of the neck in front also spotted with rufous.

Female. Similar to male.

Locality, habits, etc. A rare winter visitor. Blanford says "It is not common in Northern India though found so far south as the Deccan, Bombay, Kamptee and even, it is said, Bangalore."

Mr. Rheims records having found it at Cuddalore.

Jerdon says :—"It frequents long grass or reeds by the sides of tanks or rivers, and swampy ground covered with long grass. It is quite nocturnal in its habits."

It has loud booming call, uttered only during the breeding season, at other times it utters a sort of croak. It is excellent eating, not fishy in the smallest degree, and has a high gamy flavour. If feeds on fish, frogs, aquatic insects, etc.

Breeding season. It is not known to breed in India, but breeds in Europe during May.

Order PHŒNICOPTERI.

" . . . They have a remarkable bill covered with a soft epidermis, and bent downwards in the middle, the lower mandible very thick and practically fixed, the upper mandible much smaller and highly movable; the margins of both mandibles furnished with lamellæ. Both the neck and legs are very long and adapted, with the bill, for feeding whilst the bird stands in shallow water with the neck turned down and the head inverted, so that the lower mandible is uppermost, the lamellæ at the sides of the mandibles serving to strain the food from water and mud as the head is moved from side to side. The tarsus and long bare tibia are scutellated both in front and behind; the feet are short, the anterior toes fully webbed, the hind toe small or wanting; the skull is desmognathous and holorhinal; basipterygoid processes are very rudimentary or wanting; nostrils pervious; cervical vertebræ 18 or 19. The carotids are peculiar, the right is much longer than the left and the two unite at the base of the neck. The cæca are very large. The wing is aquincubital; primaries 12; the oil-gland tufted; an after-shaft is present; there are no bare spaces at the sides of the neck, and both dorsal and ventral apteria are short. The ambiens muscle is present, and the femoro-caudal absent; accessory femoro-caudal, semi-tendinosus and its accessory present. The deeper plantar tendons unite completely and then divide to supply the anterior toes, as in most birds with the hallux rudimentary or wanting"—(*Fauna of British India*).

Family PHŒNICOPTERIDÆ.

Genus **PHŒNICOPTERUS** Linnæus 1758.

(525) Phœnicopterus ruber antiquorum Temm.

THE FLAMINGO.

(*Fauna of British India*, 2nd edition, No. 2241.)
(*Fauna of British India*, 1st edition, No. 1575.)

Description—Male. "Length of male about 50"; tail 6"; wing 17·5"; tarsus 14"; bill from gape straight to point 4·5"."

"Skin near eye and base of the bill flesh-colour; end of bill and edges of mandible black; irides yellow; legs and feet pinkish red."

"Head, neck, body and tail white, more or less suffused with rosy pink; upper surface of wing with the winglet, tertiaries, wing-lining near the edge of the wing and axillaries deeper red approaching cerise; primaries, secondaries and greater under wing-coverts black."

Females. "Are smaller; wing 15"; tarsus 10·5" rose colour generally less pronounced."

Young "birds have the head, neck and body white tinged with greyish brown, especially on the upper neck; scapulars, interscapulars and wing-coverts more or less brown, with dark shaft-stripes; axillaries pink; quills brown"—(*Fauna of British India*).

Locality, habits, etc. Stuart Baker writes :—"It is very common on the major part of the West Coast and extends quite down to Ceylon . . . and is common in certain parts of Madras." Major E. G. Phythian Adams writes :—"I saw a flock of many hundreds on the lagoon alongside the railway line near Dhanushkodi at the end of March or beginning of April 1922. It is remarkable how, when walking off, they all turn together to the right or left like a well drilled squad." Whilst feeding they bend their necks down and invert their bills working them from side to side.

A visitor frequenting shallow marshes, lakes and sea-shore in flocks. They usually fly in a long wavy line after the manner of duck and geese but not always so.

Breeding season. Flamingoes are not known to breed in our Presidency but they do so in the Runn of Cutch and Legge thought they did so in South-West Ceylon.

Order ANSERES.

In this order the three anterior toes are united by webs extending, except in one Australian Genus, *Anseranas*, to the ends of the digits; the hind toe is always present, but is short and articulated to the tarsus higher up than the other toes. The bill is more or less depressed and flattened, except in the *Merginae* and is covered with a soft membrane, except on the dertrum or nail which forms the tip of the upper mandible; both mandibles are fringed inside the *tomiae* or edges with lamellæ, which are variously developed in different genera. The skull is desmognathous and holorhinal; basipterygoid processes are represented by oval facets, articulating with the pterygoids close to the anterior extremity of the latter as in Gallinæ. The angle or posterior extremity of the lower jaw is produced backwards beyond the articulation with the quadrate and is curved upwards. Nostrils pervious. Furcula 'U'-shaped; posterior border of sternum with a notch, represented in some genera by a foramen, on each side of the keel. Two carotids; cæca large; oil-gland tufted. Wing aquincubital; primaries 11; after-shaft to body feathers rudimentary or wanting; no bare spaces on the neck. Ambiens muscle present, as also the femorocaudal (very large) and the semi-tendinosus; accessory semi-tendinosus absent as in most swimming birds. The *flexor longus hallucis* sends off a slip to the hallux and then fuses with the *flexor perforans digitorum* which supplies the three anterior digits. Tongue large and fleshy, denticulated laterally to correspond with the lamellæ of the mandibles. Males with a large spiral intromittent organ. All the species are monogamous and the majority build nests of grass or rushes on the ground, a few on trees or in holes; in cold climates, the female lines her nest with her own down and surrounds with the same the eggs which are numerous, and white, cream-coloured, buff or pale green in colour, but in warmer countries as in India, less precaution for retention of heat is necessary and the downy lining is imperfect or wanting. The young are hatched covered with down and able to run or swim at once. In moulting, most, if not all, of the members of this order shed all their quill-feathers at once and are consequently for a time unable to fly"—(*Fauna of British India*).

Family ANATIDÆ.

Sub-family PLECTROPTERINÆ.

"The distinguishing features of this sub-family are—rather long hind toe, not lobed; a neck shorter than the body; and especially in the male more or less glossy upper plumage, combined with comparatively long tail-feathers"—(*Stuart Baker*).

Genus **SARKIDIORNIS** Eyton 1838.

"Size large, the plumage of the sexes differing very little, but the male much larger than the female. Bill of moderate length, considerably raised at the base and of nearly the same width throughout,

furnished above in the male with a fleshy knob that become greatly developed in the breeding season. Wing with a prominent tubercle in front of the bend. Tail of 12 feathers, rounded. Lower end of trachea expanded on the left side only. Hind toe with a narrow lobe" —(*Fauna of British India*).

(526) Sarkidiornis melanotus (Penn.,).

THE COMB DUCK OR NUKHTA.

(*Fauna of British India*, 2nd edition, No. 2247.)
(*Fauna of British India*, 1st edition, No. 1584.)

Description—Male. "Length about 30"; tail 5·5"; wing 15"; tarsus 2·75"; bill from gape 2·7".

"Iris brown; bill and comb black; legs and feet very dark brown" —(*Oates*). "Greenish plumbeous"—(*Jerdon*).

"Head and neck white-spotted with glossy black, the black prevailing on the crown and a band along the hind neck; lower neck all round, breast, abdomen, and lower tail-coverts pure white; upper back, scapulars, wings, rump, upper tail-coverts and tail black; the secondaries and greater coverts glossed with bronze-green, the scapulars with purple, the other parts with green and purplish-blue; lower back brownish-grey, sides of breast and flanks pale ashy-grey, a black bar from the upper back to each side of the upper breast and another from the rump to the lower flanks."

"**Female.** Much smaller, but similarly coloured with less gloss on the back and wings and more black on the head and neck"—(*Fauna of British India*).

Female. Length 26"; tail 4·5"; wings 11·25"; tarsus 2·1"; bill from gape 2·2".

Locality, habits, etc. Found in suitable localities such as lakes and large tanks. Mr. Hatchell records it from the Sripuram Tank near Podanur. Major E. G. Phythian Adams writes that a few occur in South Mysore. It is said not to be good eating.

Breeding season. Breeds "June to September"—(*Fauna of British India*).

Nest. Consists of sticks with dried leaves, grass, feathers, etc., and it is placed in a hole in the stem or hollow between the large branches of a tree.

"Sometimes they make use of other birds' nests"—(*Stuart Baker*).

Eggs. 7 to 12; ivory white; very close-textured, and they measure about 2·41" × 1·72".

Mr. T. R. Livesey records taking 47 eggs from a hole in a tree probably the produce of two birds.

Genus **RHODONESSA** Reichenbach 1852.

"This genus is distinguished by plumage more than by structure; it differs from all other Ducks in having a pink head and a dark body. The sexes differ but little from each other. The egg is peculiar and very short, sub-spherical in fact. The bill is lower at the base than that of *Sarkidiornis*, but otherwise similar; the bulba ossea at the lower end of the male trachea is very peculiarly formed, being swollen on both sides and anteriorly"—(*Fauna of British India*).

(527) Rhodonessa caryophyllacea (Lath.,).

THE PINK-HEADED DUCK.

(*Fauna of British India*, 2nd edition, No. 2249.)
(*Fauna of British India*, 1st edition, No. 1586.)

Description. "Length 23·5″; tail 3·5″; wing 11″; tarsus 1·9″; bill ffom gape 2·25″."

"Weight of a drake 3 lbs."—(*C.M.I.*).

"Bill reddish white, rosy at the base and bluish at the tip; irides fine orange-red; legs and feet blackish with a tinge of red"—(*Fauna of British India*).

"Bill light pink, pinker at tip on nail, base of maxilla and whole lower mandible flesh-coloured, the colour being on some skins half an inch broad (the cere) at the base of the maxilla; edge of nostrils black; iris light red; legs and feet reddish-black; rim round eyelids flesh-coloured"—(*C.M.I.*).

Male. "Crown and sides of head, back and sides of neck, rosy pink, lighter on the occiput and nape, browner on the forehead; a band on the chin, throat and foreneck, the body above and below and the tail, chocolate-brown; minute whitish specks on the feathers of the mantle; wings brown outside except the edge which is whitish, and the secondaries which are pale fawn with white tips; primaries brown on outer, pale fawn on inner webs; tertiaries with a green gloss; wing lining pinkish white."

Female. "Duller; head paler pink; chin and throat pale like sides of head and neck, the pink passing gradually into the brown of the body, middle of crown and nape, brown; no gloss on the tertiaries; wing-lining whitish"—(*Fauna of British India*).

Locality, habits etc. Met with occasionally in this Presidency; it frequents swamps and tanks which are covered with reeds, etc., and associates in small flocks.

"It is also found sparingly . . . as far south as Madras"—(*Stuart Baker*).

"This duck is practically extinct now all over its habitat"—(*C.M.I.*).

Breeding season. "June and July"—(*Fauna of British India*).

Nest. A circular nest of dry grass and feathers hidden in a tuft of high grass.

Eggs. "About 9, white, nearly spherical, measuring on an average 1·78″ × 1·66″"—(*Fauna of British India*).

Shillingford gave the number "from 5 to 10."

"A bird was brought to me on the 23rd June 1910 which deposited an egg in the basket in which it was brought. I kept it in an aviary for some time but she laid no more. The egg was spherical in shape"—(*C.M.I.*).

Sub-family CHENONETTINÆ.

"The characteristics of this sub-family are the short goose-like bill and the forward position of the feet enabling the birds to walk well and freely"—(*Fauna of British India*).

Genus **NETTAPUS** Brandt 1836.

"This well-marked genus, containing four species, one African, one Indian and two Australian, is distinguished by its small size and short goose-like beak. The bill is very high at the base and narrows gradually in front; the nostrils are small, near the base and oval. Wings pointed; tail short, rounded, of 12 feathers. Feet placed far back; hind toe with a narrow but distinct lobe. The sexes differ but little in winter, but in the breeding season the male assumes a somewhat brighter and more distinctive garb"—(*Fauna of British India*).

(528) Nettapus coromandelianus (Gmel.,).

THE COTTON TEAL.

(*Fauna of British India*, 2nd edition, No. 2250.)
(*Fauna of British India*, 1st edition, No 1591.)

Description. Length 12·62 to 13·5"; wing 6·25 to 6·75"; tail 2·82 to 3·25"; tarsus 1"; bill from gape 1 to 1·25".

Blanford quoting Oates says:—"In breeding males the bill is black; iris bright red; legs, toes and webs black; tarsus and toes at sides dusky yellow; in winter the upper mandible is brownish and the lower yellowish."

Male. Head from upper mandible to nape black; back, scapulars and wing-coverts black, richly glossed with green and purple; wings dusky at base and tips with a broad white band in the middle; secondaries broadly tipped white; tertiaries black glossed with green on outer webs; rump blackish, white at the sides; upper tail-coverts pale brown, peppered slightly darker; tail blackish; face, back of head and neck, and lower plumage white washed with dusky on neck and sides of neck; a black collar which widens at the back of the neck; sides of the breast and and flanks white, with fine blackish vermiculations.

Blanford describes the male as losing the black collar in winter assuming it in summer plumage: we can only say that the above is a description of males shot by us during the cold months.

"In **Females** the crown and a line through the lores and eye on each side brown; narrow forehead and supercilia, sides of head below eye, neck and lower parts white more or less sullied and on the head and neck speckled with brown marks that become defined wavy lines on the breast and neck; upper parts, wings and tail, brown; secondaries and inner primaries tipped white; upper tail-coverts white mixed with brown"—(*Fauna of British India*).

Females are slightly smaller than males.

"In females the bill is brown above, yellowish below; iris brown; legs and toes greenish yellow"—(*Oates*).

Locality, habits, etc. Common throughout the Presidency during the winter months frequenting rush and weed-covered tanks in flocks; said to be unfit for table. We have not found it bad.

Major E. G. Phythian Adams writes:—"Fairly common in S.Mysore."

Breeding season. Breeds during July and August, but we have no record of its breeding in this Presidency.

Nest. "Generally in old trees, often at some distance from water, occasionally in ruined houses, temples, old chimneys and the like"—(*Fauna of British India*).

Eggs. 5 to 10, white and small, measuring about 1·7″ × 1·29″.

Sub-family ANSERINÆ.

"Hind-toe moderate, tail feathers rather short, upper parts not glossy. No use"—(*Stuart Baker*).

Genus **ANSER** Brisson 1760.

"Bill short and high at the base, sub-conical, the nostrils nearly half way to the tip ; a distinct nail-like dertrum at the end ; wings ample ; tail short, rounded, of 16 or 18 feathers ; legs of moderate length, strong, placed well forward and adapted for walking.

"Geese both swim and walk well. They are generally found in flocks which fly with much speed in long V-shaped lines and they utter a peculiar cackling call that can be heard a long distance off. All the species are migratory. They make nests of grass, etc., on the ground and line them with down ; the eggs 6 to 12 in number are yellowish white"—(*Fauna of British India*).

(529) **Anser indicus** (Lath.,).

THE BAR-HEADED GOOSE.

(*Fauna of British India*, 2nd edition, No. 2258.)
(*Fauna of British India*, 1st edition, No. 1583.)

Description—Male. "Length 30″ ; tail 6″; wing 18″; tarsus 3″; bill from gape 2·1″"—(*Fauna of British India*).

Bill orange-yellow, nail black ; irides brown ; legs and feet orange, claws dusky.

Head white with two horse-shoe blackish or dark brown bars, one on the occiput, the other on the nape ; hind neck brown or blackish-brown ; cheeks, face and sides of neck white ; upper plumage very pale brownish-grey, the feathers edged white and washed with pale brown on scapulars ; sides of rump and upper tail-coverts white ; tail grey, tipped white ; quills grey, dusky towards their tips ; the secondaries darker brown, almost black ; tertiaries brownish-grey ; chin and throat white ; neck in front brownish-grey ; remainder of lower plumage very pale greyish-white ; the feathers of centre of breast and abdomen washed with yellowish, those of the sides washed with grey and the flanks barred darker brown and tipped white.

Female. Length 27″ ; wing 16″; tail 6″; tarsus 2·7″ ; bill from gape 1·97″; expanse 58″.

Locality, habits, etc. A winter visitor to the larger rivers and inland lakes. Mr. Hatchell records it from near Nellore and Cuddapah, and Geese, which are probably this species, are reported to frequent the seacoast as far south as Pamban Island.

"In Southern India it is nowhere a common bird ; Major McIlroy reported it as common in the Chitaldroog District of Mysore,

and Mr. Theobald as not common in Coimbatore . . . in Southern India few put in an appearance before the end of November"—(*Stuart Baker*).

Major E. G. Phythian Adams writes :—"I saw three flocks each of 13 to 14, on a tank near Gundlupet in South Mysore in December 1926, and bagged two."

Breeding season. Breeds in Tibet in June.

Sub-family ANATINÆ.

The Ducks of this sub-family have lobed feet. "The bill throughout the sub-family is depressed, and especially near the tip, much broader than high. The legs are rather short and more adapted for swimming than for walking. In the majority the exposed portions of the secondary quills, with their large coverts, are distinguished by conspicuous and often metallic coloration. The brightly coloured patch thus formed is known as the 'speculum'"—(*Fauna of British India*).

Genus **DENDROCYGNA** Swainson 1837.

"Bill of moderate size, raised at the base, nearly of the same breadth throughout; nail prominent, suddenly bent down; nostrils about one-third the distance from base to tip; wings broad and rounded; tail short, rounded, of 16 feathers; tarsus long and stout, reticulated; feet large"—(*Fauna of British India*).

(530) **Dendrocygna javanica** (Horsf.,).

THE LESSER OR COMMON WHISTLING TEAL.

(*Fauna of British India*, 2nd edition, No. 2260.)
(*Fauna of British India*, 1st edition, No. 1589.)

Description—Male. Length about 17″; wing 7·5″; tail 1·75″; tarsus 1·75″; bill from gape 1·7″.

Bill and legs bluish-leaden colour, darker on culmen and sides of bill; orbits yellow; irides brown.

Head and nape brown, darkest on nape; face, ears and neck pale yellow-brown, darker on upper back where it becomes browner edged rusty, back and scapulars slaty, rump glossy black, upper tail-coverts chestnut; tail dark brown; lesser and median coverts rich maroon; greater coverts and wings black; chin and throat whitish passing into greyish on the neck; upper breast yellowish-fulvous and remainder of lower plumage chestnut; under tail-coverts and vent white.

Female. Similar to male.

Locality, habits, etc. A common resident of the Presidency in the better watered districts, found in weedy tanks and swamps but not as a rule on rivers. They associate in flocks and when disturbed fly round and round the tank uttering their whistling cry. It is unfit to eat and therefore not worth shooting.

Breeding season. July and August. Major E. G. Phythian Adams writes:—"Breeds in S. Mysore but not very common."

Nest. Sometimes it makes its nest in a hole or depression of a tree, at other times it makes use of the old nest of a crow or other bird, and again at other times it builds in grass or thorny scrub near water. "Mr. J. Davidson found three nests on the ground in Mysore where they were placed in tufts of grass which formed islands in the middle of weedy tanks."—(*Stuart Baker*). Mr. S. G. de C. Ireland writes to the *Bombay Natural History Society's Journal*:—"On the 12th August I took a nest of the Lesser Whistling Teal, shooting the bird herself as she put her head out of the nest hole in a mango tree. I found she was sitting on 10 eggs of her own which were all a trifle incubated, and also two eggs of the Comb Duck which were absolutely fresh. Possibly this lazy domestic habit of the Comb Duck is well known . . ."

Eggs. "Usually 8 to 10 though larger numbers have been taken; personally I never remember getting more than 10; they are white when fresh"—(*C.M.I.*).

"The average of over 150 eggs taken by me is . . . 1·89″ × 1·52″"—(*Stuart Baker*).

(531) Dendrocygna fulva (Gmel.,).

THE LARGE WHISTLING TEAL.

(*Fauna of British India*, 2nd edition, No. 2261.)
(*Fauna of British India*, 1st edition, No. 1590.)

Description—Male. Length 20″; tail 2″; wing 9″; tarsus 2·25″; bill from gape 2·4″.

"Bill plumbeous; irides brown; orbits pale livid; legs and feet dark plumbeous.

"Forehead and crown brownish ferruginous, passing on the nape into a black stripe that extends down the hind neck, and on the sides into the light dull brown with pale shaft-stripes of the rest of the head and upper neck; short feathers in front and at sides of middle neck white with dark-brown edges and bases; back, scapulars, rump and tail black, the feathers of the upper back and scapulars with broad pale transverse rufous ends; median and some of the smaller wing-coverts dark chestnut, remainder of the wings above and below black; lower neck and under parts rufous ochraceous, passing into cinnamon especially on the flanks where the longer feathers are whitish with dark-brown lateral edges; vent and upper and lower tail-coverts whitish.

"The females are rather smaller"—(*Fauna of British India*).

Locality, habits, etc. Very rare visitor to this Presidency. Little is known of its nidification. "Mr. C. B. Sherman said that he found it very common in Travancore, but it is most probable that he mistook the Common Whistling Teal for this bird"—(*Stuart Baker*).

Breeding season. July and August.

Nest. Of twigs and grass placed on trees surrounded by water, but sometimes in a hollow in a tree.

Eggs. "6 to 10"—(*Stuart Baker*). Similar to those of *D. javanica*.

Genus **CASARCA** Bonaparte 1838.

Bill not broader towards the tip than at the base; culmen almost straight. Tail short, rounded of 14 feathers.

(532) Casarca ferruginea (Vrocg.).

THE RUDDY SHELDRAKE OR BRAHMINY DUCK.

(*Fauna of British India*, 2nd edition, No. 2110.)
(*Fauna of British India*. 1st edition, No. 1588.)

Description. Length 24·5 to 27″; wing 14·25 to 15·55″; tail 5·4 to 6·3″; tarsus 2·3 to 2·7″; bill from gape 2·2 to 2·4″.

Bill and legs black; irides dark-brown.

Male. Whole head and neck pale buff deepening to orange-brown on the back scapulars, lower plumage and flanks, the back and scapulars being edged with pale buff, and the lower plumage becoming much darker towards the abdomen and vent; the lower back minutely vermiculated with black; upper tail-coverts black; wing-coverts white (in some specimens washed with buff); quills black; the secondaries green or bronze-green on the outer web forming a large speculum; the tertiaries pale buff on the outer webs; dusky on the inner ones.

"In the breeding season there is a black collar at the base of the neck, usually very indistinct in Indian birds and often absent"—(*Stuart Baker*).

Female. Smaller than the male and paler in colour, and she never assumes the black collar.

Locality, habits, etc. A winter visitor said to be found all over India except on the Malabar Coast where, in fact, we have never seen or heard of it. Where found it frequents the sandy banks and dunes of large rivers, feeding on grass and crops. "Rare in the extreme south of India"—(*Fauna of British India*).

"It is found on the Chilka Lake"—(*Stuart Baker*).

Breeding season. "In Tibet in May and June"—(*Fauna of British India*).

Genus **ANAS** Linnæus 1758.

"Bill of moderate length, but little higher at the base, flat anteriorly, the sides parallel or nearly so; nostril about a quarter of the distance from the forehead to the end of the bill; wings long and pointed, a metallic speculum formed by the outer webs of the secondary quills; tail rather pointed, of 18 or 20 feathers; tarsus shielded in front, hind toe with a small narrow lobe"—(*Fauna of British India*).

(533) Anas pœcilorhyncha pœcilorhyncha Forst.

THE SPOTBILL OR GREY DUCK.

(*Fauna of British India*, 2nd edition, No. 2265.)
(*Fauna of British India*, 1st edition, No. 1593 (part).)

Description. Length 22 to 25·9″; wing 9 to 11″; tail 4·9 to 5·8″; expanse 32·5 to 38·5″.

Bill black, red at base, yellow at tip ; lower mandible yellow ; irides brown ; legs orange-red.

Male. Top of head and nape sepia with pale edgings ; a dark brown line from the upper mandible through the eyes ending in a point ; supercilium, face and neck pale fulvous with narrow brown streaks ; upper plumage, wing-coverts and scapulars hair-brown, edged paler ; greater coverts white edged black ; primaries brown ; secondaries bright glossy green tipped black, forming a conspicuous speculum ; tertiaries white edged brown externally lower ; back and rump black ; tail brown ; beneath from the breast fulvous white with numerous hair-brown spots, increasing in size on the flanks ; abdomen and vent deeper brown.

Female. Similar to male but smaller.

Locality, habits, etc. A resident and found on lakes and larger tanks, but as far as we know, does not frequent rivers ; common all over the Presidency except on the Malabar Coast. The Spot-bill, or as it is often called the Grey-duck is excellent eating.

Breeding season. According to Barnes, towards the end of the rains. Major E. G. Phythian Adams writes :—" Many breed in S. Mysore. I found flappers unable to fly in October 1927." Stuart Baker says that November and December are probably the normal breeding months in Southern India.

Nest. Of grass or rushes, is usually in low dense cover near water, occasionally on a low branch of a tree "—(*Fauna of British India*).

Eggs. 6 to 12, white or greyish-white and measure about 2·15″ × 1·70″.

" They very occasionally number 14 "—(*Stuart Baker*).

Genus **CHAULELALMUS** Bonaparte 1838.

" This a genus generally admitted but distinguished from *Anas* by characters of secondary importance. The bill is similar in shape though smaller, and the lamellæ are more developed. The supercilium is black and white. Tail of 16 feathers."

(534) Chaulelasmus streperus (Linn.).

THE GADWALL.

(*Fauna of British India*, 2nd edition, No. 2269.)
(*Fauna of British India*, 1st edition, No. 1595.)

Description. Length of male 19·5 to 21·5″ ; wing 10·5 to 11·75″ ; tail 3·12 to 4·3″ ; tarsus 1·5″ ; bill from gape about 2·12″.

Bill of male brownish-black, reddish beneath ; irides dark brown, legs orange or yellow.

" Maxilla dark slaty brown, black or brown ; mandible paler and yellowish or reddish on gonys and tip ; irides dark brown ; legs yellow, brownish-yellow to dull orange ; claws almost black " – (*Stuart Baker*).

Male. Head and neck pale rufous densely speckled with dark brown ; forehead, face, chin and throat whitish speckled all over with light brown, and washed with pale rufous on the neck ; lower neck, back and scapulars blackish-brown, each feather having fine whitish

crescentic lines ; lower back more finely vermiculated ; rump and upper tail-coverts black ; central tail-feathers grey-brown, the outer ones lighter and margined with pale yellowish white ; upper breast, sides and flanks like the back, but the blackish-brown predominates on the former, becoming more albescent towards the lower breast ; abdomen and vent white ; under tail-coverts black ; the greater and primary coverts chestnut ; the secondary coverts black ; secondaries fine grey.

" A speculum formed by the outer secondaries—4 or 5 glossy, velvety black, and 3 with broad pure white outer webs, those next the black often with a narrow black edge"—(*Stuart Baker*). Primaries brownish-grey with dark tips.

Female. Head and neck streaked with brown and white ; upper plumage dark brown with buff edges ; rump blacker ; no chestnut on wing-feathers, otherwise wing is similar to that of male ; lower plumage pale rufous, spotted with brown ; abdomen white ; smaller than male.

Locality, habits, etc. A winter visitor which, according to Stuart Baker, is seldom found south of Mysore. In other parts of India it is very common. They do not breed within Indian limits. Dewar got it in Madras. This is an excellent table-bird.

Genus **MARECA** Stephens 1824.

" Bill small, shorter than the head, depressed and slightly narrowing towards the tip, nail large ; wings long, pointed ; tail short, cuneate, of 14 feathers ; tarsus scutellate in front ; hind toe small with a narrow lobe "—(*Fauna of British India*).

(535) Mareca penelope (Linn.,).

THE WIGEON.

(*Fauna of British India*, 2nd edition, No. 2270.)
(*Fauna of British India*, 1st edition, No. 1599.)

Description. Length 18·5 to 19·5″ ; wing 10 to 10·5″ ; tail 3·8 to 4″ ; tarsus 1·4″ ; bill from gape 1·4″.

Bill light plumbeous-blue, tip black ; irides brown ; legs and feet dull lead colour.

Male. Forehead and crown pale buff with a few minute dark spots ; remainder of head, face and neck chestnut spotted with black, especially around the eyes, on the lores and chin ; upper plumage beautifully vermiculated black or blackish-brown and white, very finely on the back, rump and upper tail-coverts, more broadly on the scapulars, white predominating on the upper tail-coverts ; the larger upper tail-coverts black ; central tail-feathers blackish-brown, the other becoming paler towards the exterior pair ; lower neck, upper breast and sides of breast vinaceous red spotted with black on the lower neck and centre of upper breast and obsoletely washed with white on the remaining feathers ; remainder of lower plumage white, except the under tail-coverts which are black ; smallest wing-coverts pale grey-brown ; primary coverts vinous-grey ; remaining coverts white ; secondary coverts tipped black ; primaries dull brown ; outermost secondaries bright metallic green

broadly edged and tipped with black ; outer webs of next secondary pure white edged black ; inner secondaries black edged white and greyish on their inner webs.

After the breeding season the male assumes, by moulting, plumage very similar to that of the female except that the head and neck are dull chestnut spotted with black, and with no buff patch and the upper breast and flanks dull ferruginous.

Female. "Head and neck above brown with fulvous bars or edges to the feathers ; beneath rufescent speckled with brown ; lower foreneck almost entirely brown ; upper parts brown, the feathers with whitish or pale rufous edges ; wings and tail brown ; green speculum generally wanting ; secondaries tipped white and last secondary with white outer webs ; the greater and some of the median coverts tipped white ; breast and abdomen white ; under tail-coverts brown with white edges or bars "—(*Fauna of British India*).

Locality, habits, etc. Major E. G. Phythian Adams writes :—"Large flocks appeared in South Mysore last year (1926) as all the tanks were very low. I shot one out of a couple on 20th October 1927." A winter visitor, said not to be met with south of Mysore ; where it is found and associates in large flocks usually frequenting the larger lakes, being seldom seen on rivers or tanks.

It is not known to breed within Indian limits.

Mr. Stuart Baker writes :—"Found practically everywhere except in the extreme south and Ceylon."

"I have always found this bird excellent eating "—(*C.M.I.*).

Genus **NETTION** Kaup., 1829.

"This genus containing the Common Teal and some allied species differs from *Anas* in having a smaller number of tail-feathers, 14 or 16 as a rule, in the narrower bill, and in the smaller size of the birds "—(*Fauna of British India*).

(536) Nettion crecca crecca (Linn.,).

THE COMMON TEAL.

(*Fauna of British India*, 2nd edition, No. 2271.)
(*Fauna of British India*, 1st edition, No. 1597.)

Description—Male. Length 14·5 to 15·85″ ; wing 7·2 to 8″ ; tail 3 to 3·6″ ; tarsus 1·1 to 1·3″ ; bill from gape 1·65 to 1·8″.

Bill black ; irides brown ; legs and feet grey-brown.

"Head and upper neck chestnut ; a broad metallic green band on each side running back from the eye. A buff line from the side of the chin passing in front of the lores and thence back to the eye, where it divides, and one branch runs above the green band, the other below ; chin and a narrow band in front of the loral buff line black or blackish brown ; lower neck all round, upper back, inner scapulars and sides of the body narrowly barred with black and white ; outer scapulars buff broadly and diagonally edged on the outer web with black ; lower back and wings brown, the outer secondaries velvety black, with white tips, inner secondaries bright emerald green on outer webs, forming a speculum ; first tertiary black externally narrowly edged, with buff ;

greater secondary coverts buffy white to pale cinnamon, other coverts brown ; breast white, more or less sullied, spotted with round black spots ; abdomen white ; under tail-coverts black in the middle, buff at the sides, the longer white-edged "—(*Fauna of British India*).

Female. Females are rather smaller and bill brownish.

Above dark brown, paler on hind neck, edged with rufous ; wings brown, pale-edged ; coverts and supercilium as in male ; chin, throat and neck white, washed with pale rusty and with small dark brown spots (except on the chin); breast and sides dark umber-brown with crescentic pale rufous markings ; the flanks white with longitudinal brown markings ; remainder of lower plumage white, sometimes washed with rusty and with underlying grey-brown streaks which are most conspicuous on the abdomen, vent and under tail-coverts.

Locality, habits, etc. A common winter visitor to all parts of the Presidency except the Malabar Coast. It is not known to breed within Indian limits.

Major E. G. Phythian Adams writes :—" Not common in Mysore."

Mr. Stuart Baker writes :—" From the extreme north down to Cape Comorin it is very abundant " ; and again, " the most common-sized flock all over their range may be somewhere between twenty and forty, and in Southern India, *i.e.*, from Mysore to Ceylon, anything over the latter number is rare." They are excellent table-birds.

Genus **DAFILA** Stephens 1824.

" This genus may be recognized by its elongate form, long neck and lengthened and pointed middle tail-feathers. There are 16 rectrices as a rule (I have found one skin with 18). The bill is rather narrower than in *Anas* and a little broader towards the point than at the base ; the wings are long and pointed "—(*Fauna of British India*).

(537) **Dafila acuta acuta** (Linn.,).

THE PINTAIL.

(*Fauna of British India*, 2nd edition, No. 2274.)
(*Fauna of British India*, 1st edition, No. 1600.)

Description—Male. " Length 22 to 29" ; tail 5 to 8·5" ; wing 11" ; tarsus 1·6" ; bill from gape 2·25" "—(*Fauna of British India*).

Bill plumbeous culmen and base black ; and legs slaty black ; irides brown.

Male. " Head and upper foreneck umber-brown, with a purple gloss on each side of the occiput ; hind neck black ; a white band from each side of the nape down the neck joining the white of the lower parts ; lower hind neck, back, shorter scapulars and sides of body finely barred and vermiculated with black and white ; longer scapulars lanceolate, velvety black edged with light brown ; upper tail-coverts black edged with grey, the longest black on the outer web, grey on the inner ; median long tail-feathers black, the outer feathers brown ; wings greyish brown, the greater secondary coverts with rufous tips ;

secondaries bronzed, changing from purple to green on the outer webs, with a sub-terminal velvety black band and white tips ; outer web of innermost secondary black with a whitish bar on the inside ; tertiaries grey, part of the inner web and inside of outer web black ; breast and abdomen white ; lower abdomen speckled with grey ; lower tail-coverts black, white at the outside ; lower flanks buff "—(*Fauna of British India*). Bill of female dull baden.

After moulting the male assumes a garb somewhat similar to that of the female.

Female. Head and nape light rufous with dark brown centres ; chin and throat albescent or rufescent-white ; neck and hind neck the same but with brown centres to the feathers, broader on the neck ; whole upper plumage dark brown with whitish or pale buff edges ; the scapulars with some rufous bars ; two distinct white bars on the wings formed by the tips of the greater coverts and secondaries ; quills brown with paler inner webs, and the inner ones margined whitish ; tail brown tipped albescent and with some narrow rufous bars ; the whole lower plumage albescent with grey brown centres ; no supercilium.

Length about 20″ ; wing 9·75 to 10·25″ ; tail 4 to 5·25″ ; tarsus 1·5″ ; bill from gape about 2″.

Locality, habits, etc. A winter visitor throughout the Presidency except the Malabar Coast. It does not breed within Indian limits. Major E. G. Phythian Adams writes :—" Common in South Mysore."

Mr. Stuart Baker writes :—" There is practically no portion of the Indian Empire which the Pintail does not visit."

" They sometimes occur in large numbers. I have once seen a large flock, entirely males, on a small piece of water, and literally packed like sardines in a tin. It is, perhaps, the best table-duck we have "—(*C.M.I.*).

Genus **QUERQUEDULA** Stephens 1824.

" The members of this genus, though often regarded as congeneric with the Common Teal, differ considerably from that species in structure, plumage and habits. The bill is broader and instead of being the same width throughout is wider towards the end, the nail is broader and larger. The labyrinth or bony enlargement of the lower portion of the trachea in the drake is differently shaped being swollen on both sides and downwards, whilst in the genera *Anas*, *Nettion* and several others the inflation is on the side and upward. The flight is different and all members of the present genus may be recognized by their blue or bluish-grey wing-coverts "—(*Fauna of British India*).

(538) Querquedula querquedula (Linn.,).

THE GARGANEY OR BLUE-WINGED TEAL.

(*Fauna of British India*, 2nd edition, No. 2275.)
(*Fauna of British India*, 1st edition, No. 1601.)

Description. Length 15 to 17″ ; wing 7·5 to 8″ ; tail about 2·75″ ; tarsus about 1″ ; bill from gape 1·35″.

Bill black or blackish-brown, nail black ; irides dark brown ; legs dusky.

Male. Crown, occiput, and a line down the centre of the hind neck dark brown, almost black on the occiput, with some pale centres to the feathers of the forehead; a broad white stripe from over the eyes down the sides of the neck, almost meeting at the nape; chin and throat blackish-brown; face and cheeks and remainder of neck chocolate-brown with narrow longitudinal white stripes; back, rump, upper tail-coverts and tail brown, edged paler; inner scapulars black glossed with green and with a broad white stripe down the centre of each feather; the outer scapulars the same but with the outer webs blue-grey; wing-coverts pale grey, the greater coverts broadly tipped with white forming a wing band; secondary coverts brownish glossed with green on the outer webs (forming a small speculum) and narrowly tipped with white; quills dark brown outwardly, light brown inwardly and with white shafts; secondaries and tertiaries dark brown with white margins; from the neck to the centre of the breast fulvous with dark brown crescentic bars showing through the fulvous, on the upper breast; lower plumage white, the breast slightly suffused with fulvous; the abdomen, vent and flanks with narrow wavy dark-brown lines which change into drops upon the under tail-coverts.

Female. Length about 15″; wing 7·25″; tail 2·6″; tarsus 1″; bill from gape 1·9″. Bill and legs as in the male.

Head and nape rufous-brown with paler rufous edgings; upper plumage brown, the feathers margined whitish; supercilium white; neck white with minute dark brown streaks; remainder of lower plumage white washed with orange-rufous (in some birds) except the breast which is dark-brown edged pale; the abdomen, vent and under tail-coverts with indistinct dusky spots and blotches, more conspicuous perhaps on the under tail-coverts; wings grey-brown, the greater coverts broadly tipped with white, forming a bar; outer secondaries glossed with green, forming an indistinct speculum and outwardly margined with white, forming a longitudinal stripe.

Locality, habits, etc. A winter visitor throughout the Presidency except perhaps the Malabar Coast, frequenting large tanks in flocks.

Mr. Stuart Baker writes :—"In India it occurs practically everywhere from the extreme north to the extreme south," and again, "according to Theobald and others they do not get to Southern India before December. Leaving, however, they delay until March and April."

Major E. G. Phythian Adams writes :—"Common in South Mysore. A few small flocks visit the backwaters at Cannanore annually. I put up three from a flooded rice field there on 24th September 1927. This was very early for them, especially as the N.E. monsoon current had not then set in. I fancy the great flocks of teal on the backwaters near Alleppey (N. of Quilon) must be of this species, but I have never shot these."

Genus **SPATULA** Boie 1822.

"This genus is readily distinguished by its disproportionately large spatulate bill, its long lamellæ, and its blue-grey wing-coverts. The bill is longer than the head, depressed, twice as broad near the tip as at the base, and the sides of the upper mandibles are much turned down near the tip. The lamellæ are not only very long but very closely set. Wings and tail pointed. Tail feathers 14"—(*Fauna of British India*).

(539) Spatula clypeata (Linn.,).

THE SHOVELLER.

(*Fauna of British India*, 2nd edition, No. 2276.)
(*Fauna of British India*. 1st edition, No. 1602.)

Description. Length of male 20″ ; tail 3·25″ ; wing 9·5″ ; tarsus 1·4″ ; bill from gape 3″.

Bill black ; irides yellow or orange ; legs vary from orange to red.

Male. Head and upper neck glossy green, lower neck except behind, and upper breast, sides of the breast, and shorter scapulars pure white ; hind neck and back dark brown, the feathers pale edged ; rump and upper tail-coverts black glossed with green ; tail dark-brown, the outer feathers broadly edged with white ; wing-coverts and outer webs of two of the longer scapulars bluish-grey, remainder of long scapulars black, all with broad white shaft-stripes ; quills brown ; speculum formed by outer webs of secondaries light green bordered in front by a bar of white formed by the larger coverts ; tertiaries blackish, slightly glossed with green, each with a fusiform white or whitish stripe along the shafts ; lower breast and abdomen chestnut ; some of the feathers of the flanks and about the vent finely barred with buff ; lower flanks white ; under tail-coverts black glossed with green "—(*Fauna of British India*).

After the breeding season the male assumes female plumage except on the wings.

Female. Length about 18·5″ ; wing 8·1 to 9·2″ ; tail about 3·5″ ; tarsus 1·2 to 1·4″ ; bill from gape 2·8″.

Bill dull brown ; lower mandible dull orange or orange-brown ; irides brown or orange-brown ; legs like those of the male but always duller.

Head and nape blackish brown streaked with pale rufous ; remainder of upper plumage brown edged with rufous and white ; wings brown ; wing-coverts grey ; a faint green speculum and the secondary coverts tipped with white, forming a bar above it ; chin and throat white ; face and neck rufescent-white, the latter streaked with dark brown ; remainder of lower plumage pale rufous with crescentic brown bars showing through everywhere except in the centre of the body.

Locality, habits, etc. A winter visitor, somewhat rare ; generally found singly or in pairs at the edge of tanks and ponds ; it is said to be a dirty feeder and is certainly not good eating. Major E. G. Phythian Adams writes :—" One or two pairs are generally to be found on most tanks in S. Mysore in the winter."

Breeding season. Layard found it breeding in Ceylon in March.

Sub-family NYROCINÆ.

" Separated from all the preceding sub-families by the structure of the hind toe, which is rather larger and stronger and is *broadly lobed*, whereas the species of the other sub-families have only a narrow lobe or no lobe at all "—(*Fauna of British India*).

Genus **NETTA** Kaup., 1829.

"One species distinguished by its bill which tapers very gradually throughout its length and has the lamellæ very strong and prominent. The male also has a full bushy crest. The name "Pochard" should be pronounced "Pokard"—(*Stuart Baker*).

(540) Netta rufina (Pall.,).

THE RED-CRESTED POCHARD.

(*Fauna of British India*, 2nd edition, No. 2278.)
(*Fauna of British India*, 1st edition, No. 1604.)

Description. Length 21″; wing 10·5″; tail 3″; tarsus 1·75″; bill from gape 2·25″.

Male. Bill vermilion; nail pink; irides blood red; legs and feet dull waxy, tinged brown; webs blackish-brown.

Top of head with crest pale chestnut becoming fawn-colour on the nape where the feathers are elongated and silky and the lowest ones are tipped with black; lores, cheeks, chin, throat and sides of neck rufous; upper back, sides, breast, abdomen and vent dark brownish-black; mantle and scapulars pale brown, the feathers of the latter with broad white bases forming a conspicuous spot on each side; primaries brown on the outer, white on the inner webs, brown-shafted and tipped blackish; secondaries white tipped blackish; greater coverts ashy-brown; secondary coverts pure white tipped with brown; inner secondaries grey; sides of body silky white, some of the feathers pale brown; under tail-coverts brown, tipped white.

Female. "Almost uniform greyish-brown above, scapulars rather paler; tail and quills as in male, except that the secondaries are greyish-white, sides of head below eye and of neck, chin, throat and all lower parts whitish. This bird may be known from females of other Pochards occurring in India by having the lower surface white throughout. Bill black, reddish or orange towards the tips; irides brown; legs brownish orange to yellow"—(*Fauna of British India*).

Females are slightly smaller.

Locality, habits, etc. A winter visitor occurring in large flocks on rivers, large tanks and lakes.

Mr. Stuart Baker writes:—"There seems to be hardly any records of the birds in Southern India."

"They are wonderful divers and I have always found them good eating"—(*C.M.I.*).

Genus **NYROCA** Fleming 1822.

" . . . the bill of moderate length, slightly raised at the base and either, equally broad throughout or slightly broader near the tip, with the culmen concave and the border of the feathered base above the gape convex; the nostril is situated about one-third the length of the bill from the base, and the lamellæ are short and distant, less prominent than in *Netta*. Wings rather short, pointed; tail cuneate, of 14 feathers. Hind toe broadly lobed"—(*Fauna of British India*).

(541) Nyroca ferina ferina (Linn.,).

THE POCHARD.

(*Fauna of British India*, 2nd edition, No. 2279.)
(*Fauna of British India*, 1st edition, No. 1605.)

Description. Length 18 to 18·5″; wing 7·62 to 8·5″; tail 2·25″; tarsus 1·5″; bill from gape 2·12 to 2·29″.

Bill bluish or slaty grey, black at tip and base; irides red; legs blackish green. Jerdon says:—"Irides orange yellow, legs and feet bluish grey".

Male. Whole head and neck rich chestnut, changing into black upon the breast and upper back; back pale grey, finely vermiculated with blackish bars; rump and upper tail-coverts black; primaries brownish-grey, tipped and edged outwardly with dull black; wing-coverts grey, very minutely peppered or stippled with white; the secondaries form a grey speculum and are tipped with white; tail dull brown tipped rufescent-white; beneath from breast pale greyish-white minutely peppered with pale brown, the peppering becoming darker and more conspicuous on the abdomen and vent; under tail-coverts black.

Female. Head, nape, neck and upper back dull red-brown, darkest on the crown; back as in the male but the lines less distinct; wings brown, secondaries grey edged white; chin and throat, face and neck red brown, paler and almost white on the two former; upper breast deep brown, the feathers pale edged, and paling to dull grey-brown streaked with whitish on the breast, and becoming greyish-white on the abdomen and flanks, darkening again on the vent and under tail-coverts.

Females are slightly smaller.

Locality, habits, etc. A common winter visitor to the northern portion of the Presidency; is said not to have been found further south than Mysore.

Mr. Stuart Baker writes:—"I have had it now reported to me from Mysore where, however, it would only appear to be met with on very rare occasions, and Capt. E. O. King sent a specimen from Bangalore to the Bombay N.H. Society."

"I have always found this duck excellent eating, but Stuart Baker says that they get a rank and fishy taste if shot on the sea"—(*C.M.I.*).

(542) Nyroca rufa rufa (Linn.,)

THE WHITE-EYED POCHARD OR WHITE-EYE.

(*Fauna of British India*, 2nd edition, No. 2280.)
(*Fauna of British India*, 1st edition, No. 1606.)

Description—Male. Length about 17″; wing 7″; tail 3·25″ (*Fauna of British India* says 2·2″); tarsus 1·2″; bill from gape 2″ nearly.

Bill slaty; irides white; legs and feet plumbeous, tinged green.

Head, neck, throat and breast deep rich chestnut; a black collar which is prolonged down the centre of the back, which latter with the rump, upper tail-coverts and tail is black; wing-coverts dark brown, almost black; primaries blackish-brown on the outer, white on the inner webs and tipped blackish-brown; secondary coverts white broadly tipped brown, forming a conspicuous wing-bar; inner

secondaries dark brown narrowly margined with black on the outer webs and glossed with olive-green ; breast rich chestnut or bay-brown, abdomen silky white ; flanks red-brown finely streaked with white ; thighs finely vermiculated dusky-brown and white ; chin spot white ; vent dusky-brown with a few white vermiculations ; under tail-coverts pure white.

Female. Slightly smaller than the male ; similar in colouration but duller, and the head and breast more brown ; irides brown.

Locality, habits, etc. Blanford in *Fauna of British India* states that this duck had not been recorded from Southern India ; this is a mistake, as a party of guns shot some in 1904 at Pondur in the Vizagapatam District, and doubtless others have been shot elsewhere. " Malgonda, Mysore (*Allen*) ; and Madras "—(*Fauna of British India*).

" They prefer jheels in which there are lots of weeds and rise up singly and give very good sport, but many wounded birds are lost as they are most wonderful divers. Mr. Stuart Baker considers its flesh absolutely uneatable, but personally I have found them to be quite good table-birds "—(*C.M.I.*).

Breeding season. During May and June in Kashmir.

(543) Nyroca fuligula fuligula (Linn.,)

THE TUFTED POCHARD.

(*Fauna of British India*, 2nd edition, No. 2283.)
(*Fauna of British India*, 1st edition, No. 1609.)

Description—Male. Length 16·5 to 17″ ; wing 7·5 to 8·5″ ; tail 2 to 2·2″ ; tarsus about 1·25″ ; bill from gape 1·6″.

Bill bluish plumbeous, tip and nail black ; irides golden yellow ; legs and feet greyish, the webs brownish-black.

Head, crest, neck, back, rump, tail, breast, wing-coverts under tail-coverts and flanks black, with a purple gloss on face and sides of neck ; the back and scapulars and some of the wing-coverts are finally powdered with white ; primaries dark-brown ; the inner web of the first one whitish at the base, brown elsewhere, the white increasing on each succeeding feather until the terminal half only in dark on the innermost feather ; the outer secondaries white with black tips forming a white speculum, the inner secondaries black glossed with green ; abdomen and sides silky white, the white being sharply defined from the black of the breast.

Female. " The head, neck and upper parts are brown as is the upper breast, but this colour passes gradually into the white or pale ashy brown of the abdomen ; flanks brown ; crest present but smaller than in the male "—(*Fauna of British India*).

Locality, habits, etc. A somewhat rare winter visitor. Has been recorded from Anankapalle in the Vizagapatam District and Blanford makes a rather curious statement in *Fauna of British India* " it has not been recorded from . . . or the 'Southern' portion of India, the most *Southern* locality (the italics are ours) known being the northern part of the Coimbatore District "—(fairly far south, one would call it !)

" It is, like all Pochards, an excellent diver. Mr. Stuart Baker writes :—' It is, of course, a poor article of food ' but I have found them good enough as a rule "—(*C.M.I.*).

Order PYGOPODES.

Family PODICEPIDÆ.

"All the front toes furnished with broad lateral lobes coalescing at the base and not contracted at the joints of the digits; hind toe raised and lobed, fourth toe longest; nails broad and flattened. Tail rudimentary or wanting. Cervical vertebræ 17 to 21; several of the dorsal vertebræ anchylosed. Angle of lower jaw not produced. Twelve primaries; ambiens muscle wanting; accessory femoro-caudal and semi-tendinosus present but not the other characteristic thigh muscles; only the left carotid is developed. Nest a mass of floating herbage usually amongst reeds; eggs white. The young are hatched covered with down and able to swim at once. All grebes have a habit of eating their own feathers. No stones are found in the gizzard, and the feathers apparently are a substitute"—(*Fauna of British India*).

Genus **PODICEPS** Latham 1790.

"Bill straight and compressed, sharply pointed; nostrils oblong and sub-basal; wings short; tail quite rudimentary, consisting of short downy feathers; tarsus much compressed, covered with large scutellæ in front, serrated behind"—(*Fauna of British India*).

(544) Podiceps ruficollis capensis Salvadori.

THE INDIAN LITTLE GREBE OR DABCHICK.

(*Fauna of British India*, 2nd edition, No. 2292.)
(*Fauna of British India*, 1st edition, No 1617.)

Description—Male. Length 9″; wing 3·9″; tarsus 1·35″; bill from gape 1″.

Bill black, tip white; base and round the gape green to pale yellow; irides red-brown; legs and feet blackish-green.

Breeding plumage, etc. Forehead, crown, and hind neck blackish or sooty-brown; lores, cheeks and chin black; sides of head to the eyes, sides of neck and the throat chestnut; upper plumage dark brown; primaries paler brown; the bases of the inner primaries and almost all the secondaries and their shafts white; abdomen silky white; breast, flanks and vent dark brown washed with white.

Winter plumage. Crown and back of neck brown, chin white, neck pale rufous instead of chestnut.

The plumage altogether is dense, soft and hair-like.

Female. Similar to male.

Locality, habits, etc. The Dabchick is so common and well-known everywhere that a detailed account of it is unnecessary. It is a permanent resident, found practically wherever there is standing water and

occasionally on the pools of rivers. Its habit of instantly diving on alarm and of bobbing up again in a totally unexpected quarter, is well-known.

Breeding season. During the south-west monsoons Major E. G. Phythian Adams writes:—"Breeds in S. Mysore generally in November though I have taken eggs in September the usual clutch appears to be three."

Nest. A mass of weeds, usually floating, placed amongst reeds, etc. The bird always covers its eggs on leaving the nest, rendering them dirty and muddy.

Eggs. 4 to 6; long and pointed at each end; pure white when first laid, the inner skin green; average measurement 1·40″ × about 1″.

Since writing the above I have received a very interesting comment on the Dabchicks' eggs, together with a painting of a series of them from Mr. C. Mc. C. Conway, Trichinopoly, who tells me he has taken fully 100 eggs which vary in colour from chalky white to dark brown. He goes on to say:—"At first I was under the impression that the colouring would disappear if washed. The eggs had a severe test at my hands, for in addition to the application of soap and a nail-brush, Vim and monkey-brand were also applied (without any appreciable difference being made in the brown colouring). The peculiar thing about these eggs is that the colour was no indication of the extent to which incubation had proceeded; the darkest eggs in very many cases were as fresh as some chalky-white ones and *vice versa*"—(*H.R.B.*).

"I have found these discoloured eggs but have always found the brown ones showed signs of incubation and the darkest ones were much incubated; the colour is due to staining, I fancy, from the damp weeds"—(*C.M.I.*).

APPENDIX

We include here the corrections taken from Mr. Stuart Baker's manuscript, including one additional subspecies and also printing errors so far as we have noticed them.

Page 1.—For *Corvus coronoides culminatus* read *Corvus levaillanti culminatus*.

Page 6.—For *Sitta castaneiventris castaneiventris* (Frankl.), read *Sitta castanea castanea* Lesson.

Page 8.—For *Trochalopterum* read *Trochalopteron*.

Wherever the name *Trochalopterum* has been used from pages 8 to 10 read *Trochalopteron*.

Page 14.—For *Pomatorhinus horsfieldi horsfieldi* Sykes, read *Pomatorhinus hosfieldi horsfieldi* (Sykes).

Page 16.—For *Dumetia albigularis* read *Dumetia albogularis albogularis*.

Page 17.—For *Pyctorhis* Hodgson 1844 read *Chrysomma* Blyth 1843.

For *Pyctorhis sinensis sinensis* read *Chrysomma sinensis sinensis*.

Page 21.—For *Liotrichinæ* read *Leiotrichinæ*.

Page 22.—For *Ægithina tiphia zeylonica* Gmel. read *Ægithina tiphia multicolor* (Gmel.).

Page 25.—For *Molpastes hæmarrhous hæmarrhous* (Gmel.) read *Molpastes cafer cafer* (Linn.)

For *Otocompsa* Cabanis, 1851, read *Elathea* Gistel 1848.

Page 26.—For *Otocompsa emeria fuscicaudata* read *Elathea jocosa fuscicaudata*.

Page 30.—For *Salpornis melanotus* read *Salpornis spilonotus*.

Page 35.—For *Phœnicurus ochrurus phœnicuroides* Moore, read *Phœnicurus ochruros phœnicuroides* (Moore).

Page 39.—For *Kittacincla macroura indica* read *Kittacincla malabarica indica*.

Page 41.—For *Geocichla* Kuhl 1836, read *Geokichla* S. Müller 1835.

Wherever the name *Geocichla* has been used from pages 41 to 43 read *Geokichla*.

Page 44.—For *Oreocincla dauma nilghiriensis* read *Oreocincla dauma neilgheiriensis.*

Page 46.—For *Myiophoneus* read *Myophonus.*

For *Myiophoneus horsfieldii* read *Myophonus horsfieldii.*

Page 48.—For *Cyornis* read *Muscicapula.*

Wherever the name *Cyornis* has been used on pages 48 and 49 read *Muscicapula.*

Page 50.—For *Stoparola* Blyth, 1847 read *Eumyias* Cabanis 1851.

For *Stoparola melanops melanops* (Vigors) read *Eumyias thalassima thalassima* (Swains.)

Page 51.—For *Stoparola albicaudata* read *Eumyias albicaudata.*

For *Alseonax latirostris* read *Alseonax latirostris poonensis.*

Page 54.—For *Terpsiphone* Gloger, 1827, read *Tchitrea* Lesson 1830.

For *Terpsiphone paradisi paradisi* read *Tchitrea paradisi paradisi.*

Page 56.—For *Rhipidura* Vigors and Horsf., 1826 read *Leucocerca* Swainson 1838.

Wherever the name *Rhipidura* has been used on pages 56 and 57 read *Leucocerca.*

Page 62.—For *Pericrocotidæ* read *Campephagidæ.*

For *Pericrocotus speciosus flammeus* read *Pericrocotus flammeus flammeus.*

Page 63.—For *Pericrocotus peregrinus malabaricus* (Gmel). read *Pericrocotus cinnamomeus cinnamomeus* (Linn.,).

Page 68.—For **The Ceylon King Crow** read **The Ceylon Black Drongo.**

For **The Ceylon Drongo** read **The Ceylon Grey Drongo.**

Page 71.—For **The Ceylon Black Drongo** read **The Ceylon Crested Black Drongo.**

Page 76.—For *Franklinia* Blyth read *Franklinia* Jerdon.

Page 79.—For *Chaëtormis locustelloides* (Blyth) read *Chaëtornis striatus* Jerdon.

For *Phragmaticola* read *Phragamaticola.*

Page 80.—For *Phragmaticola aëdon* read *Phragamaticola aëdon.*

Page 83.—For *Phylloscopus tytleri* (Brooks) read *Phylloscopus tytleri* Brooks.

Page 84.—For *Acanthopneuste magnirostris* (Blyth) read *Acanthopneuste magnirostris* Blyth.

Page 90.—For *Oriolus chinensis indicus* (Jerdon) read *Oriolus chinensis diffusus* Sharpe.

Page 91.—For *Eulabetidæ* read *Graculidæ*. For *Eulabes* Cuvier 1817 read *Gracula* Linn., 1758.

For *Eulabes religiosa* (Cuvier) read *Gracula indica* Cuvier.

Page 95.—For *Æthiopsar* Sharpe read *Æthiopsar* Oates.

Page 97.—For *Ploceus* read *Ploceus*.

Page 100.—Under **Indian Spotted Munia** insert *Plate XII.*

Page 103.—For *Passer domesticus confucius* (Bonaparte) read *Passer domesticus nigricollis* (Burton).

Page 104.—For *Emberiza icterica* (Eversmann) read *Emberiza icterica* Eversmann.

Page 105.—For *Ptyonoprogne* Reichenbach 1850 read *Krimnochelidon* Walden 1876.

Wherever the name *Ptyonoprogne* has been used on pages 105 and 106 read *Krimnochelidon*.

Page 110.—For *Motacilla lugubris maderaspatensis* read *Motacilla maderaspatensis*.

Page 118.—For *Caladrella* read *Calandrella*.

Page 122.—For *Amommanes* read *Ammomanes*.

For *Pyrrhulauda* Smith 1839 read *Eremopteryx* Kaup 1836.

For *Pyrrhulauda grisea* read *Eremopteryx grisea*.

Page 124.—For Sub-family *Nectariniidæ* read Sub-family *Nectariniinæ*.

Page 129.—For *Dicæum minullum concolor* read *Dicæum concolor concolor*.

For *Dicæum minullum olivaceum* read *Dicæum concolor olivaceum*.

Page 130.—For *Piprisoma squalidum squalidum* (Burton) read *Piprisoma agile agile* (Tick.,).

Page 134.—For *Picus vittatus myrmecophaneus* (Stresemann) read *Picus vittatus xanthopygius* (Gray).

For *Picus chlorolophus chlorogaster* read *Picus chlorolophus chlorigaster*.

Page 135.—For *Leiopicus mahrattensis* read *Leiopicus mahrattensis mahrattensis*.

Page 137.—For *Micropternus brachyurus gularis* (Jerdon) read *Micropternus brachyurus jerdonii* (Malherbe).

Page 142.—For *Thriponax* Cab. & Heine 1863 read *Macropicus* Malherbe 1861.

For *Thriponax javanensis hodgsonii* read *Macropicus crawfordi hodgsonii*.

Page 143.—For *Picumnus* Temminck 1825 read *Vivia* Hodgson 1837.

For *Picumnus innominatus avunculorum* read *Vivia innominatus avunculorum*.

Page 148.—For *Cuculus canorus telephonus* (Heine) read *Cuculus canorus telephonus* Heine.

Page 150.—For *Cuculus poliocephalus poliocephalus* (Lath.,) read *Cuculus poliocephalus poliocephalus* Lath.

For *Cuculus micropterus micropterus* (Gould) read *Cuculus micropterus micropterus* Gould.

Page 164.—For *Centropus benghalensis benghalensis* read *Centropus bengalensis bengalensis*.

Page 165.—For *Psittacula eupatria eupatria* Linn., read *Psittacula eupatria eupatria* (Linn.,)

Page 167.—For *Psittacula columboides* Vigors read *Psittacula melanorhyncha* (Sykes).

Page 170.—For *ruchal collar* read *nuchal collar*.

For *Eurystomus orientalis orientalis* Linn., read *Eurystomus orintalis orientalis* (Linn.,)

Page 174.—For *Bucia* Hodgson 1836 read *Alcemerops* J. Geoff. St. Hilaire 1833.

Page 177.—For *Ceyx* Lacépède 1801 read *Ceyx* Lacépède 1799.

For *Ceyx tridactylus tridactylus* Pall., read *Ceyx tridactylus tridactylus* (Pall.,)

Page 179.—For *Halcyon smyrnensis fusca* Bodd., read *Halcyon smyrnensis fusca* (Bodd.,)

Page 182.—For *Sauropatis chloris vidali* Sharp read *Sauropatis chloris vidali* (Sharpe).

Page 184.—For *Anthracoceros* Reich., 1849 read *Hydrocissa* Bonaparte 1850.

For *Anthracoceros coronatus* read *Hydrocissa coronata*.

Page 185.—For *Lophoceros* Hempr., & Ehr. 1828 read *Tockus* Lesson 1831.

Wherever the name *Lophoceros* is used on pages 185 and 186 read *Tockus*.

Page 189.—For *Trogons* read *Trogones*.

For *Pyrotrogon* Bonaparte 1854 read *Harpactes* Swainson 1833.

For *Pyrotrogon fasciatus malabaricum* read *Harpactes fasciatus malabaricum*.

Page 192.—Add

(272-A) *Micropus melba bakeri* Hartert.

THE INDIAN ALPINE SWIFT.

Description. "Smaller and darker than *M.m. alba*. Wing 190 to 195 mm.

Distribution. "A resident breeding bird in the mountains and hills of Ceylon and Southern India". (*Stuart Baker.*)

The notes on the breeding of the previous bird should be for this subspecies. Both subspecies may possibly occur in our area, the present one being the resident form.

Page 205.—For *Tyto alba javanica* (Gmel.,) read *Tyto alba stertens* Hartert.

Page 209.—For *Strix ocellata* Less., read *Strix ocellata* (Less.,)

Page 211.—For *Ketupa zeylonensis zeylonensis* Gmel., read *Ketupa zeylonensis zeylonensis* (Gmel.,)

Page 212.—For *Bubo bubo bengalensis* Frankl., read *Bubo bubo bengalensis* (Frankl.,)

Page 217.—For *Plate XIV* read *Plate XVI*.

Page 219.—For *Glaucidium radiatum malabaricum* (Sharpe) read *Glaucidium radiatum malabaricum* Sharpe.

Page 243.—For *Ictinaëtus malayensis perniger* Hodgs., read *Ictinaëtus malayensis perniger* (Hodgs.,)

Page 244.—For *Spizaëtus* Vieillot 1816 read *Limnaëtops* Stuart Baker.

Wherever the name *Spizaëtus* is used from pages 244 to 246 read *Limnaëtops*.

Page 248.—For *Spilornis* G. R. Gray 1840 read *Hæmatornis* Gould 1831.

Wherever the name *Spilornis* has been used on pages 248 and 249 read *Hæmatornis*.

Page 262.—For *Buteo* Cuvier, 1800 read *Buteo* Lacèpéde, 1799.

Page 264.—For *Astur* Lacépède, 1801 read *Astur* Lacépède, 1799.

Page 265.—Under the **Indian Shikra** insert *Plate XIX*.

Page 281.—For *Columba elphinstonii* Sykes read *Columba elphinstonii* (Sykes).

Page 285.—For *Œnopopelia tranquebarica tranquebnrica* read *Œnopopelia tranquebarica tranquebarica*.

Page 289.—For *Pterocles exustus erlangeri* (Neum.,) read *Pterocles exustus erlangeri* Neum.

Page 331.—For *Gallinula chloropus parvifrons* read *Gallinula chloropus indicus*.

Page 334.—Under the **Indian Purple Moorhen** insert *Plate XIX.*

Page 335.—For *Fulica atra utra* read *Fulica atra atra.*

For (*H.L. No. 1889*) read (*Fauna of British India*, 2nd edition No. 2029).

Page 337.—Under **The Bronze-winged Jacana** insert *Plate XX.*

Page 338.—For *Phlasant-tailed Jacana* read *Pheasant-tailed Jacana.*

Page 359.—Eliminate Sub-family *Larinæ.*

Page 366.—Under **The Indian River Tern** insert *Plate XXI.*

Page 371.—For **Black-shafted Little Tern,** read **Black-shafted Ternlet.**

Page 386.—For *Hoplopterus ventralis* (Wagl.) read *Hoplopterus duvauceli* (Less).

Page 387.—For *Lobivanellus* Stuicklan[illegible]

Page 4.—**The Southern Grey Tit** differs from the bird figured in having the tail black on both webs with only a narrow grey edge on the outer webs. The illustration fairly represents our bird.

Page 22.—**The Malabar Chloropsis** differs from that illustrated in having the chin and throat black instead of blue and there being no golden-yellow band surrounding the black.

Page 58.—Delete *Plate VII* under **Bay-backed Shrike.**

Page 59.—Insert *Plate VII* under **Southern Rufous-backed Shrike.** Our bird differs from the one given in the plate by having no trace of rufous on the upper back.

Page 71.—**The Malabar Large Racket-tailed Drongo** only differs from the one illustrated in its rather smaller size and crest. The illustration fairly represents our bird.

Page 89.—Delete *Plate X* under **Indian Oriole.**

Page 90.—Insert *Plate X* under **Indian Black-headed Oriole.**

Page 135.—**The Southern Yellow-fronted Pied Woodpecker** differs from that figured in the plate by being blacker above showing less white and the crown and abdomen are a deeper crimson.

Page 217.—**The Southern Spotted Owlet** is darker above and more heavily spotted below than the sub-species illustrated.

Page 387.—Under **The Indian Red-Wattled Lapwing** insert *Plate XX.*

Page 192.—Add

(272-A) *Micropus melba bakeri* Hartert.

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Page 386.—For *Hoplopterus ventralis* (Wagl.) read *Hoplopterus duvauceli* (Less).

Page 387.—For *Lobivanellus* Strickland, 1841 read *Lobivanellus* Gray 1841.

Page 391.—For *Numenius arquata lineatus* (Cuv.,) read *Numenius arquata orientalis* Brehm.

Page 394.—For *Xenus* Kanp., 1829 read *Terekia* Bonaparte, 1838.

Page 395.—For *Xenus cinereus cinereus* (Gülden.,) read *Terekia cinereus cinereus* (Gülden.,).

Page 439.—Under **The Indian Black Ibis** insert *Plate XXI.*

Page 444.—Under **The Adjutant** insert *Plate XXII.*

Page 450.—Under **Eastern Grey Heron** insert *Plate XXII.*

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