

APPENDIX

A SUMMARY of the sporting birds and the birds of the shore and estuaries, all described in detail in Volume III.

GAME BIRDS

Order Galliformes

Vol. I., p. 1; Vol. II., p. 1; Vol. III., p. 1.

KEY TO THE MALAYAN LOWLAND GAME BIRDS

1	Large birds: wing always over 12 in. in length	2	
	Smaller birds: wing less than 12 in. in length	4	
2	Upper tail coverts greatly elongated in the male, forming a "train"; both sexes crested, the feathers of the crest broadened at the tips		<i>Pavo muticus</i>
	Upper tail coverts not greatly elongated in the male; head either not conspicuously crested or with a bunch of hair-like feathers at the back of the head	3	
3	Secondaries enormously lengthened, much larger than the primaries, and furnished with large ocelli (<i>male</i>); breast, chestnut (<i>female</i>)		<i>Argusianus argus argus</i>
	Secondaries normal, spotted with white, but without large ocelli (<i>male</i>); breast, brown (<i>female</i>)		<i>Rheinardius ocellatus nigrescens</i>
4	With metallic ocelli in the plumage		<i>Polyplectron malaccensis</i>
	Without metallic ocelli in the plumage	5	
5	Tail much more than 4 in. in length.	6	
	Tail always less than 4 in. in length.	9	
6	Lower back and rump brightly coloured, red, orange, etc.	7	
	Lower back and rump without bright colours, brown, blackish, etc.	8	

7	{	Tail feathers, buff	<i>Houppifer e. erythrophthalmus</i> (male)
		Tail feathers, metallic green.	<i>Gallus gallus gallus</i> (male)
		Tail feathers, blue-black and white	<i>Lophura rufa</i> (male)
8	{	Mantle, yellowish buff streaked with black	<i>Gallus gallus gallus</i> (female)
		Mantle, blue-black	<i>Houppifer e. erythrophthalmus</i> (female)
		Mantle, chestnut	<i>Lophura rufa</i> (female)
9	{	Crown with a hair-like crest.	<i>Rollulus roulroul</i>
		Head not crested	10
10	{	Wing less than 3 in.	<i>Excalfactoria chinensis chinensis</i>
		Wing more than 5 in.	11
11	{	Mantle conspicuously spangled black and white	<i>Caloperdix oculea oculea</i>
		Mantle not spangled	12
12	{	Legs with spurs	<i>Rhizothera longirostris longirostris</i>
		Legs without spurs	13
13	{	Hind toe with a small nail only	<i>Melanoperdix nigra nigra</i>
		Hind toe with a well-developed claw	<i>Tropicoperdix charltoni charltoni</i>

The Long-billed Partridge (*Rhizothera longirostris longirostris*).—Male: top of the head, chestnut-brown; nape and breast, grey, the nape patched with black. Mantle and scapulars, mixed brown, chestnut, black and buff; lower back, mottled grey and buff; throat, rusty brown; abdomen, yellowish buff. Female: like the male, but the nape and breast *chestnut*, not grey.

Total length, about 14.5 in.; wing, 7.7 in.

A shy, not very common bird, found most abundantly in dry submontane forest, especially where there is much bamboo. Not commonly found in the low country. Nest and eggs unknown.

The Malayan Chestnut-breasted Tree-Partridge (*Tropicoperdix charltoni charltoni*).—Upper parts, brown, vermiculated with black and mottled with whitish buff. Forehead striped with white; a broad, mixed black and white stripe over the eye; throat, white, the feathers tipped with black; the throat bordered by a black band, which is succeeded by a wider chestnut band on the chest. Remaining under parts, orange-buff, heavily barred with black on the breast and sides.

Total length, about 11 in.; wing, 6.3 in.

Usually found in small coveys in rather dry jungle at the foot of limestone hills, but on the lower Larut Hills it also occurs in dense, damp, evergreen forest. Commoner in the north than in the south, and we have never seen specimens from south of Central Perak and Pahang. Nest and eggs unknown.

The Malayan Ferruginous Wood-Partridge (*Caloperdix oculea oculea*).—Head and under parts, bright rusty red, with the sides of the body barred

deep black and buff. Back, black, the feathers edged with white, producing a scale-like pattern. Wings, olive-clay colour, with large black spots; rump, black with triangular orange markings.

Total length, 10.5 in.; wing, 5.9 in.

In Peninsular Siam, common in lowland forest, especially in bamboo forest, and even in secondary jungle. In Perlis, abundant in swampy jungle at the foot of precipitous limestone hills. In the Malay States, very rare or unknown. A specimen from Selangor was taken on the mountains at about 3000 ft. Nest said to be a matted pad of grass under the shelter of a scrubby bush. No details concerning the nidification have been published.

The Crested Green Wood-Quail (*Rollulus roulroul*).—Both sexes with a long, hairy crest growing from the crown. Males also have a long bushy occipital crest of maroon feathers. The sexes are very different in colour. Males have the upper parts dark green, the wings brown and the under parts black with a faint blue gloss. Females have the head blackish grey, the wings brown and the remainder of the plumage green. Legs, red in both sexes.

Total length, 10 in.; wing, about 5.2 in.

One of the commonest game birds in the Peninsula, and found almost everywhere, except among the mangroves and in sandy littoral tracts, where heavy jungle exists. Favourite haunts are fairly open, dry jungles, especially where there are many bamboos or stemless palms. On 12th February 1938, Mr G. C. Madoc found a nest on the lower slopes of a limestone crag, in virgin jungle, near Jerantut, Pahang. The nest was a mere depression in a thick bed of dead leaves. The five eggs, which were partly covered with leaves, are described by Mr Madoc as very broad, and sharply pointed at one end. The shell is tough, glossless, and dead white. They measure 1.49, 1.46, 1.43, 1.40, and 1.39 by 1.19, 1.22, 1.21, 1.21, and 1.19 in. "I have not taken a nest, but have information of nests with eggs, found by wood-cutters, in December and April: and have notes of chicks, running with the parents, in February, March, April and May" (*A. T. Edgar*).

The Malayan Black Wood-Partridge (*Melanoperdix nigra nigra*).—The sexes are quite different in colour. Males are entirely glossy black, except for a brown wash on the wings. Females have the general plumage chestnut, with the scapulars heavily barred with black. Bill, curiously short and thick. Back toe with a very small nail.

Total length, 10.5 in.; wing, 5.6 in.

One of the rarer Malayan game birds and found only in the southern two-thirds of the Peninsula, usually in forest where there is much undergrowth of stemless palms. The nest and eggs have never been described.

The Blue-breasted Button-Quail (*Excalfactoria chinensis chinensis*).¹—Male: upper parts, earthy brown mottled with black and thinly striped with buff. Upper throat, black; lower throat and cheeks, white; breast and

¹ *Correction.* In the description of this quail on p. 13 of Vol. III. several lines are omitted. In the description of the plumage of the adult male the following should be inserted between the words "upper tail coverts" and "maroon-chestnut" in line 6—"breast and flanks, bright slate-blue, brightest on the breast and flanks. Rest of the under surface, below the breast, and some of the upper tail coverts—"

flanks, slate-blue; abdomen, etc., maroon-chestnut. Wings, brown mixed with blue and chestnut. Female: quite different. Rather like the male on the upper parts, but the under parts buff, barred with black, except on the throat and middle of the abdomen.

Total length, about 5 in.; wing, 2.75 in.

Common and breeding in grass-land almost everywhere in the Peninsula.

The Rufous-tailed Fire-back Pheasant (*Houppifer erythroptthalmus erythroptthalmus*).—Male: head, neck and under parts, black, slightly glossed in places with blue-green. Lower back and rump, fiery bronze, turning to maroon on the upper tail coverts; tail, buff; mantle, back and wings, black, with thin, wavy, white bars. Female: uniformly black, glossed with steel-blue. Both sexes have a large expanse of red facial skin and a pair of sharp spurs on the legs.

Total length, about 16.5 in.; wing, 8.5 in.

Not very common, but widely distributed in the low-country forest, especially where there is much undergrowth. In some districts also found in secondary jungle. More numerous in the south than in the north of the Peninsula. Mr A. T. Edgar writes from Lower Perak: "2nd April 1936. A nest on a strip of rising ground in swampy jungle. The bird had picked clean a space about two and a half feet in diameter, on a low ant-hill on which grew a bertam palm, and in the centre of the cleared space, in a shallow depression, four eggs were laid on a few dry leaves. The eggs measure on average 1.88 by 1.41 in. and are pear-shaped. They lay in the nest with the pointed ends inwards. The shell is tough, somewhat pitted, creamy white, but stained brownish."

Vieillot's Fire-backed Pheasant (*Lophura rufa*).—Male: general plumage, black, glossed with violet or steel-green; flanks with a few broad white streaks. Centre few pairs of tail feathers, white, or nearly so. Lower back and rump, flame-colour to maroon. Head with a bushy crest of decomposed plumes. A pair of long sharp spurs on the legs in the male. Female: quite different. Upper parts, bright rufous, finely vermiculated with black; tail, rather darker brown. Throat and abdomen, whitish. Breast and flanks, rufous and blackish respectively, the feathers broadly edged with white. Crest shorter than in the male. Facial skin blue in both sexes.

Total length, about 23 in.; wing, 10.25 in.

Widely distributed throughout the Peninsula in low-country forest, especially near the big rivers, but not very abundant. The eggs are said to be laid in a rough nest of grass, etc., under a bush in old forest.

The Common Red Jungle-Fowl (*Gallus gallus gallus*).—In both sexes much like the domestic bantam. Male: under parts, black; neck and mantle, yellow to orange; back, scapulars and some of the wing coverts, maroon; rump, orange; tail, dark green. Wings, black and brown. The long central tail feathers and long neck hackles are moulted in summer and replaced about November. Female: quite different. Mantle, yellow streaked with black; remainder of plumage, brown, almost tawny on the under parts, the upper parts finely vermiculated with black.

Total length, about 27 in. in males and 17 in. in females; wing, 8 to 9.5 in.

Common in most parts of the lowlands, except in the mangrove zone. Favourite localities are patches of secondary jungle in the vicinity of cultivation; the thick and tangled vegetation clothing the banks of the larger rivers; and bamboo forest. The eggs are laid in a hollow of the ground in secondary or scrub jungle. In Negri Sembilan Mr V. W. Ryves found three nests in March and April. The clutch was never more than four.

The Malay Peacock-Pheasant (*Polyplectron malaccensis*).—General plumage, dull brown very finely vermiculated with black. In males the upper surface has large peacock-blue spots, and there is a bluish crest on the head. Females lack the blue spots, except on the tail: elsewhere they are replaced by black patches.

Total length, about 17 in. in females, 21 in. in males; wing, about 7 to 8 in.

Confined to the heavy forest in the lowlands and foothills. A very shy bird, and apparently not very common in the Malay Peninsula. No local record of the nest and eggs.

The Malayan Argus Pheasant (*Argusianus argus argus*).—Male: a short velvety crest, black; naked skin of head, blue. Back and short upper tail coverts, yellow-buff spotted with black; remaining upper parts, black, patterned, mottled, irregularly barred and spotted with whitish buff and a little rufous. Under parts, chestnut, irregularly barred and spotted with black and buff. Secondaries, greatly lengthened, their concealed parts with a highly complicated pattern and many-coloured ocelli. Tail feathers, rufous, spotted with white. Female: tail and secondaries not greatly lengthened; breast and nape, bright chestnut-rufous; remainder of plumage, brown, heavily vermiculated with black, and the upper parts much variegated with buff.

Total length of male, including long tail feathers, about 68 in.; wing to end of primaries, 18.5 in.; to end of secondaries, 35 in.; tail, 51 in. Female much smaller.

Common everywhere in old jungle, but not found in the swampy coastal districts. Exceedingly shy, but easy to trap. The eggs are known, but no details of the nest, which should be sought for on the ground in primary forest, have been published.

The Malayan Ocellated Pheasant (*Rheinardius ocellatus nigrescens*).—Male: upper parts and tail, black to brown, and much spotted with white; crest, black and white. Under parts, dark chestnut, spotted with white and less conspicuously with black; tail, extremely long and much graduated. Female: very different from the male; with no white spots. Earthy brown, the breast more rufescent, vermiculated with black; wings and tail with numerous black bars; crest, short, mainly black.

Wing, about 14.5 in.; tail in males, up to 42 in.; in females, 15 in.

A very rare bird as yet known with certainty only from the mountains of Pahang, occasionally descending to the level of the larger rivers in dense jungle.

The Javan Peafowl (*Pavo muticus*).—There is an upright crest on the head. A long "train" is formed of modified upper tail coverts. Male: neck, breast and chest, golden green and blue, black edgings producing a scaly effect. Back and rump, less blue; wing coverts, mostly black glossed with blue; primaries, chestnut-buff; "train," greenish bronze with peacock-blue "eyes." Female: very similar, but lacks the long "train" and tarsal spurs of the male.

Total length of male with train, 83 in.; wing, 19 in. Female much smaller.

Commoner on the eastern than on the western side of the Peninsula. Not as a rule met with in heavily forested country, but mainly affects the banks of large rivers, retiring to the thick bordering scrub in the heat of the day. No Malayan record of the nest and eggs.

BUSTARD-QUAILS OR HEMIPODES

Order Turniciformes

Vol. I., p. 2; Vol. III., p. 30.

KEY TO THE MALAYAN BUSTARD-QUAILS

- | | | | |
|---|---|--|------------------------------------|
| I | { | Breast barred across, or throat black | <i>Turnix javanica atrigularis</i> |
| | | Breast uniform in the centre; throat never black | <i>Turnix tanki blanfordi</i> |

The Malayan Bustard-Quail (*Turnix javanica atrigularis*).—Male: upper parts, brown, mottled with rufous, spotted with buff and patched with black; wing coverts, mostly buff barred with black; under parts, pale buff, richest on the flanks, breast heavily spotted and barred with black; throat, white. Female: chin, throat and centre of the breast, solidly black; under parts more richly coloured than in the male.

Females measure about 5.6 in. in length; wing, 3.5 in. Males are smaller.

Common throughout the Peninsula wherever there is open country with much high grass. In this and allied hemipodes there is a reversal of the usual rôle of the sexes, the female being the larger and more brightly coloured bird and courting the male, while the latter performs the duties of incubation. Nests in long grass, often under a bush. North of about the latitude of Penang replaced by another subspecies, *T. j. interrumpens*, in which the upper parts are more uniform in colour.

The Burmese Bustard-Quail (*Turnix tanki blanfordi*).—Upper parts, mixed grey and dull brick-red, patched with black and with irregular buff spots. Under parts and wing coverts, pale buff with large black spots; centre of breast, orange-buff. Males have slightly less red on the nape than females.

Female: total length, 7 in.; wing, 3.9 in. Male: slightly smaller.

Common in grass-land in the north of Peninsular Siam, but not occurring farther south. The nest and eggs have been described from Siam.

PIGEONS AND DOVES

Order Columbiformes

Vol. I., p. 6; Vol. II., p. 10; Vol. III., p. 34.

KEY TO THE MALAYAN LOWLAND PIGEONS

1	{	Large birds, with the wing more than 8.25 in. in length	2
		Smaller birds: wing never 8.25 in. in length	6
2	{	With elongated hackles on the hind neck	<i>Caloenas nicobarica nicobarica</i>
		Feathers on hind neck not elongated	3
3	{	General colour above, maroon	4
		General colour above, not maroon	5
4	{	Tail with apical grey band	<i>Ducula badia badia</i>
		Tail, black	<i>Columba punicea</i>
5	{	General colour, ivory-white; wings and tail, black	<i>Myristicivora bicolor bicolor</i>
		General colour, grey; wings and tail, black	<i>Columba argentina</i>
		General colour above, metallic green	<i>Ducula aenea aenea</i>
6	{	Always with metallic green in the plumage	<i>Chalcophaps i. indica</i>
		Always with non-metallic green in the plumage	7
		With no conspicuous green in the plumage: general plumage brownish	17
7	{	Tail much graduated	<i>Sphenurus seimundi seimundi</i>
		Tail square	8
8	{	Top of head crimson or purple	<i>Ptilinopus jambu</i>
		With no magenta in plumage	9
9	{	Wing exceeding 7 in. in length	<i>Butoreron capellei capellei</i>
		Wing less than 7 in.	10
10	{	Bill thick: swollen towards tip	<i>Treron curvirostra</i> subspp.
		Bill slender: not markedly swollen towards tip	11
11	{	Wing less than 5 in. in length	<i>Treron olax olax</i>
		Wing more than 5 in.	12
12	{	Upper parts largely chestnut or maroon	<i>Treron fulvicollis fulvicollis</i> (male)
		Upper parts mostly green	13

13	{	An orange patch on the breast	14
		No orange patch on the breast	15
14	{	Throat, grey	<i>Treron vernans abbotti</i> (male)
		Throat, green	<i>Treron bicincta prætermissa</i> (male)
15	{	Top of the head, grey	<i>Treron fulvicollis fulvicollis</i> (female)
		Top of the head, green	16
16	{	Grey band at tip of under side of tail more than $\frac{1}{2}$ in. in width	<i>Treron bicincta prætermissa</i> (female)
		Grey band on under side of tail merely a narrow edging	
17	{	No black collar on the hind neck	18
		A black collar on the hind neck	19
18	{	Outer tail feathers broadly tipped with white	<i>Geopelia striata striata</i>
		Outer tail feathers not tipped with white	<i>Macropygia ruficeps malayana</i>
19	{	Black collar on hind neck broad and spotted	<i>Streptopelia chinensis tigrina</i>
		Black collar narrow and unspotted	<i>Ænopopelia tranquebarica humilis</i>

Seimund's Pintail Green Pigeon (*Sphenurus seimundi seimundi*).—General plumage, green; centre of abdomen, white; under tail coverts, yellow splashed with green. Males have a grey collar on the nape and a maroon patch on the lesser wing coverts. Females have no nuchal collar and the maroon is replaced by a blackish patch. Tail, grey, the centre feathers long and pointed.

Total length, 11.5 in.; wing, 6 in.

Normally a mountain bird, but found at times on the coast. Nidification unknown. Mr A. T. Edgar considers that he saw a juvenile, in the company of an adult bird, in June 1937, at Telok Bata in the Dindings. The birds were working along the coastal fringe of trees at the foot of forest-covered hills. The juvenile was obviously not long out of the nest.

The Larger Thick-billed Green Pigeon (*Butoreron capellei capellei*).—General plumage, green, the inner secondaries edged with yellow; outer tail feathers, blackish broadly tipped with grey. Males have a large orange patch on the breast and the under tail coverts are chestnut. Females have the breast yellowish green and the under tail coverts green, broadly edged with buff.

Total length, 14 in. wing, 8 in.

Almost exclusively restricted to the old and fairly open forest and not as a rule met with in open country. No local record of the nest and eggs.

The Lesser Thick-billed Green Pigeon (*Treron curvirostra curvirostra*).—Male: crown, grey; head, neck and under parts, green; under tail coverts, chestnut; back and wing coverts, maroon; rump, etc., green; outer tail feathers, grey with a subterminal black bar; wings streaked with yellow. Female: green on the upper parts where the male is maroon. Under tail coverts, mixed green and buffy white.

Total length, 9 in. ; wing, 5.25 in.

Common in the lowlands, but never found far from old forest. Not such an open-country bird as the other small green pigeons. The nest has been found in rubber-trees on the edge of forest. North of Perlis replaced by the slightly larger and paler subspecies, *T. c. nipalensis*.

The Cinnamon-headed Green Pigeon (*Treron fulvicollis fulvicollis*).—Male: head, neck and breast, pale chestnut; back and the inner wing coverts, maroon; remainder of wing, black, lined with yellow; abdomen and rump, grey; under tail coverts, chestnut. Female: general plumage green, without chestnut or maroon; top of the head, grey; thighs, bright yellow; under tail coverts, whitish buff with a few green streaks.

Total length, 10.3 in. ; wing, 5.6 in.

Found in small numbers along the coast, generally in the mangrove. Occasionally found inland. The nest has been found in trees near rivers.

The Pink-necked Green Pigeon (*Treron vernans abbotti*).—Male: general plumage green, with a broad yellow stripe down the wing; tail above, grey tipped with black; head, grey; neck all round, pinkish; mantle, tinged with grey; a large orange patch on the breast; under tail coverts, chestnut. Female: green with whitish under tail coverts; wings and tail as in the male, but no green, pink or orange in the plumage.

Total length, 10 in. ; wing, 5.6 in.

A very common bird, preferring the more open coastal districts to high forest. Nests in small trees and shrubs.

The Orange-breasted Green Pigeon (*Treron bicincta prætermissa*).—Like *T. vernans*, but the tail above with a broad pale grey apical tip in both sexes. In males the throat is green, not grey as in *T. vernans*.

Total length, 11.5 in. ; wing, 6.5 in.

Common in some parts of Peninsular Siam, and not uncommon near Taiping, but much rarer farther south. The habits are like those of *Treron vernans*, with which it mixes. There is no Malayan record of the nest and eggs.

The Little Green Pigeon (*Treron olax olax*).—Male: top of the head, the nape, lower back and rump, dark grey; back and most of the wing coverts, maroon; remainder of wings, black lined with yellow; breast, dark orange; abdomen, green; vent and under tail coverts, chestnut. Female: general plumage green, without orange or maroon in the plumage. Top of the head, grey, under tail coverts, cinnamon-buff. Small size distinguishes this species from other members of the genus.

Total length, 8.25 in. ; wing, 4.8 in.

Not so common as *Treron vernans* and lives, as a rule, in more thickly forested districts. At times it visits gardens. Mr V. W. Ryves found a clutch of two eggs in Perak on 13th June. The nest was twelve feet from the ground in a rubber-tree, two hundred yards from the edge of heavy forest.

The Pink-headed Fruit-Dove (*Ptilinopus jambu*).—Male: top and sides of head, red; throat, black in the centre; upper parts, bright green; under

parts, white, with a large pink patch on the breast; under tail coverts, chestnut. Female: general plumage green, turning to white on the abdomen; chin, black; top and sides of the head, purple.

Total length, 10.5 in.; wing, 5.5 in.

Common, but locally distributed. It performs marked local migrations which are not understood. Usually more common on the coasts, especially in mangrove and coastal islands than elsewhere, but it also turns up at the hill stations. Mr A. T. Edgar now makes known the nest and eggs of this species. He writes from Lower Perak: "27th Jan. A nest, in dry, flat jungle, was placed eight feet from the ground in the fork of a small tree. It was a very flimsy nest, made of about twenty-five slender twigs, the pad being about five inches in diameter. It contained one egg, white, a long oval, slightly glossy and much incubated. Measurements, 1.18 by 0.84 in.

The Green Imperial Pigeon (*Ducula aenea aenea*).—Head, neck and under parts, grey with a vinaceous "bloom"; upper parts, including wings and tail, dark bronzy green; under tail coverts, chestnut.

Total length, 16.5 in.; wing, 9.3 in.

Much commoner on the coasts and coastal islands than elsewhere, but found at times some distance up the larger rivers. Not a jungle or hill-country bird in the Peninsula. Breeds in trees in the mangrove belt.

The Mountain Imperial Pigeon (*Ducula badia badia*).—Throat, white; head, neck and under parts, grey with a pink "bloom"; upper parts, mostly dark chestnut-maroon. Tail dusky, with a broad grey terminal band.

Total length, 16.5 in.; wing, 9.25 in.

Common in the mountains where it breeds, usually in a stunted tree. At times it visits the coasts, and can be found in mangrove swamps.

The Pied Imperial Pigeon (*Myristicivora bicolor bicolor*).—General colour, ivory-white with a creamy tinge. Wing quills and most of the tail, black. Feet and bill, blue-grey.

Total length, 16 in.; wing, 9 in.

Very common on the coastal islands, but on the mainland it is much less numerous, always in mangroves and never more than a mile or two from the sea. There is no Malayan record of the nest and eggs, which should be looked for on the small islands.

The Grey Wood-Pigeon (*Columba argentina*).—Like the last-mentioned species, but pale grey where that bird is white.

Total length, 15 in.; wing, 9.25 in.

There is no actual record of this species from the mainland of the Peninsula, but it is believed to occur on Pulau Jarak in the Straits of Malacca, and specimens have been shot on Dutch islands within sight of Singapore. The species is almost exclusively an inhabitant of small islands.

The Purple Wood-Pigeon (*Columba punicea*).—Top of the head, whitish grey; general plumage chestnut, with amethystine and greenish gloss; rump and tail, grey.

Total length, 15 in.; wing, 8.45 in.

Occurs only in the north of the Peninsula, where it has been found fairly

commonly on the small islands off the west coast of Peninsular Siam. There is no local record of the nest.

The Little Malayan Cuckoo-Dove (*Macropygia ruficeps malayana*).—Head, neck and under parts, cinnamon-chestnut; upper parts, dark chestnut-brown; breast spotted with black and with some small whitish patches.

Total length, 10.5 in.; wing, 5.5 in.

Fairly common in heavy forest in the central parts of the Peninsula. Normally montane or submontane, but occasionally found as low as 200 ft. The nest is usually not far from the ground.

The Malay Spotted Dove (*Streptopelia chinensis tigrina*).—Head, grey; nape, black spotted with white; breast, vinous; abdomen, etc., whitish; upper parts, brown; wings spotted with black, and washed with blue near the edge. Outer tail feathers, black, broadly tipped with white.

Total length, 12 in.; wing, 5.75 in.

Very common in open country and towns throughout the Peninsula. The nest is placed in bushes and small trees (November to 5th August).

The Barred Ground-Dove (*Geopelia striata striata*).—Forehead and throat, grey; upper parts, pale brown barred with black; centre of breast, dull pink; remainder of under parts, narrowly barred black and white. Outer tail feathers, black tipped with white.

Total length, 9 in.; wing, 3.9 in.

Very common in dry open spaces throughout the Peninsula, especially in gardens. It nests in bushes and small trees.

The Burmese Red Turtle Dove (*Enopopelia tranquebarica humilis*).—Male: top of head, and rump, grey; a black collar on the hind neck; tail broadly tipped with white; wing quills, black; remainder of plumage, vinous brown or dull brownish pink. Female: without the pink tinge on the body plumage.

Total length, about 9 in.; wing, about 5.5 in.

Although this dove occurs in a wild state as far south as the Isthmus of Kra, I am inclined to regard local Malayan stocks (the species breeds in Perak) as composed of introduced birds.

The Bronze-winged or Emerald Dove (*Chalcophaps indica indica*).—Male: back and wings, shining green; rump and tail, grey; top of head and nape, blue-grey; forehead and superciliaries, white. Under parts, purplish vinous. Female: head, neck and under parts, reddish brown; forehead, grey-blue; back and wings, shiny green.

Total length, 10 in.; wing, 5.7 in.

Common in old and secondary forest, especially in the ravines and sheltered, darker places. It can also be seen in the more secluded parts of large gardens. I can trace no actual record of a Malayan nest and eggs of this common bird. Mr V. W. Ryves has found eggs in Perak (July) and Negri Sembilan (August).

The Nicobar Pigeon (*Caloenas nicobarica nicobarica*).—Tail, white; remainder of plumage, glossy green with reflections of copper and bronze. Head and neck almost black.

Total length, 16.5 in.; wing, about 10 in.

Within our limits, as elsewhere in its range, this pigeon has been found only on the smaller islands. It is known to nest on Pulau Jarak.

COOTS, RAILS AND CRAKES

Order Ralliformes

Vol. I., p. 15; Vol. II., p. 22; Vol. III., p. 67.

KEY TO THE MALAYAN SPECIES

1	{	With a horny frontal shield	2
	{	With no horny frontal shield	4
2	{	General plumage, blue <i>Porphyrio poliocephalus viridis</i>	
	{	General plumage, not blue	3
3	{	Toes with a narrow membranous fringe, not lobed <i>Gallinula chloropus orientalis</i>	
	{	Toes without a membranous fringe <i>Gallinula cinerea</i>	
4	{	Plumage uniform above	5
	{	Plumage streaked above	10
5	{	Under parts largely white; under tail coverts, rufous <i>Amaurornis phœnicura chinensis</i>	
	{	Not possessing the above characters	6
6	{	Tarsus longer than middle toe and claw	7
	{	Tarsus shorter than middle toe and claw	8
7	{	Wing coverts barred; legs, red <i>Rallina fasciata</i>	
	{	Wing coverts uniform; legs not red. <i>Rallina superciliaris superciliaris</i>	
8	{	Axillaries barred <i>Limnobænus paykulli</i>	
	{	Axillaries uniform	9
9	{	Under parts, reddish chestnut <i>Limnobænus fuscus</i> subsp.	
	{	Under parts, slaty grey <i>Limnobænus bicolor</i>	
10	{	Culmen about equal to middle toe <i>Hypotaenidia striata</i>	
	{	Culmen much shorter than middle toe	11
11	{	Abdomen and flanks barred <i>Porzana pusilla pusilla</i>	
	{	Abdomen and flanks unbarred <i>Poliolimnas cinereus cinereus</i>	

The Malay Purple Moor-hen (*Porphyrio poliocephalus viridis*).—Sides of head, grey. Upper parts, brownish with an oily green lustre; under parts, blue-green to deep blue; under tail coverts, white; bill and feet, red.

Total length, 16 in.; wing, 9.6 in.

Affects reedy swamps overgrown with thick vegetation. Very locally distributed, and now by no means common. No Malayan record of the nest and eggs. Birds from Taiping show intergradation with the northern form,

P. p. poliocephalus, in which the back is bright greenish blue and the head and neck nearly always very pale, hoary grey.

The Malaysian Moor-hen (*Gallinula chloropus orientalis*).—Head and neck, grey-black; under parts, paler grey; flanks streaked with white; middle of abdomen, white; upper parts, blackish washed with oily bronze-brown. Under tail coverts, mostly white. Feet, green with an orange “garter”; frontal shield, red.

Total length, 12 in.; wing, 6 in.

Not common and very locally distributed in swamps. The nest has been found in Selangor.

The Water-Cock (*Gallinula cinerea*).—In breeding plumage the adult male is mainly blackish grey, and there is a fleshy horn at the end of the frontal shield. Females and males in winter dress are brown above, heavily streaked with buff and sandy buff, with wavy dusky bars on the under parts. Feet, greenish; in breeding males the bill is yellow and the frontal shield red.

Total length, 16.5 in.; wing, 8.2 in.

There is no record of the nest and eggs from the Peninsula and the bird is, possibly, only a winter visitor. Found at the edges of ricefields, in swamps, etc.

The White-breasted Water-Hen (*Amaurornis phoenicurus chinensis*).—Above, slaty grey tinged with olive; below, white; under tail coverts, chestnut; feet, yellow; bill, green and red.

Total length, 13 in.; wing, 6.5 in.

The commonest rail in the Peninsula and found abundantly along the edge of fresh water and in the thick vegetation at the edges of ricefields. Nests in tall grass (October to July).

The Malay Banded Crake (*Rallina fasciata*).—Head, neck and breast, chestnut; upper parts, bright brown; wing coverts and abdomen, barred black and white. Feet, red.

Total length, 9 in.; wing, 5 in.

Found in fair numbers along the watercourses in open country and at the edges of ricefields, and certainly resident. Mr Stuart Baker records eggs from Perak. We have no personal knowledge of the nidification in the Peninsula. In winter its numbers are very largely augmented by migrants from the north.

The Banded Crake (*Rallina superciliaris superciliaris*).—Throat, white; head, neck and breast, chestnut; upper parts, including wings, olive-brown; abdomen, etc., barred black and white; feet, blackish.

Total length, 8.7 in.; wing, 5 in.

Young birds have the whole upper surface olive-brown, with no chestnut. Has been obtained in the lowlands, and in the mountains in the winter months, and I believe the bird to be migratory and not resident in the Peninsula.

The Chinese Banded Crake (*Limnobæus paykulli*).—Very like *Rallina superciliaris*, but the feet orange-vermilion and the inner webs of the primaries uniform in colour, not barred. A rare winter visitor. A few specimens have been obtained in swampy ground in Perak and Selangor.

Total length, 9.5 in. ; wing, 5 in.

Elwes' Crake (*Limnobæus bicolor*).—Head, neck and under parts, dark grey ; upper parts, rich brown ; wing, 4.5 in. Has been recorded from Johore, but I suspect that the specimen on which the record rests is actually of extralimital origin, and that a mistake in labelling has occurred.

The Malaysian Ruddy Crake (*Limnobæus fuscus fuscus*).—Upper parts, olive-brown ; forehead and under parts, vinous-chestnut ; sides of body, brown ; under tail coverts and lower flanks, black tipped with white ; feet, reddish.

Total length, 7.5 in. ; wing, usually about 3.6 in.

In Perak, nests in grass or rushes in April and May ; the eggs (3 or 4) are described by Mr A. T. Edgar as "pale stone-colour, lightly marked all over with small spots and blotches of reddish brown, and with underlying markings of pale purplish grey, the latter more thickly congregated at the larger end. Slightly pointed ovals, with very little gloss, they measure on an average 1.23 by 0.9 in. in one clutch, and in the other 1.16 by 0.89 in." Rather local in distribution, but common in some localities in the midst of thick undergrowth in marshy places. A rather paler and larger subspecies, the Japanese Ruddy Crake (*L. f. erythrothorax*), has also been found on the north-east coast of the Peninsula in winter. Wing over 3.95 and up to 4.4 in. In the typical form the wing rarely measures more than 3.85 in.

The Eastern Little Crake (*Porzana pusilla pusilla*).—Upper parts, golden olive-brown with broad streaks of black and smeared with white. Under surface, grey, the flanks barred white and black.

Total length, 6.5 in. ; wing, 3.5 in.

A shy bird of which only a few Malayan specimens are on record. These were secured among dense herbage or reeds at the edge of pools in overgrown mining land. These were probably migrants, but it is not impossible that this crake may be found to be a resident, breeding bird.

The Grey-bellied Crake (*Poliolimnas cinereus cinereus*).—Head and neck, dark grey ; upper parts, brownish olive with darker streaks. Beneath, white ; sides of body, clear grey ; lower flanks and under tail coverts, cinnamon-buff.

Total length, 7.9 in. ; wing, 3.7 in.

Local in distribution, but often abundant where it does occur in open, swampy country. The eggs are known from Selangor, but no details of the nidification in Malaya have been published.

The Blue-breasted Banded Rail (*Hypotaenidia striata*).—Crown and nape, chestnut, remainder of upper parts, brown barred with white and patched with black. Throat, white ; breast, grey, abdomen and under tail coverts, barred with blackish and white.

Total length, 9.2 in. ; wing, 4.5 in.

Affects swamps and abandoned mining areas ; also gardens. Breeds in thick vegetation and growing rice. The resident population is augmented by migrants in season.

PETRELS, SHEARWATERS AND ALBATROSSES

Order Procellariiformes

Vol. I., p. 21; Vol. III., p. 85.

ONLY one member of this family has been identified with certainty from Malayan seas. This is a small, almost uniformly sooty brown species, Swinhoe's petrel (*Oceanodroma monorhis*), a bird of very wide distribution, ranging from Malaya to Japan and thence to the west coast of Mexico. It has been seen very close inshore at Singapore. Another small black species *with a white rump* has been observed in the Straits of Malacca on many occasions, but never obtained. This is probably *Oceanites oceanicus*, Wilson's stormy petrel, common in many parts of the Atlantic and Indian oceans.

GULLS, TERNS AND SKIMMERS

Order Lariformes

Vol. I., p. 23; Vol. III., p. 88.

GULLS are very rare in Malaya. In the north the brown-headed gull, *Larus brunnicephalus*, common in Rangoon, has been doubtfully recorded from Junk Zeylon, while a wandering specimen of the laughing or "black-headed" gull, *Larus ridibundus*, has been obtained in Singapore. Both have the under parts and tail white, the back and wings pearl-grey, and the wings tipped with black. In summer the head is dark brown; in winter, white. Young birds have the upper parts mixed with brown, and there is a black bar on the end of the tail.

KEY TO THE MALAYAN GULLS

- | | | | |
|---|---|-------------------------------------|-----------------------------|
| I | { | Outer primary mostly white. | <i>Larus r. ridibundus</i> |
| | | Outer primary mostly black. | <i>Larus brunnicephalus</i> |

Terns are abundant in Malayan waters both in species and in individuals. Some of the species are permanent residents, but others are winter visitors only.

KEY TO THE MALAYAN TERNS

- | | | | |
|---|---|--|-------------------------------------|
| I | { | Tail almost square, the difference between the shortest and longest feathers less than one-fifth the total tail length | <i>Chlidonias leucoptera grisea</i> |
| | | Tail very distinctly forked | 2 |
| 2 | { | Outer tail feathers much the longest | 4 |
| | | Outer tail feathers much the shortest | 3 |

3	{	Bill rather stout: crown greyer	<i>Anous stolidus pileatus</i>
		Bill very slender: crown whiter	<i>Anous minutus worcesteri</i>
4	{	Tarsus longer than middle toe and claw	<i>Gelochelidon nilotica affinis</i>
		Tarsus shorter than middle toe and claw	5
5	{	Very dark above: outer tail feathers extremely long	<i>Sterna a. anathetus</i>
		Pearl-grey above: outer tail feathers shorter	6
6	{	Bill large and coarse: a nuchal crest; wing over 11 in.	7
		Bill slender: head not markedly crested; wing under 11 in.	8
		Bill relatively stout: wing under 8 in.	<i>Sterna albifrons</i> subssp.
7	{	Smaller: wing less than 12 in.; black of head in breeding plumage reaching the bill	<i>Sterna b. bengalensis</i>
		Larger: wing more than 12.5 in.; black of head in breeding plumage separated from the bill by a white band	<i>Sterna bergii</i> subssp.
8	{	Size larger: wing not less than 9.75 in.	<i>Sterna hirundo longipennis</i>
		Size smaller: wing not more than 9 in.	9
9	{	Crown mainly black	<i>Sterna dougalli bangsi</i>
		Crown mainly white	<i>Sterna s. sumatrana</i>

The White-winged Black Tern (*Chlidonias leucoptera grisea*).—In breeding plumage, black with grey wings; vent and tail, white. In winter plumage, pearl-grey above; white below; hinder crown and nape, mottled with black. Like most terns in which the upper parts are grey, young birds have the inner margin of the wing blackish, and dark brown tips to some of the feathers on the upper parts. Bill and feet, red in breeding plumage, much darker in winter. Wing, 8.4 in. Not uncommon in the Straits of Malacca in winter. Does not breed within Malayan limits.

The Eastern Gull-billed Tern (*Gelochelidon nilotica affinis*).—Grey above; white below; top of head, black in breeding plumage, white in winter. Bill and feet, black or almost so. Wing, 12 in. Not uncommon on the coasts in autumn and winter. Does not breed in the Malay Peninsula.

Nordmann's Tern (*Sterna hirundo longipennis*).—Top of head, black in breeding plumage; forehead, white in winter. Upper parts, pearl-grey; under parts, white tinged vinaceous grey. Bill, dark; feet, red or darker. Wing, 10.75 in. Apparently only a winter visitor. Does not breed. In the Straits of Malacca largely an estuarine and shallow-water bird.

The Eastern Roseate Tern (*Sterna dougalli bangsi*).—Top of head, black;

upper parts, pale grey; under parts, white washed with pink in breeding plumage. Forehead white in winter. Feet, red or blackish. Wing, 9 in. An offshore species and not common; haunts the neighbourhood of sandy islets and coral reefs and seems to dislike muddy water. Almost certainly breeds in Malayan seas but we have not seen eggs.

The Smaller Crested Tern (*Sterna bengalensis bengalensis*).—Top of head black in breeding plumage; forehead white in winter; upper parts, grey; lower parts, white. Primaries, almost black, except in very fresh plumage. Bill, yellow; feet, black; wing, 11.5 in. Met with sparingly in the Straits of Malacca, and more of an estuarine and inshore bird than the next species. No nesting colonies are known in Malayan waters.

The Chinese Crested Tern (*Sterna bergii cristatus*).—Like the last-mentioned species but larger (wing, 13 in.) and the black of the head in breeding plumage separated from the bill by a white band. A sea-tern, sometimes seen inshore. Not known to breed in Malayan waters. The rather doubtfully distinct Ceylon race (*S. b. edwardsi*), which averages slightly larger and is a trifle darker on the upper parts, also occurs in the Straits of Malacca.

The Panayan or Bridled Tern (*Sterna anæthetus anæthetus*).—Top of head, except a broad white stripe from bill to eye, black; upper parts, dark brown; under parts, white, tinged with grey. Wing, 10.4 in. Occurs on both coasts, but usually far out to sea near rocky islets, on which it breeds. Rarely approaches the shore.

The White-shafted Ternlet (*Sterna albifrons sinensis*).—A very small species; wing, about 7.3 in. Forehead and under parts, white; crown, black; upper parts, pearl-grey; legs and bill, yellow to brownish. The only Malayan tern ever found far inland, being met with for over a hundred miles from the mouth of the Pahang river, as far as there are extensive sandbanks, on which it breeds. In the present form the shafts of all the primaries are white. Two other subspecies also occur in the Straits of Malacca. In Hume's ternlet (*S. a. pusilla*) only the first primary has the shaft white. It breeds in Northern India and seems to winter in Java. The black-shafted ternlet (*S. a. saundersi*) has the primaries all with very dark shafts. The breeding-grounds are on the coast of Sind, etc. The identification of these Malayan wintering examples of *saundersi* is not positive.

The Black-naped Tern (*Sterna sumatrana sumatrana*).—Upper parts, very pale grey; under parts and crown, white; a black band from eye to eye runs round the nape. Outer primary edged with black. Young birds are variegated with arrow-shaped blackish markings on the upper parts. Wing, 8.6 in. Common, and usually a blue-water bird but at times seen inshore. Breeds on the small coastal islands.

The Philippine Noddy (*Anous stolidus pileatus*) and the **White-headed Noddy** (*A. minutus worcesteri*) have both been taken at sea in the Straits of Malacca, but they are oceanic birds and rarely seen near coasts. Both are dark brown birds with the top of the head in adults whitish tinged with grey. In the last-named species the bill is much more slender than in the other species and the crown is whiter and much less grey.

STONE-CURLEWS, PRATINCOLES, CRAB-PLOVERS, JACANAS,
PLOVERS, STILTS, CURLEWS, SANDPIPERS AND SNIPE

Order Charadriiformes

Vol. I., p. 26; Vol. III., p. 110.

ARTIFICIAL KEY TO THE FAMILIES OF MALAY CHARADRIINE BIRDS

- | | | | | |
|---|---|---|----------------------------------|---|
| 1 | { | Toes and claws, especially the hind toe, extremely long | <i>Parridæ</i> (jacanas) | 2 |
| | | Toes not specially elongated | | |
| 2 | { | Nasal fissure in skull rounded; tarsus scaled all round; no hind toe; eyes very large | <i>Burhinidæ</i> (stone-plovers) | 3 |
| | | Nasal fissure in skull narrowed to a point | | |
| 3 | { | Tarsi never scaled behind; nostrils in a depression | 4 | } |
| | | Tarsi always scaled behind; nostrils in a groove | | |
| 4 | { | Bill longer than head, straight; plumage mainly pure white | <i>Dromadidæ</i> (crab-plovers) | |
| | | Bill shorter than head, curved downwards at tip; not mainly white in plumage | <i>Glareolidæ</i> (pratincoles) | |

Family PARRIDÆ

Jacanas

KEY TO THE MALAYAN SPECIES OF JACANAS

- | | | | |
|---|---|---|---------------------------------|
| 1 | { | With frontal lappets; primaries without terminal processes | <i>Metopidius indicus</i> |
| | | With no frontal lappets; primaries lengthened into terminal processes | <i>Hydrophasianus chirurgus</i> |

A bird killed in a swamp in Perak is the only precise Malayan record of the bronze-winged jacana (*Metopidius indicus*) known to us. The pheasant-tailed jacana or lotus-bird (*Hydrophasianus chirurgus*) has been obtained in small numbers in swampy country. Specimens obtained are all in winter plumage.

Family BURHINIDÆ

Stone-Plovers or Stone-Curlews

THE Australian stone-plover (*Orthorhamphus magnirostris magnirostris*), a seashore bird, has been obtained once in the extreme north of our area. It

also occurs on the Dutch islands just south of Singapore. Upper parts, brown, streaked darker; breast, grey, paling to buffy white on the abdomen; sides of the head largely black, with a white line above and below the eye.

Total length, 21 in.; wing, 10.6 in.

Family DROMADIDÆ

Crab-Plovers

THIS family contains a single species only, the crab-plover (*Dromas ardeola*), which has been shot on the mud-flats of the Selangor coast. Plumage, boldly black and white; feet, glaucous blue.

Total length, 16 in.; wing, 8.5 in.

Family GLAREOLIDÆ

Couriers and Pratincoles

THIS family is represented in Malaya by one migratory species, the eastern pratincole or swallow-plover (*Glareola pratincola maldivarum*), which is often very common on open spaces throughout the Peninsula in autumn and winter. The birds spend most of their time on the ground, but in the morning and late afternoon they hawk for insects, like swallows. Upper parts and breast, brown; rump, white; abdomen, rufous-buff, fading to white; throat, buff, bordered by a black line; tail, blackish, the feathers white at the base.

Total length, about 11 in.; wing, 7.4 in.

Family CHARADRIIDÆ

Plovers, Sandpipers, etc.

KEY TO THE SUB-FAMILIES OF THE CHARADRIIDÆ

1	{	Nasal groove less than half the length of bill; bill never longer than head	<i>Charadriinæ</i> (plovers)
		Nasal groove more than half the length of bill	
2	{	Tarsi reticulate throughout	<i>Hæmatopodinæ</i> (oyster-catchers and stilts)
		Tarsi with transverse shields in front	
3	{	Bill always longer than head; eyes very large; no seasonal plumage	<i>Scolopacinæ</i> (snipe)
		Bill various; eyes normal; a more or less distinct seasonal plumage	

Sub-family CHARADRIINÆ

Plovers

KEY TO THE MALAYAN SPECIES OF CHARADRIINÆ

1	{	With the bill not markedly swollen at the tips of mandibles	<i>Arenaria i. interpres</i>
		With the bill markedly swollen at the tips of both mandibles	2
2	{	With a spur or knob at the angle of the wing	3
		With no spur or knob at the angle of the wing	4
3	{	With a wattle in front of the eye	<i>Lobivanellus indicus atronuchalis</i>
		With no wattle in front of the eye	<i>Hoplopterus duvaucelii</i>
4	{	With a hind toe	<i>Squatarola squatarola hypomelæna</i>
		With no hind toe.	5
5	{	Plumage above spotted with yellow	<i>Pluvialis apricarius fulvus</i>
		Plumage above not spotted with yellow	6
6	{	No complete white ring round the neck	7
		A complete white ring round the neck	9
7	{	Bill stout; shaft of third primary partly white	8
		Bill slender; shaft of third primary dark throughout; wing, 6.5 in.	<i>Charadrius asiaticus veredus</i>
8	{	Larger: bill from gape, 1 in.; wing about 5.5 in.	<i>Charadrius l. leschenaulti</i>
		Smaller: bill from gape, 0.75 in.; wing about 5 in.	<i>Charadrius mongolus atrifrons</i>
9	{	A black or fuscus band across the fore breast	<i>Charadrius dubius</i> subspp.
		A black or fuscus band on sides of fore breast only	10
10	{	No black band on hind neck; larger, wing over 4 in.	<i>Charadrius alexandrinus</i> subspp.
		A black band on hind neck (males); smaller, wing about 4 in. or less	<i>Charadrius peroni</i>

Most of the birds in this sub-family breed in high latitudes far to the north of the Malay Peninsula, and in the Peninsula occur as winter migrants only, arriving in the early autumn and leaving again for their breeding-grounds early in the year. A few species are resident in Malaya.

The turnstone (*Arenaria interpres interpres*) is found sparingly along the

coasts in season; the spur-winged plover (*Hoplopterus duvaucelii*) is a resident bird attaining its southern limit in Trang, Peninsular Siam.

The Burmese wattled lapwing (*Lobivanellus indicus atronuchalis*) is common and resident throughout the Peninsula. It is essentially a bird of open spaces, frequenting sandy plains near the coast, plough-land along the courses of the larger rivers, and patches of grazing-land surrounded by bushes and secondary jungle. A favourite nesting site is in a small hollow on a sandbank in a river-bed. Head and neck, black; a white patch behind the eye; upper parts, brown; under parts and rump, white; tail, black and white; legs, yellow.

Total length, 12.5 in.; wing, 8.2 in.

The eastern grey plover (*Squatarola squatarola hypomelæna*) is purely a shore bird with us, and is much less common than the eastern golden plover (*Pluvialis apricarius fulvus*), which is found on the coasts and also in large flocks on open spaces inland. The large sand-plover (*Charadrius l. leschenaulti*), the small sand-plover (*Charadrius mongolus atrifrons*) and the Kentish plover, both eastern and western races (*Charadrius a. alexandrinus* and *C. a. dealbatus*), turn up on the sandy shores and on the edge of the mangroves, usually where there is little mud. The little ringed plover (*Charadrius dubius curonicus*) occurs in small numbers, but not commonly, on the coasts, preferring the open ground and rice-stubbles, etc., in inland localities. A resident tropical race of the little ringed plover has been named *C. dubius jerdoni*. It differs from *curonicus* in being slightly smaller and it is also rather brighter yellow at the base of the lower mandible. Forehead, throat, under parts and a nuchal collar, white; a band across the fore crown and a broad band across the breast, black; upper parts, brown. A few specimens have been obtained in the Peninsula, but the eggs have not been found, and information about the local status of *jerdoni* is needed.

The Malay plover (*Charadrius peroni*) is resident in the Peninsula, and is found in pairs on sandy beaches. It shows a marked preference for the small coastal islands, occurring less commonly on the coasts of the mainland, and seeming to avoid the muddy, mangrove-fringed parts of the coasts. Upper parts, pale brown; under parts, white; male with a black frontal band and a black nuchal collar extending to the sides of the breast; crown, sandy rufous; forehead, white. In the female there is no black on the head and neck; crown and nuchal collar, sandy rufous. Wing, 4 in. The eggs have not actually been found in our area, but there is little doubt that the species breeds where it occurs in the Peninsula.

The eastern dotterel (*Charadrius asiaticus veredus*) can only be regarded as a very rare accidental visitor. I know of three Malayan specimens.

Sub-family HÆMATOPODINÆ

Oyster-catchers and Stilts

OF this sub-family only the black-winged stilt (*Himantopus h. himantopus*) is found in the Peninsula. It is very rare and there are two local records only.

Sub-family TOTANINÆ

Curlews, Godwits, Sandpipers, Stints and Phalaropes

KEY TO THE MALAYAN SPECIES OF TOTANINÆ

1	{	Toes markedly webbed at the base	2
	{	Toes practically free to the base	15
2	{	Bill long, much exceeding the tail	3
	{	Bill moderate, not much, if at all, exceeding the tail.	7
3	{	Bill strongly curved	4
	{	Bill almost straight	5
4	{	Smaller: top of head with a single median stripe	<i>Numenius phæopus variegatus</i>
	{	Larger: top of head much striped	<i>Numenius arquata orientalis</i>
5	{	Bill widened and pitted at the tip	<i>Limnodromus griseus semipalmatus</i>
	{	Bill not widened or pitted at the tip	6
6	{	Tail with numerous bars	<i>Limosa lapponica baueri</i>
	{	Tail, black, not barred	<i>Limosa limosa melanuroides</i>
7	{	Bill from gape longer than tarsus	8
	{	Bill from gape less than tarsus	12
8	{	Legs, red, orange or yellow	11
	{	Legs not red, orange, etc.	9
9	{	Tarsus much longer than middle toe and claw	<i>Tringa guttifer</i>
	{	Tarsus equal to middle toe and claw	10
10	{	Wing over 6 in.	<i>Tringa incana brevipes</i>
	{	Wing under 5 in.	<i>Tringoides hypoleucus</i>
11	{	Bill straight; wing about 6 in.	<i>Tringa totanus</i> subsp.
	{	Bill recurved; wing about 5 in.	<i>Terekia cinerea</i>
12	{	Axillaries, white	13
	{	Axillaries barred or freckled	14
13	{	Culmen much longer than middle toe and claw	<i>Tringa stagnatilis</i>
	{	Culmen approximately same length as, or shorter than, middle toe and claw	<i>Philomachus pugnax</i>
14	{	Larger: wing about 7 to 8 in.	<i>Tringa nebularia</i>
	{	Smaller: wing about 5 in.	<i>Tringa glareola</i>
15	{	Bill from gape not longer than tarsus	16
	{	Bill from gape longer than tarsus	18
16	{	Only first primary with shaft white	17
	{	All primaries with shafts partly white	<i>Calidris ruficollis</i>

17	{	All tail feathers, pale brown; middle toe, 0.9 in.	<i>Calidris minutilla subminuta</i>
		Outer tail feathers, pure white; middle toe, 0.75 in.	<i>Calidris temmincki</i>
18	{	Three toes	<i>Crocethia alba</i>
		Four toes	19
19	{	Bill straight; wing about 7 in.	<i>Calidris tenuirostris</i>
		Bill slightly decurved at tip; wing less than 6 in.	20
20	{	Bill narrow; wing about 5 in.	<i>Calidris testacea</i>
		Bill broad; wing about 4 in.	<i>Limicola falcinellus sibirica</i>

All the species of this sub-family are winter visitors, none remaining to breed. Most of the species are found, normally, on the seashore and mud-flats.

The eastern curlew (*Numenius arquata orientalis*) is seen in small numbers wherever there is much mud. Shore shooters in Malaya should keep a careful watch for the Australian curlew (*N. cyanopus*), which, although known to occur in the Rhio Archipelago, has not yet been recorded from the Peninsula. It can be distinguished from the eastern curlew by its *brown*, not white, lower back and rump. The eastern whimbrel (*Numenius phaeopus variegatus*) is very common on the coasts and islands. The eastern bar-tailed godwit (*Limosa lapponica baueri*) is rare and known only from two specimens, one obtained at Singapore and the other on the coast of Selangor. The eastern black-tailed godwit (*Limosa limosa melanuroides*) is commoner but nevertheless found only in small numbers; it has been obtained on swampy plains in the interior as well as on the mud-flats of the coast. The snipe-billed godwit (*Limnodromus griseus semipalmatus*) is rare; a few specimens have been taken on the coasts. The redshank is very common on the mud-flats of the west coast but much rarer on the sandy beaches of the east coast. Most Malayan birds belong to the eastern race (*Tringa totanus eurhinus*) but a few examples of the western race (*T. t. totanus*) also turn up from time to time. The marsh sandpiper (*Tringa stagnatilis*) is rare and very few Malayan specimens are on record, all from the coasts. The grey-rumped tattler (*Tringa incana brevipes*) is a marine species of which we have one Malayan record only, of a pair shot on a reef awash at high tide, a few miles from Singapore. The rare Armstrong's sandpiper (*Tringa guttifer*) is known to occur in small numbers on the mud-flats of the west coast, but perhaps the species is often mistaken for the much commoner greenshank (*Tringa nebularia*) which is found in similar situations. The wood-sandpiper (*Tringa glareola*) is one of the commonest waders in the Malay Peninsula. It prefers the damp, flat lands near the coast and the more inland districts to the seashore. The common sandpiper (*Tringoides hypoleucus*) may be seen on the edges of streams and stretches of open water, along the banks of rivers, on the seashore and on the mud-flats, all the year round, though of course it is much commoner in the winter months. The avocet-sandpiper (*Terekia cinerea*) is found commonly on the coasts where there are stretches of mud. The ruff (*Philomachus pugnax*) is rare, and I know of one local specimen only, killed many years ago at Malacca.

The red-necked stint (*Calidris ruficollis*) is common on both muddy and sandy coasts. The eastern long-toed stint (*Calidris minutilla subminuta*) is less common than the preceding bird and seems to prefer inland marshy districts to the exposed coasts. Temminck's stint (*Calidris temmincki*) is very rare; I know of one Malayan specimen, a bird collected on the golf-course at Kuala Lumpur in 1923. The curlew-sandpiper (*Calidris testacea*) is found in fair numbers on the coastal mud-flats. The great knot (*Calidris tenuirostris*) turns up in small numbers on the west coast mud-flats. The eastern broad-billed sandpiper (*Limicola falcinellus sibirica*) is fairly common on the coasts. The sanderling (*Crocethia alba*) has been taken twice, on the west coast.

Sub-family SCOLOPACINÆ

Snipe and Woodcock

KEY TO THE MALAYAN SPECIES OF SCOLOPACINÆ

1	{	Bill decurved, not pitted at tip; sexes dissimilar	<i>Rostratula b. benghalensis</i>
		Bill almost straight, pitted at tip; sexes similar	2
2	{	Black markings on head and neck longitudinal	3
		Black markings on head and neck transverse	<i>Scolopax r. rusticola</i>
3	{	Outer tail feathers not conspicuously narrowed	<i>Capella g. gallinago</i>
		Outer tail feathers narrowed	4
4	{	Six outer pairs of tail feathers distinctly narrowed	<i>Capella megala</i>
		Six outer pairs of tail feathers extremely narrowed and pin-like	<i>Capella stenura</i>

The common or fantail snipe (*Capella gallinago gallinago*) occurs throughout the length of the Peninsula, but in much smaller numbers than the pintail. It normally arrives in the Malay States in September and departs about the end of March. The pintail snipe (*Capella stenura*) is the common snipe of the Peninsula, and in suitable localities it is numerous enough to provide first-class shooting. The Chinese or Swinhoe's snipe (*Capella megala*) is known only from Taiping, Sitiawan and Kuala Lumpur, but it probably occurs in small numbers wherever snipe are found, although it is certainly vastly exceeded in numbers by the other two species.

The woodcock (*Scolopax rusticola rusticola*) must be regarded as a very rare accidental straggler to Malaya, and I have never handled a locally killed specimen in the flesh. The painted snipe (*Rostratula benghalensis benghalensis*) is resident and not uncommon, but also subject to local and perhaps real migratory movement not yet understood.

HERONS AND BITTERNs

Order Ardeiformes

Family ARDEIDÆ

Vol. I., p. 38.

KEY TO THE MALAYAN SPECIES OF HERONS

1	{	Wings not white	2
		Wings, white	13
2	{	Culmen over 4 in.	3
		Culmen under 4 in.	5
3	{	Middle toe and claw longer than tarsus	<i>Ardea purpurea manillensis</i>
		Middle toe and claw shorter than tarsus	4
4	{	Under parts, largely white; crown, white in adults	<i>Ardea cinerea rectirostris</i>
		Under parts, grey; crown, grey in adults	<i>Ardea s. sumatrana</i>
5	{	Middle toe and claw much shorter than tarsus	6
		Middle toe and claw as long as or longer than tarsus	7
6	{	Plumage, blackish	<i>Demiegretta s. sacra</i> (dark phase)
		Plumage not blackish	<i>Gorsachius m. melanolophus</i>
7	{	Wing over 9.5 in.	8
		Wing under 9.5 in.	9
8	{	Wing quills banded	<i>Botaurus s. stellaris</i>
		Wing quills not banded	<i>Nycticorax n. nycticorax</i>
9	{	Mantle and plumage in general, grey to blackish	10
		Mantle and plumage in general, buff to chestnut	11
10	{	Upper plumage, blackish	<i>Dupetor f. flavicollis</i>
		Upper plumage, greyish	<i>Butorides striata</i> subsp.
11	{	Tarsus feathered to heel	<i>Ixobrychus s. sinensis</i>
		Tarsus not feathered to heel.	12
12	{	Wing quills, rufous	<i>Ixobrychus cinnamomeus</i>
		Wing quills, blackish	<i>Ixobrychus eurhythmus</i>
13	{	Culmen longer than tarsus	14
		Culmen shorter than tarsus	16
14	{	Middle toe and claw shorter than tarsus	<i>Demiegretta s. sacra</i> (white phase)
		Middle toe and claw longer than tarsus	15

15	{	Mantle, pale brown	<i>Ardeola grayi</i> ¹	
		Mantle, black	<i>Ardeola bacchus</i> ¹	
16	{	Culmen much shorter than middle toe and claw		17
		Culmen about equal to or longer than middle toe and claw		18
17	{	Larger: wing about 12 to 13 in.	<i>Egretta i. intermedia</i>	
		Smaller: wing about 9 to 10 in.	<i>Bubulcus ibis coromandus</i>	
18	{	Culmen about equal to middle toe and claw	<i>Egretta alba modesta</i>	
		Culmen much exceeding middle toe and claw		19
19	{	Bill mostly black; tarsus, 3·6 to 4·5 in.	<i>Egretta g. garzetta</i>	
		Bill mostly pale; tarsus, 3·05 to 3·8 in.	<i>Egretta eulophotes</i>	

The Eastern Purple Heron (*Ardea purpurea manillensis*).—Crown, black; upper parts, including wings and tail, mostly grey; fore neck, rufous streaked with black; breast, maroon; abdomen, black; thighs, pale rufous. Young birds are bright pale brown streaked with dusky. Wing, 14·5 in. Fairly common wherever there are reed beds and swamps. No definite record of the nest and eggs.

The Dusky-grey Heron (*Ardea sumatrana sumatrana*).—Grey, darkest on the head and upper parts; under parts, streaked with whitish. Young birds have much brown mixed with the grey. Wing, 18·25 in. Abundant among the mangroves edging the tidal rivers, and occasionally met with on the open beach. Known to breed in mangrove on the east coast island of Sri Buat.

The Eastern Grey Heron (*Ardea cinerea rectirostris*).—Head, neck and under parts, mostly white; crest, spots on the fore neck and patches on the under parts, black; upper parts, pale grey. Wing, 17·5 in. Not common and much less numerous than *Ardea cinerea*. Breeds in mangrove on the west coast.

The Eastern Large Egret (*Egretta alba modesta*).—Plumage, white; wing, 12·75 to 13·75 in. Bill, black in breeding plumage; yellow in winter. Not a common bird in the Malay States. Breeds in mangrove on the west coast.

Swinhoe's Egret (*Egretta eulophotes*).—Plumage, white; wing, 9·5 to 11 in. A rare straggler to Malaysia from the breeding-grounds in China and Formosa. It has been recorded from Junk Zeylon and is likely to occur anywhere on the coasts of the Peninsula in winter, but especially on the east coast. It is very easy to confuse with the reef-heron and the little egret. A detailed notice of the species will be given in our next volume.

The Smaller Egret (*Egretta intermedia intermedia*).—Plumage, white. Easy to confuse with *E. a. modesta*, but distinguished by its shorter bill and comparatively long middle toe, which with its claw is always noticeably

¹ The key here refers to adults in breeding plumage only. The species are otherwise, almost if not quite, indistinguishable. I have seen no undoubted example of *A. grayi* from the Peninsula although there are several old records.

longer than the culmen, whereas in *modesta* these parts are about equal in length. In breeding plumage the presence of plumes on the *fore neck* immediately distinguishes *E. intermedia*. Wing, 12 to 13 in. I do not understand the status of this heron in the Peninsula, and should welcome information. It is certainly not common and possibly does not occur in the south.

The Little Egret (*Egretta garzetta garzetta*).—Plumage, white; bill, black, paler at the base of the lower mandible; wing, 10 to 11.25 in. Occurs in small flocks near the coast. Commoner in the north than in the south. No breeding records.

The Eastern Reef-Heron (*Demiegretta sacra sacra*).—Occurs in two phases of plumage. In the dark phase it is blackish grey with a white throat. In the other phase the plumage is entirely white. Wing, 10.5 to 11.25 in. A common coastal bird, especially where there is sand, or rock; less numerous on the mangrove and mud-lined shores. Known to breed in the Tioman group of islands off the east coast.

The Night-Heron (*Nycticorax nycticorax nycticorax*).—Crown and back, black; rump to tail, and wings, grey; under parts, white. Young birds are brown above and whitish buff below, streaked with whitish on the upper parts and brown on the under parts. Wing, 11.5 in. Not a common bird in the Peninsula and almost certainly a migrant and not resident.

The Malay Bittern (*Gorsachius melanolophus melanolophus*).—Upper plumage, chestnut, much vermiculated with black; crown and crest, black; under parts, buff streaked on the fore neck and breast and indistinctly barred on the abdomen with dark brown. Young birds are dull brown, but with the markings much as in the adult, but more profuse; crown, spotted with white. Wing, 9.5 in. Largely migratory and chiefly known to us by birds of passage collected on small islands in the Straits of Malacca. There is probably a small resident population.

The Little Green Heron (*Butorides striata javanica*).—A small grey species with the crown black and the upper parts washed with green. Wing, 6.75 in. Very common in a variety of situations, but especially on the coast among mangrove. Breeds in trees, in colonies, on the west coast. To the breeding months given in Vol. III., Mr V. W. Ryves adds May and September (Selangor). A larger, migratory form of the species (*B. s. amurensis*) occurs as a winter visitor.

The Chinese Pond-Heron (*Ardeola bacchus*).—In breeding plumage, head and neck, chestnut; back, black; remainder of plumage, white. In winter plumage, head and neck, white, washed with buff and streaked with brown; back, brown. Wing, about 8.75 in. A winter visitor to the north of the Peninsula, rarely straying south.

The Cattle Egret (*Bubulcus ibis coromandus*).—Plumage, white; in breeding plumage with the head, neck and lengthened plumes on the back and breast, orange or apricot colour. Bill, yellow; feet, black.

Total length, 19 in.; wing, 9.75 in.

Common in open spaces, but very rarely found on the coastal mud-flats. Usually in close attendance on cattle and buffalo. Partially migratory, but

certain to breed in the country, probably in the north, although the nest and eggs have not been specifically recorded from the Peninsula.

The Yellow Bittern (*Ixobrychus sinensis sinensis*).—A very small, yellowish buff species with the crown, wing quills and tail, black; neck tinged with vinous; back and scapulars, pale brown.

Total length, 14.5 in.; wing, 5.25 in.

Young birds are yellowish buff above, whitish below; neck streaked with brownish rufous and the upper parts streaked with brown, rufous and blackish. Common in marshy areas and reed beds. The species is, at least largely, a winter visitor from the north. No local record of the nest.

Schrenck's Bittern (*Ixobrychus eurhythmus*).—Crown, wing and tail quills, blackish; nape, back, scapulars and a patch on the wing coverts, chestnut; wings, olive-buff; under parts, yellowish buff with a patch of blackish feathers on each side of the breast. Wing, 6 in. Young birds are mostly chestnut on the upper parts, heavily spotted with white; under parts, heavily streaked with brown. A rare bird in the Peninsula. The local status is uncertain, but perhaps the bird is only a winter visitor.

The Chestnut Bittern (*Ixobrychus cinnamomeus*).—Upper parts, including wings and tail, bright chestnut-bay; lower parts paler, buffy chestnut. Females have the wing coverts variegated with buff and a little blackish, and the under parts heavily streaked with dark brown. Wing, 5.5 in. A common resident in the neighbourhood of ricefields and the thick vegetation bordering rivers, etc. It breeds among reeds, etc., in swampy places. In Negri Sembilan, Mr V. W. Ryves found an egg on 4th December.

The Black Bittern (*Dupetor flavicollis flavicollis*).—General plumage, black; sides of the neck, yellow; fore neck, streaked chestnut, black and a little white. Young birds have the ground-colour brown, not black.

Total length, 23 in.; wing, 8.25 in.

A shy bird of nocturnal habits, usually found in reed beds and swamps of inland districts. The species is, at least largely, migratory and there is no Malayan record of the nest and eggs.

The Bittern (*Botaurus stellaris stellaris*).—A large buff-coloured species, heavily vermiculated and streaked with black on the upper parts; crown, black; fore neck streaked with brown, and the remaining under parts with brownish black. Wing about 12.5 in.

There are only two Malayan records of this species.

STORKS

Family CICONIIDÆ

Vol. I., p. 44; Vol. III., p. 203.

KEY TO THE MALAYAN SPECIES OF STORKS

- | | | | |
|---|---|---|------------------------------|
| I | { | Top of head a bony cap, unfeathered | <i>Leptoptilus javanicus</i> |
| | | Top of head without a bony cap,
variably feathered | 2 |

