

HERONS AND BITTERNS

Order ARDEIFORMES

Family ARDEIDÆ

Vol. i., p. 38.

THE herons and bitterns¹ are included by many systematists in the same order as the storks, from which they differ in the presence of powder-down patches on the sides of the body, under the wings, and in having the middle claw serrated or pectinated. In addition, the herons are, in the majority of the species, provided with ornamental plumes on the head, back or breast, which are not found on the storks. The legs are long and there is always a marked web between the middle and outer toe, and a less pronounced one between the middle and the inner one. The tail is short, either of ten or twelve feathers.

The plumage is varied, but very many species are white or grey, while yellow, buff and various shades of brown, greenish yellow, buff, and slaty black are common. Very many species acquire ornamental plumes on the head, back or breast in the breeding season. Apart from these plumages, there is often a distinct winter or non-breeding garb, to which the plumage of the young assimilates.

The nests are usually built of sticks, in trees or bushes, and the eggs are always unspotted, usually blue, occasionally white or drab. The young are hatched helpless.

The food is mainly animal, fish, crustaceans, shells and insects, but sometimes in part vegetable.

The family is cosmopolitan, with the exception of the circumpolar regions, and some seventy or eighty species are known.

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

¹ If one takes into consideration all the known species of the world it is almost impossible to make a satisfactory division between herons and bitterns, there being so many intermediate forms. Broadly speaking, all forms with ten tail feathers only and with the bill serrated are bitterns, while all herons have twelve tail feathers, and the edges of the bill plain. This definition, however, includes *Bubulcus* and *Ixobrychus* as bitterns and excludes such a typical species as Raffles' bittern (*Gorsachius melanolophus*) from the section. There is, perhaps, a further distinction to be drawn from the habits, as herons are more diurnal than bitterns.

3	{	Middle toe and claw longer than tarsus	<i>Ardea purpurea manillensis</i> , p. 177
		Middle toe and claw shorter than tarsus	4
4	{	Under parts largely white; crown white in adults	<i>Ardea cinerea rectirostris</i> , p. 180
		Under parts grey; crown grey in adults	<i>Ardea s. sumatrana</i> , p. 178
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), p. 185
		Plumage not blackish	<i>Gorsachius m. melanolophus</i> , p. 189
7	{	Wing over 9.5 in.	8
		Wing under 9.5 in.	9
8	{	Wing quills banded	<i>Botaurus s. stellaris</i> , p. 201
		Wing quills not banded	<i>Nycticorax n. nycticorax</i> , p. 187
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> , p. 200
		Upper plumage greyish	<i>Butorides striata javanica</i> , p. 191
11	{	Tarsus feathered to heel	<i>Ixobrychus s. sinensis</i> , p. 195
		Tarsus not feathered to heel	12
12	{	Wing quills rufous	<i>Ixobrychus cinnamomeus</i> , p. 197
		Wing quills blackish	<i>Ixobrychus eurhythmus</i> , p. 199
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), p. 185
		Middle toe and claw longer than tarsus	15
15	{	Mantle pale brown	<i>Ardeola grayi</i> , ¹ p. 194 (in text)
		Mantle black	<i>Ardeola bacchus</i> , ¹ p. 192
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> , p. 181
		Smaller; wing about 9 to 10 in.	<i>Bubulcus ibis coromandus</i> , p. 194
18	{	Culmen about equal to middle toe and claw	<i>Egretta alba modesta</i> , p. 183
		Culmen much exceeding middle toe and claw	<i>Egretta g. garzetta</i> , p. 184

¹ The key here refers to adults in breeding plumage only. The species are, otherwise, almost, if not quite, indistinguishable.

*Ardea purpurea manillensis***The Eastern Purple Heron**

Ardea purpurea var. *manillensis*, Meyen, *Acta Acad. Leop. Carol.*, xvi., Suppl., 1834, p. 102 (Philippine Islands).

Ardea purpurea, Oates in Hume's *Nests and Eggs Ind. Birds* (2nd ed.), iii., 1890, p. 235.

Phoyx manillensis, Sharpe, *Cat. Birds, Brit. Mus.*, xxvi., 1898, p. 63.

Ardea manillensis, Blanford, *Faun. Brit. Ind., Birds*, iv., 1898, p. 381.

Pyrrherodias manillensis, Oates, *Cat. Birds' Eggs, Brit. Mus.*, ii., 1902, p. 111.

Pyrrherodias purpurea manillensis, Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1921, p. 77.

Ardea purpurea manillensis, Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), vi., 1929, p. 337.

Malay Names.—Puchong ; ? sěrandau.

Description.—*Adult male.*—Chin and throat, white, passing into rufous on the sides of the head and neck ; entire top of the head, crest, a line down the back of the neck and a line on each side of the neck, black ; a black line from behind the eye to the crest and a few black spots on the foreneck ; a few long black plumes depending from the nape. Upper parts, grey, palest on the wing coverts and darkest on the mantle. Wing quills, almost black, the marginal wing coverts and edge of the wing, rufous. The scapulars lengthened into trailing, pale grey and rufous plumes. Under parts, mostly dull black, tinged with maroon on the chest ; flanks, grey, and a large longitudinal chestnut patch on each side of the body, from neck to thigh, this patch almost maroon anteriorly, but more chestnut-rufous on the sides of the breast and abdomen. Plumes depending from the lower foreneck, mostly grey and white, but many black, grey and white ; others tinged with rufous, and a few rufous and buff. Greater under wing coverts and axillaries, grey ; other under wing coverts, pale chestnut. Under tail coverts, black, irregularly white at the base ; thighs, pale chestnut.

Female.—Not so brightly coloured and the elongated plumes on the nape shorter.

Immature.—Quite different. The feathers of the upper parts edged with deep buff and washed with green on the inner secondaries ; crown, blackish, nape, chestnut. Chin, throat and neck, whitish buff, the neck profusely streaked with dark brown. Under parts, pale buff, broadly streaked with blackish brown. No lengthened plumes.

Soft Parts.—*Adult.*—Iris, orange ; orbital skin, greenish yellow ; upper mandible, brownish ; lower mandible, yellowish. Tarsi and toes, black in front and above, dull yellow behind and beneath. *Immature.*—Iris, yellow.

Dimensions.—*Male.*—Total length, 38 in. ; wing, 14.5 in. ; tail, 5.5 in. ; tarsus, 4.9 in. ; bill from gape, 6.1 in. *Female.*—Total length, 37.5 in. ; wing, 14 in. ; tail, 5.25 in. ; tarsus, 4.75 in. ; bill from gape, 5.75 in.

Range in the Malay Peninsula.—From the northern limit at the Pakchan estuary to Singapore Island, but uncommon in the south of the Peninsula and rare in Singapore. Some specimens in the British Museum collected by Cantor are said to have been obtained at Penang.

Extralimital Range.—Ceylon and India ; Burma, Siam, French Indo-China (common in the north and south), throughout Malaysia (commoner in Sumatra than in the Peninsula), the Philippines, Celebes and east to Flores. North from Tonkin through China to Formosa, the Liu Kiu Islands, Korea, South Manchuria and Japan (rarely). The very closely allied western (typical) race occurs in Europe and Africa, east to Iraq. A dark form inhabits Madagascar.

Nidification.—Not known to nest in the Peninsula. In the Padang highlands in Sumatra Dr E. Jacobson found several breeding-places, the birds breeding in company with "white herons." One big durian-tree contained a large number of nests. In other countries the large nest of sticks is often placed in a reed-bed, the colonies sometimes consisting of hundreds of birds. Three to five pale bluish-green eggs are laid, measuring about 1.42 by 1.75 in. (Oates).

Habits.—Essentially a bird of reed-beds, swamps and the neighbourhood of large rivers, and apparently largely nocturnal, or at least crepuscular, in habits. We know little of its habits in the Peninsula, but it is very common in the Korinchi valley in Sumatra, where it feeds on river-crabs and small fish, and is not nearly so shy as most of the large species of herons. Kelham writes: "Plentiful in the jheels and paddy-swamps of Perak, particularly during April, when I found them in great numbers among the reeds of the large jheel near Saiyong ; as I waded about I used to see them, with their long necks stretched out and heads raised above the reeds, most intently watching my movements."

Ardea sumatrana sumatrana

The Dusky-grey Heron

Ardea sumatrana, Raffles, *Trans. Linn. Soc.*, xiii., 1822, p. 325 (Sumatra) ; Sharpe, *Cat. Birds, Brit. Mus.*, xxvi., 1898, p. 68 (part) ; Blanford, *Faun. Brit. Ind., Birds*, iv., 1898, p. 383 (part) ; Oates, *Cat. Birds' Eggs, Brit. Mus.*, ii., 1902, p. 112 (part) ; Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1921, p. 78.

Ardea sumatrana sumatrana, Stuart Baker, *Faun. Brit. Ind., Birds*, vi., 1929, p. 341.

Malay Names.—Puchong ; burong lëmbu (*Kedah*) ; burong sëriap.

Description.—*Adult.*—Plumage, entirely grey, darkest on the neck and upper parts. Crown, nearly black, some long, narrow pale plumes depending from the nape. Chin and throat, white, remainder of neck, blackish grey, most of the feathers with whitish, pearl-grey tips. Long, fairly stiff, narrow, pale pearl-grey plumes plentiful on the foreneck. Upper parts, including wings and tail feathers, blackish grey, especially dark on the mantle. Many of the

scapulars with elongated whitish tips. Under parts, including under wing coverts and axillaries, slaty grey, the edge of the wing variegated with whitish feathers and indistinct whitish streaks on breast and abdomen. Thighs, blackened. A very faint oily green gloss can sometimes be detected on the upper surface.

Immature.—In general much browner than the adult and lacking the elongated plumes. The upper surface with the feathers edged with rufous or buff. Neck and under parts, rufous brown streaked with white, the streaks especially heavy on the under parts.

Soft Parts.—Iris, bright yellow; orbital skin, greenish chrome; legs, brownish, joints tinged green, soles whitish yellow; bill, black, lower mandible at tip shading into white, chrome at base.

Dimensions.—Total length, 45 in.; tail, 6.5 in.; wing, 18.25 in.; tarsus, 6 in.; bill from gape, 7.6 in.

Range in the Malay Peninsula.—From the northern limit at Pakchan to Singapore Island in the south. Found on both coasts and also recorded from the island of Terutau and other small islands in the Straits of Malacca and from Koh Pennan in the Bandon Bight, the Redang Islands and the Tioman group on the east coast.

Extralimital Range.—From Arrakan, through Tenasserim to Siam, where, however, outside our area, it seems only to have been obtained by Kloss on the island of Mehsi off the south-east coast. It has been recorded from Cochin-China, but Messrs Delacour and Jabouille did not get it in their exhaustive collecting trips. Throughout the large land masses and small islands of Malaysia to the Philippine Islands and Celebes thence east to Australia, but birds from the latter locality have been separated subspecifically by Mathews.

Nidification.—Messrs G. C. Madoc and V. W. Ryves found a nest of this heron about fifteen feet from the ground in a mangrove-tree on 23rd June 1934, on the edge of the small island of Sri Buat off the mouth of the Endau river, east coast of the Malay Peninsula. The parent bird was seen. The nest of sticks measured about three feet across and was placed about eight feet out on the fork of a lateral branch. One of the two pale blue-green eggs measures, according to Mr Madoc, 2.70 by 1.86 in. This record is of great interest, as very little is known of the breeding habits of this heron, and properly authenticated eggs are unknown. Two pale greenish-blue eggs, measuring 2.7 by 1.95 in., sent by Low from Labuan to Sharpe were listed by the latter under *Leptoptilus javanicus*. The eggs, however, are certainly not those of this stork, and, as suggested by Hume, seem to belong to *Ardea sumatrana*, under which species Oates listed them in the *Catalogue of Birds' Eggs in the British Museum*. In Australia the species has been recorded as making a roughly built, unlined nest of sticks in mangroves, in one case 6 ft. from the mud and not more than 4 ft. from high-water level. Gould refers to an Australian nest as built in an upright fork of a large and lofty *Melaleuca*, at about 80 ft. from the ground. Two eggs are mentioned as the clutch.

Habits.—In the Peninsula abundant among the mangroves edging the tidal rivers, and occasionally met with along open stretches of sandy beach.

On occasions we have found it remarkably fearless and have approached birds within a few yards ; at other times it has been wary and very hard to approach. It is very partial to the small coastal islands. The Kedah name refers to its deep note, which is not unlike the lowing of cattle. It is very abundant in the Rhio Archipelago just south of Singapore. The breast, well hung and well rubbed with pepper and salt, is by no means a bad substitute for beefsteak.

" This Heron is not uncommon about the sea-coast and mouths of the large creeks and rivers, about Mergui and southwards. It is almost always found singly, keeping about the mud-flats and edges of the mangroves, where it feeds during the ebb tide. At high water it perches on the mangroves. I have never observed it far away from the coast, nor do I think it ever goes inland. It feeds on small fish, crabs, etc. I have never heard its note. It is rather a shy bird " (*Davison*).

Ardea cinerea rectirostris

The Eastern Grey Heron

Ardea rectirostris, Gould, *Proc. Zool. Soc.*, 1843, p. 22 (South India).

Ardea cinerea, Oates in Hume's *Nests and Eggs Ind. Birds* (2nd ed.), iii., 1890, p. 223 ; Sharpe, *Cat. Birds, Brit. Mus.*, xxvi., 1898, p. 74 (part) ; Blandford, *Faun. Brit. Ind., Birds*, iv., 1898, p. 382 (part) ; Oates, *Cat. Birds' Eggs, Brit. Mus.*, ii., 1902, p. 113 (part).

Ardea cinerea jouyi, Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1921, p. 78.

Ardea cinerea rectirostris, Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), vi., 1929, p. 340.

Malay Names.—Puchong ; burong sĕriap.

Description.—*Adult.*—Head, white, a broad black band from behind the eye to the nape ; feathers on the hind crown and nape lengthened to form a crest. Neck, white, washed with vinaceous grey on sides and back, and boldly spotted with black on the front ; feathers of the lower foreneck lengthened into long narrow plumes. Under parts, including thighs and under tail coverts, white, but a black patch along the sides of the breast and abdomen ; flanks, axillaries and under wings coverts, pale grey. Upper parts, including the tail, delicate pearl-grey, palest on the median and greater wing coverts, which are almost white ; edge of the wing, white. Tips of the scapulars lengthened into plumes. Primaries, outer secondaries, bastard wing and primary coverts, black ; inner secondaries, grey, like the back. The sexes are alike in colour, but in females the ornamental plumes are shorter.

Immature.—No ornamental plumes on the upper parts, which are darker than in adults. Crown and neck, grey, the latter tinged with buff on the foreneck, which is heavily streaked with black ; black on the under parts reduced to dusky streaks.

Soft Parts.—Iris, yellow ; bill, horn-colour, lower mandible, dirty-yellow ;

legs, brown (*Gyldenstolpe*); in the breeding season the bill is probably mostly yellow as in the western race.

Dimensions.—Total length, 38 in.; wing, 17.5 in.; tail, 6 in.; tarsus, 5.75 in.; bill from gape, 5.75 in.

Range in the Malay Peninsula.—From the extreme north to Singapore in the extreme south, but the few definite records we have are all from the west coast and we have not yet found it on any of the coastal islands. We have examined specimens from Perak, Malacca and Singapore Island.

Extralimital Range.—From Iraq through India, Burma, Siam, and French Indo-China north to Yunnan, China, Korea, Eastern Siberia and Japan. South to Sumatra, Java, Borneo, rare in the Philippines; New Guinea. The western race occurring in Europe, West Asia and Africa is a darker bird, especially on the wing coverts.

Nidification.—At Pulau Ketam, a mangrove-covered island on the coast of Selangor, a few pairs of this heron breed among the more numerous white herons (*Egretta alba modesta*). Mr G. C. Madoc, who has visited this heronry several times, has kindly supplied the following information. The bulky nests of sticks are lined with fairly fresh, leafy twigs and are placed in "bakau" (*Rhizophora*) and "api-api" (*Avicennia*) trees, none of which exceeds twenty feet in height. In colour the eggs are fairly deep blue, the shell being very thick and chalky in texture. The shape is very variable, some eggs being rounded ovals and others extremely elongated. In size eleven eggs average 2.30 by 1.59 in. The full clutch appears to be four. The eggs seem to be laid about the first week in August, but fresh eggs were also found on 30th September when other nests contained young birds. On 1st November fully fledged young were seen.

Habits.—Not a common bird in the Peninsula and certainly much less numerous than *Ardea sumatrana*. Its habits seem exactly like those of the western race, the common grey heron of Europe. Little is known of its distribution and status in the Peninsula. Count Gyldenstolpe considers that it is only a winter visitor to Siam.

Egretta intermedia intermedia

The Smaller Egret

Ardea intermedia, Wagler, *Isis*, 1829, sp. 659 (Java).

Herodias intermedia, Oates in Hume's *Nests and Eggs Ind. Birds* (2nd ed.), iii., 1890, p. 240; Blanford, *Faun. Brit. Ind., Birds*, iv., 1898, p. 386.

Mesophoyx intermedia, Sharpe, *Cat. Birds, Brit. Mus.*, xxvi., 1898, p. 85; Oates, *Cat. Birds' Eggs, Brit. Mus.*, ii., 1902, p. 115; Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1921, p. 78.

Egretta intermedia intermedia, Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), vi., 1929, p. 346.

Malay Name.—Bangau.

Description.—*Adult in breeding plumage.*—Entirely white. The head



crested. On the back, long plumes, sometimes 16 or 17 in. long; also long disintegrated plumes depending from the foreneck. We have never seen a bird in this plumage from Malaya.

Adult in winter plumage and immature birds.—White, but without the ornamental plumes.

Note.—This is generally a smaller bird than *Egretta alba modesta*, from which, however, *E. intermedia* can always be identified by its shorter bill and comparatively long middle toe, which with its claw is always noticeably longer than the culmen, whereas in *E. alba* these parts are about equal in length. In breeding plumage the plumes on the *foreneck* immediately distinguish *E. intermedia*.

Soft Parts.—Iris, pale yellow; orbits, bright yellow; bill, yellow; feet, black. In summer the bill is black.

Dimensions.—Length, about 26 in.; tail, 5 in.; wing, 12 to 13 in.; tarsus, 4.5 to 5.5 in.; culmen, 2.6 to 3.75 in.

Range in the Malay Peninsula.—Count Gyldenstolpe met with this bird at Koh Lak in South-West Siam, just beyond the northern limit of our area. It is distinctly uncommon in Peninsular and South-West Siam. Specimens in the British Museum are said to have been collected in Penang by Cantor; there is therefore a doubt about their provenance. If the species occurs in the southern two-thirds of the Malay Peninsula it must be rare, as, with the exception of one unlocalized bird in Kuala Lumpur, there are no specimens in the Malayan museums.

Extralimital Range.—Ceylon and India, through Burma to Yunnan, China, Formosa and Japan. Siam, where it is common in the central parts; throughout French Indo-China except in Tonkin. The Philippine Islands, Sumatra, Java and Borneo. Allied races are found in Africa and Australia, that occurring in the latter region apparently extending as far west as Celebes.

Nidification.—This heron is not yet known to breed in the Malay Peninsula. In Ceylon, according to Legge, it breeds from December to March and April; the large nests composed of sticks are placed in the upper branches of trees, usually of a thorny nature, growing in the water of flooded tanks. A number of nests, perhaps including those of another species, are placed in one tree to the number of eight or ten. The nests are repaired yearly. Three or four eggs are laid, of a smooth texture and pale sea-green colour. In India very large breeding colonies are found. The eggs average about 1.8 by 1.4. in. in size.

Habits.—We have had little experience of this heron in the Peninsula, and, as it has not improbably been confused with the larger and certainly commoner *Egretta alba modesta*, specially directed observation is required to establish its local status. Count Gyldenstolpe has met with it in great numbers on large swamps and marshes in Siam proper, but he considers that it is less common in Siamese Malaya where he only met with a few specimens on a swampy plain near the coast. In Sumatra, Dr E. Jacobson considers that the species is migratory. In India, it is found in large flocks, sometimes consorting with cattle. It is said to be easy to domesticate and largely insectivorous in diet.

*Egretta alba modesta***The Eastern Large Egret**

Ardea modesta, Gray, *Zool. Misc.*, 1831, p. 19 (India).

Herodias alba, Oates in Hume's *Nests and Eggs Ind. Birds* (2nd ed.), iii., 1890, p. 237; Sharpe, *Cat. Birds, Brit. Mus.*, xxvi., 1898, p. 90 (part); Blanford, *Faun. Brit. Ind., Birds*, iv., 1898, p. 385 (part); Oates, *Cat. Birds' Eggs, Brit. Mus.*, ii., 1902, p. 116 (part); Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1921, p. 78.

Egretta alba modesta, Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), vi., 1929, p. 346.

Malay Names.—Puchong; bangau.

Description.—*Adult in breeding plumage.*—Entirely white, with long, thick-shafted, decomposed plumes depending from the scapulars and interscapular region, and extending several inches beyond the tail. The head is uncrested; the feathers on the lower foreneck are slightly lengthened and there is a broad tuft of similar feathers on each side of the upper breast.

Adult in non-breeding plumage and immature birds.—White, but without the dorsal plumes.

Soft Parts.—In breeding plumage the iris is yellow; bill, black; orbital skin, green; feet, black, the tibia paler. In winter the bill is yellow, and in some birds from Selangor the tibia is yellowish green.

Dimensions.—Total length, 36 in.; wing, 12.75 to 13.75 in.; tail, about 5.25 in.; tarsus, 5.3 to 6 in.; bill from gape, 5 to 5.25 in.; culmen, 3.75 (immature) to 4.25 in. These measurements are taken from birds collected in Perak and Selangor.

Range in the Malay Peninsula.—At present only known from Bandon in Peninsular Siam on the north-east coast of the Peninsula, and south through Perak to Selangor, but its range in Malaya is almost certainly more extensive than as now defined.

Extralimital Range.—This is the small, resident race found in Ceylon, India, and through tropical China to Japan. It is also found in Siam, French Indo-China, the Philippine Islands, Celebes, throughout Malaysia and the island groups to Australia. The typical race of the species breeds in the old world, west and north of the range of *modesta*; it sometimes visits India. Other subspecies are resident in America, Africa and New Zealand.

Nidification.—There is a breeding colony at Pulau Ketam, on the coast of Selangor, where, at the end of July 1916, birds with long dorsal trains and black bills were collected, together with others of the same sex without trains and with yellow bills. This heronry is well known to Mr G. C. Madoc, who has kindly supplied the following information. There are, in the *Rhizophora* and *Avicennia* trees, less than twenty feet high, in the middle of the swampy, coastal island of Pulau Ketam, usually about seventy nests of this heron. The nests are smaller than those of the grey heron, a few pairs of which also breed in the colony, and they are unlined. The greenish-blue



eggs are rounded ovals with a thick, chalky and rather coarse shell. The average size of fifteen is 2.09 by 1.56 in. Eggs are said to be laid during the first week of August and on 18th August all nests contained eggs, which have also been found as late as 30th September when the majority of nests contained young. The clutch appears to consist of three eggs.

Habits.—This is not a common bird in the Peninsula. In Central Siam, Count Gyldenstolpe found it very abundant in swamps and states that it could be reckoned in hundreds mixed in flocks with other kinds of herons, storks and ibises. It is said to be less sociable and more wary than the smaller *E. intermedia*, with which it associates. The food is recorded as consisting largely of frogs, fish and insects.

Egretta garzetta garzetta

The Little Egret

Ardea garzetta, Linn., *Syst. Nat.*, 12th ed., 1766, p. 237 ("In Oriente").

Herodias garzetta, Oates in Hume's *Nests and Eggs Ind. Birds* (2nd ed.), iii., 1890, p. 242; Blanford, *Faun. Brit. Ind., Birds*, iv., 1898, p. 387.

Garzetta garzetta, Sharpe, *Cat. Birds, Brit. Mus.*, xxvi., 1898, p. 118; Oates, *Cat. Birds' Eggs, Brit. Mus.*, ii., 1902, p. 120; Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1921, p. 78.

Egretta garzetta garzetta, Herbert, *Journ. Siam. Soc., Nat. Hist. Suppl.*, vi., 1926, p. 351; Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), vi., 1929, p. 78.

Malay Names.—Puchong; bangau: nok yang-ton (*Siamese*).

Description.—*Adult in breeding plumage.*—Entirely white. Two long, thin feathers grow from the nape and numerous similar feathers depend from the lower part of the foreneck and cover part of the breast. Bunches of elongated, decomposed, dorsal plumes reach just beyond the tail, and when full grown are slightly recurved at the tip.

Adult in non-breeding plumage.—Without the long, dorsal plumes and lengthened feathers, but a few of the latter may be retained on the foreneck.

Immature.—White, without the modified feathers.

Soft Parts.—Iris, yellow; lores, greenish yellow; bill, black, whitish or yellowish at the base of the lower mandible; tarsi, black; toes, entirely or partly greenish yellow.

Dimensions.—Length, 25 in.; tail, 4 to 4.25 in.; wing, 10 to 11.25 in.; tarsus, 3.6 to 4.5 in.; bill from gape, 3.7 to 4.1 in.; culmen, 3.1 to 3.5 in.

Range in the Malay Peninsula.—From Peninsular Siam along the west coast to Singapore Island in the south. Known on the east coast as far south as Trengganu, but no doubt extending along the whole length of the coast.

Extralimital Range.—The little egret has an extensive range, being found throughout Africa and southern Europe, across southern Asia to China and Japan. It also breeds in Ceylon, India, Burma and Siam, and is found throughout French Indo-China and Malaysia, the Philippines, Celebes, and east through the Moluccas to Australia, but most authors consider that birds from Australia

west to the Celebes and Java can be maintained as another subspecies (*E. g. nigripes*) on account of their blacker toes.

Nidification.—We have no record of this egret breeding in the Malay Peninsula. In Siam, according to Mr E. G. Herbert, the breeding season is June and July. The same author states that "the eggs vary considerably in size, and likewise to a certain extent in shape, but typically they are very perfect ovals. In shape and average size they are practically the same as those of the cattle egret (*Bubulcus ibis coromandus*), but in colour they are much darker, being quite a deep bluish green, and I have not found much variation in that respect. This, of course, refers to fresh eggs. They are fine in texture and smooth, but without gloss. Four eggs are usually laid." The average measurements of eggs taken in Siam is 1.76 by 1.44 in. The nest is the usual crude collection of sticks placed in a tree. The birds nest in colonies, often in company with allied species.

Habits.—We have little to record of this egret. It does not appear to be very common anywhere in the Peninsula, but it seems most numerous in the north. On the few occasions on which we have met with the species it has been in small flocks near the coast. It is probably not uncommon in suitable localities, but apt to be overlooked owing to its close resemblance to the ubiquitous cattle egret. In the field the black bill of *G. garzetta* should distinguish it from the yellow-billed *Bubulcus ibis coromandus*.

Demiegretta sacra sacra

The Eastern Reef-Heron

PLATE 18

Ardea sacra, Gmelin, *Syst. Nat.*, i., 1789, p. 640 (Tahiti).

Demiegretta sacra, Oates in Hume's *Nests and Eggs Ind. Birds* (2nd ed.), iii., 1890, p. 246; Sharpe, *Cat. Birds, Brit. Mus.*, xxvi., 1898, p. 137 (part); Oates, *Cat. Birds' Eggs, Brit. Mus.*, ii., 1902, p. 122 (part); Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1921, p. 79.

Leptorodius sacer, Blanford, *Faun. Brit. Ind., Birds*, iv., 1898, p. 391.

Demiegretta sacra sacra, Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), vi., 1929, p. 352.

Malay Name.—Puchong batu.

Description.—The reef-heron exhibits two very different phases of plumage, the one white and the other blackish grey. These phases seem to be independent of sex, age or season; white and grey birds may be seen feeding together on the same coral reef.

Adult (dark phase).—General colour, dark slaty or blackish grey, with an elongated white patch on the chin and throat. The feathers on the nape are lengthened into a short, bushy tuft, and on the lower foreneck and back are long, narrow lanceolate feathers, usually paler grey than the other parts of the plumage.

Note.—Variation in the colour of the plumage deserves attention. Some

birds are distinctly paler and greyer than others, and although this feature is sometimes due to the presence of "bloom," newly moulted adults certainly do vary considerably in colour; some are very dark and almost black on the neck. In most birds there is a tendency to a brown wash on the under parts, and, as might be expected, birds in worn plumage are much browner than others. The size of the white throat patch is very variable; sometimes, but rarely, it is absent. It has been stated that females have the ornamental plumes less developed than in males, but we cannot appreciate this fact, and we also differ from some authors and agree with Blanford in considering that the ornamental plumes are found on adults throughout the year, and do not merely represent a breeding plumage. We have one bird in which two long feathers on the nuchal crest are about three inches long, a most unusual feature.

Immature (dark phase).—Rather paler, duller and browner than the adult and without the elongated plumes; the difference between young and old birds is not striking.

Adult and Immature (white phase).—The plumage entirely white.

Note.—Hume contended that when adult the dorsal plumes of the white phase were rather more disintegrated, and distinctly longer, than in the grey phase. Birds in mixed plumage are not rare; all we have seen from Malaya are more white than black. It has been supposed that such birds are never adult, but we have a piebald specimen which, from the development of its dorsal plumes and other signs, we consider to be adult.

Nestling.—Covered with dark, slate-coloured down (*Hume* vide *Tytler*).

Juvenile.—When the first plumage is assumed it is white, grey or piebald.

Soft Parts.—Iris, yellow; lids, dirty-green or grey; bill, very variable: (a) entirely various shades of brown; (b) blackish grey, with the tip of the lower mandible yellow; (c) greyish slate; (d) upper mandible, blackish; lower mandible, olive-brown, with blackish tip; (e) upper mandible, dull brown, with greenish brown base; lower mandible, dull yellow, washed with green at base. Lores, powdery blue or greyish slate; feet, olive-green, with yellow soles, but the tarsi may be blotched with black or entirely black in front. In *white birds* the bill is usually largely yellow, or with the upper mandible greenish; lores, greenish; feet and tarsi, yellowish green; soles, orange.

Dimensions.—Total length, about 23 in.; tail, 3.75 in.; wing, 10.5 to 11.25 in.; tarsus, 2.9 to 3.2 in.; bill from gape, 4 in.

Range in the Malay Peninsula.—Common in suitable localities along the coasts and on the islands on both sides of the Peninsula, from north to south.

Extralimital Range.—From the Andaman and Nicobar Islands, in the Bay of Bengal, along the coast of Burma and Siam, throughout Malaysia to Australia. North through the Philippines, the coast of French Indo-China to the coast of South China and Japan. Within this range some, but few, authors recognize several geographical races or subspecies.

Nidification.—Mr G. C. Madoc informs us that he and Mr V. W. Ryves found a nest of this heron in a fissure in the cliff of a rocky islet, one of the Pulau Burong stacks, near Pulau Tioman, east coast of the Peninsula, on 14th June 1924. The nest was a shallow cup of dry grass placed on a fairly

flat rock face a few feet back in the crevice. It contained three well-incubated pale bluish-green eggs. We have a juvenile taken on Pulau Tioman on 6th June 1906. The three, four, or five eggs are sea-green in colour, and in size average about 1.8 by 1.35 in. According to Dr E. Jacobson this heron nests on dry coral reefs quite near to the coast of Sumatra, the colonies consisting for the greater part of birds of the black phase, mixed with a few white examples.

Habits.—In the Peninsula the white phase of the reef-heron is much less common than the dark phase. The species is numerous wherever the coasts are of rock or sand, but less common on the mangrove and mud-lined shores. The bird is met with singly, or in small parties, and is usually shy and rather difficult to obtain, except by surprise. It is particularly fond of the coastal islands, and is usually to be found on even the very small islands and exposed reefs in the Straits of Malacca. We have specimens from most of the islands off both coasts of the Peninsula taken in all months of the year. On the mainland it seems less numerous. It is purely a coastal bird and is found on the reefs quite close to Singapore, although rarely, if ever, approaching the city.

The birds figured (one-third natural size) are a white male, collected in the Langkawi Islands, Straits of Malacca, on 23rd April 1911, and a dark female from the neighbouring Terutau Island, 6th March 1909.

Note.—*Egretta eulophotes* (Swinh.), a little-known species, breeding in China and visiting Malaysia in winter, is likely to occur in the Malay Peninsula. It is always white and, when immature, or in non-breeding plumage, in which states it would appear in the Peninsula, is extremely like the white phase of the reef-heron, from which bird, however, it can be distinguished by its slightly longer tarsus, although the middle toe with the claw is about the same length in the two species and shorter than in *E. garzetta*.

Nycticorax nycticorax nycticorax

The Night-Heron

Ardea nycticorax, Linn., *Syst. Nat.*, 10th ed., 1758, p. 142 (Europe).

Nyctiardea nycticorax, Oates in Hume's *Nests and Eggs Ind. Birds* (2nd ed.), iii., 1890, p. 258.

Nycticorax nycticorax, Sharpe, *Cat. Birds, Brit. Mus.*, xxvi., 1898, p. 146 (pt.) ; Oates, *Cat. Birds' Eggs, Brit. Mus.*, ii., 1902, p. 123 (pt.) ; Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1921, p. 79.

Nycticorax griseus, Blanford, *Faun. Brit. Ind., Birds*, iv., 1898, p. 397.

Nycticorax nycticorax nycticorax, Herbert, *Journ. Nat. Hist. Soc. Siam, Nat. Hist. Suppl.*, vi., 1926, p. 353 ; Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), vi., 1929, p. 359.

Malay Name.—Burong kuar (Kedah ; A. W. Hamilton) : nok querk (Siamese).

Description.—*Adult in breeding plumage.*—"Black above, glossed with dark green, and with a slight shade of slaty grey on the mantle ; upper scapulars, like the back, the lower ones, light ashy grey ; wings, entirely light ashy grey or dove-colour, with a slight shade of dull oily green on the secondaries ; lower

back, rump, upper tail coverts and tail, clear grey or dove-colour ; head, crested, black, with a dark green gloss, and having two long nuchal white plumes ; base of forehead, white, extending above the eye to behind the latter ; feathers below the eye, cheeks, throat, and upper parts, pure white ; ear coverts and sides of neck, delicate isabelline grey, extending in a collar round the hind neck, and also to the sides of the body ; thighs and under tail coverts, white ; under wing coverts and axillaries, very pale ashy " (*Sharpe*).

Adult in winter plumage.—" Similar to the breeding plumage, but much greener on the head and back, and not having the drooping white plumes on the nape " (*Sharpe*).

Immature.—Very different from the adult. Upper parts, brown, darkest, almost black, on the crown, palest and washed with grey on the wings. The crown with narrow rufous-buff stripes, which are broader on the hind neck, mantle and back, larger and triangular in shape on the scapulars, and paler and even larger on the wing coverts. Wing quills, tipped with pale buff ; tail, grey, with narrow buff tips to the feathers. Sides of head and under parts, white, washed with buff, and with broad brown streaks. (*Full-grown immature bird from Bangkok, Siam.*)

Soft Parts.—Bill, black, yellowish at the base ; lores and orbits, yellowish green ; irides, blood-red ; feet, yellowish green (*Jerdon*) ; in the breeding season, bill, black ; eyelids and facial skin, dull livid ; legs and toes, pale rufous (*Oates*).

Dimensions.—Total length, 23 in. ; tail, 3.6 in. ; wing, 11.5 in. ; tarsus, 3 in. ; bill from gape, 4 in. (*Oates*).

Range in the Malay Peninsula.—From the northern or Siamese portion of the Peninsula there appear to be no formal records, but Mr A. W. Hamilton has met with the species in Kedah. Specimens in the British Museum are supposed to have been collected in Penang (*Cantor*) and Malacca (*Maingay*). An immature male was shot at Ponggol, on Singapore Island, on 13th December 1915. The species can be expected to be much rarer in the south of the Peninsula than in the north.

Extralimital Range.—The night-heron has an enormous range from Central and Southern Europe across temperate Asia to Japan ; to the south it is found in Africa, and east through India, Malaysia, the Philippines, Celebes, to Flores, the Moluccas, and also in the Caroline and Sandwich Islands. The species is also represented in America. According to Hume and Davison it is generally distributed throughout the province of Tenasserim. Mr Herbert has noted it in large numbers, during the cold weather, in Siam, and it appears to be generally distributed in French Indo-China.

Nidification.—Not known to nest in the Peninsula. " These herons breed, often in company with other species of herons, egrets, etc., in trees, especially those standing in swamps, or sometimes in high reeds or grass. They make the usual stick nests, and lay four or five pale sea-green eggs that measure about 1.92 by 1.35 in. The usual breeding season in India and Burma is July and August, but in Kashmir it is earlier, April and May, and in Ceylon earlier still, about March " (*Blanford*). In Ceylon Mr W. E. Wait has taken eggs in March, July, September and December, and this author states that in that island the

breeding season appears to vary, depending on suitable conditions of weather and water supply.

Habits.—We have very little to record of this species in the Malay Peninsula, where it is a rare bird, and almost certainly a migrant and not a resident species, a view supported by the capture of an immature bird in the Aroa Islands, in the Straits of Malacca, twenty-five miles from the Sumatran coast, in November 1906. In Kedah, according to Mr Hamilton, it is usually met with flitting about the rivers at dusk, but at "certain seasons" he has seen flocks of as many as thirty birds flying around over certain stretches of the Sala river, in North Kedah, during the daytime.

The night-heron is usually a nocturnal bird, spending the day in trees and flying to its feeding-grounds at dusk. It has a very characteristic squawk or quack.

Gorsachius melanolophus melanolophus

The Malay Bittern, or Malay Tiger-Bittern

PLATE 19

Ardea melanolopha, Raffles, *Trans. Linn. Soc.*, xiii., 1822, p. 326 (Sumatra).

Gorsachius melanolophus, Sharpe, *Cat. Birds, Brit. Mus.*, xxvi., 1898, p. 166 (pt.); Blanford, *Faun. Brit. Ind., Birds*, iv., 1898, p. 398 (pt.); Oates, *Cat. Birds' Eggs, Brit. Mus.*, ii., 1902, p. 125 (Palawan form); Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1921, p. 79.

Gorsachius melanolophus melanolophus, Stuart Baker, *Faun. Brit. Ind., Birds*, vi., 1929, p. 361.

Malay Name.—Unrecorded.

Description.—*Adult.*—Top of head and some lengthened feathers on the nape, black, faintly washed with grey, a few feathers on the hind crown with broad, white, V-shaped centre bars. Sides of head and neck, hind neck and most of the upper parts, light chestnut to cinnamon-rufous, narrowly, finely and evenly vermiculated with black on the mantle, back, scapulars, innermost secondaries and wing coverts, except the primary coverts. Outer primary coverts, black, the innermost, chestnut, all tipped with white, and the innermost with a varying amount of black subterminally. A few outer primaries, black, irregularly white at the tip; the remainder, black, with a regular chestnut distal area, faintly mottled with black subterminally, and with a narrow white tip. Outer secondaries, black, with a distal chestnut area, freckled with black. Upper tail coverts, dark brown. Tail, dull brownish black, very faintly glossed with oily green. Chin and throat, whitish buff, with a few blackish spots. Foreneck, deep yellowish buff, washed with rufous, a line of feathers in the centre, rather paler and heavily marked with blackish brown, forming a conspicuous streak down the foreneck. Remainder of under parts, whitish buff, the feathers heavily barred or irregularly marked with blackish, and perhaps washed with rufous or buff. Axillaries, white, barred with black. Under wing coverts, white, irregularly and heavily marked with black, those at the edge of the wing rufous and black.

There is much individual variation in the plumage of this heron.



Immature.—In colour differs greatly from the adult ; general tone, brown, without visible chestnut in the plumage. Head and crest, black, boldly spotted with white ; upper parts, dark brown, finely mottled with buff. Tail, dull greyish black. Chin and throat, white, with a centre line of spots ; sides of neck and foreneck, variegated brown and buff ; breast, flanks and abdomen, an indefinite mixture of brown, buff and rufous, with broad white streaks. Under tail coverts, white, barred with black. Secondaries, grey-black, with mottled buff or buff and rufous tips ; primaries, black, with white tips and a small chestnut or mottled subterminal area.

Soft Parts.—Iris, yellow ; bare skin on the face, greenish yellow ; upper mandible, black, with greenish yellow edges ; lower mandible, greenish yellow ; feet, brownish olive.

Dimensions.—Total length, 19 in. ; tail, 4 in. ; wing, 9.5 to 9.75 in. ; tarsus, 2.75 in. ; bill from gape, 2.6 in.

Range in the Malay Peninsula.—From north to south, but no actual records available from the east coast. Penang and the small islands in the Straits of Malacca ; Singapore Island.

Extralimital Range.—Formosa and Hainan ; throughout French Indo-China from Tonkin to Cochin-China. Siam, Burma, Assam, Manipur, parts of India, Ceylon. Throughout Malaysia. Closely allied forms are found in the Philippine and Nicobar Islands.

Nidification.—Sir W. J. F. Williamson informs us that he has found this bittern breeding in heavy forest at Pak Jong, Eastern Siam, in June and August, but there is no record of its breeding in the Malay Peninsula. Nests found in Assam by Messrs Coltart and Stuart Baker were mostly " built in forest trees at a considerable height from the ground, but occasionally they were placed in reed-beds on the top of broken-down rushes and elephant grass. All were in dense virgin forest, but nearly all were on trees on the banks of rivers and streams. The nests are made of small branches and twigs, and sometimes lined with rushes and leaves. The eggs are four or five in number, and differ from most herons' eggs in being dead white, the texture smooth and close, but not very glossy. In shape they are very broad ovals, both ends almost alike " (*Stuart Baker*). The eggs measure about 1.84 by 1.48 in.

Habits.—This species is probably not really uncommon in the Peninsula, but it easily escapes notice owing to its nocturnal habits. Some observers, however, contend that the bird is not exclusively nocturnal. In the Malay Peninsula it is, at least, largely migratory and chiefly known to us by birds of passage collected, together with other migratory species, on small islands in the Straits of Malacca in November and December, when it is common. We have a young bird collected in Johore in December, and an adult from Ginting Bidai, on the Selangor-Pahang boundary, on 5th April, but otherwise no evidence to suggest that the species is resident in the Peninsula. In other parts of its range it seems to be a shy, skulking bird, a denizen of forests, and roosting in trees.

The birds figured, one-third natural size, are an adult male from Penang, 14th March 1911, and an immature male from Pulau Rumbia, a small island in the Straits of Malacca, collected on 22nd November 1918.

*Butorides striata javanica***The Little Green Heron**

Vol. I., p. 39.

Ardea javanica, Horsf., *Trans. Linn. Soc.*, xiii., 1821, p. 190 (Java).

Butorides javanica, Kelham, *Ibis*, 1882, p. 195; Oates in Hume's *Nests and Eggs Ind. Birds* (2nd ed.), iii., 1890, p. 249; Blanford, *Faun. Brit. Ind.*, iv., 1898, p. 395; Sharpe, *Cat. Birds, Brit. Mus.*, xxvi., 1898, p. 177.

Butorides striata javanica, Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), vi., 1929, p. 357; Edgar, *Bull. Raffles Mus.*, 8, 1933, p. 125 (*Nidification*).

Malay Name.—Puchong bakau.

Description.—*Adult.*—Sexes almost alike. Head with lengthened occipital feathers, greenish black; back of neck, slaty grey; scapular feathers very elongate and narrow, grey, with a greenish wash, the shafts narrowly white; back, greenish grey; upper tail coverts, more green; wing coverts, oily green, with buffy margins, whiter on the outer ones, inner aspect of the wing, pure grey, lighter towards the tips; axillaries and under wing coverts, grey; edge of wing, white; tail feathers, greenish, powdered with grey; beneath, pale grey. Upper lores and a streak over the eye, white; below and behind the eye a black streak, nearly encircling the ear coverts, which are grey; a white streak from the angle of the gape, bordered below by dusky grey. Beneath, chin, throat and middle of abdomen, white, with a greyish median stripe to the middle of the breast; sides of the breast and flanks, light grey. Under tail coverts, white, with grey tips; thighs, greyish on their outer aspect, whitish on the inner.

Female.—Slightly duller, with the breast washed with light fulvous, the primaries rather greener and the edges of the wing coverts deeper buff.

Immature.—Without the narrow, elongate scapulars; mantle, dusky greenish brown; wing coverts with triangular buffy tips. Feathers of the head with sandy shaft stripes, broadening towards the tips. Beneath, striped with black and dusky grey, the under tail coverts with broad incomplete bars of white and dusky.

Soft Parts.—Iris, yellow; orbits and face, apple-green; upper mandible, black; lower, greenish yellow; feet, greenish yellow.

Dimensions.—Total length, about 17.5 in.; wing, 6.5 to 7 in.; tail, 2.5 to 2.8 in.; tarsus, 1.9 to 2.1 in.; bill from gape, 2.9 to 3.1 in.

Range in the Malay Peninsula.—Throughout the country, north to south, and on most of the islands in suitable localities.

Extralimital Range.—Throughout Southern Asia, east from Sind to the Malay Archipelago, Celebes and the Philippines, and in Formosa and Hainan. Also in the Mascarene Islands. Numerous names for various local races have been proposed.

Nidification.—In many parts of its range this bird breeds in colonies, and there are one or two such associations on the coasts of Perak and Selangor. The following paragraph is condensed from Mr A. T. Edgar's account of the

species in Perak (*loc. cit. sup.*). Stretching along the coast for some miles between the mud-flats and a belt of rough secondary growth and village land is a strip of jungle consisting of trees of the mangrove class. Here the water is from knee to waist deep at high tide: at low water the mud is exposed. Green herons nest in this forest, round the mouth of a small creek. It seems probable that the birds nest twice a year as, in an area of roughly four acres, eight nests were found between 23rd January and 16th February, six nests between 8th June and 2nd August, but no new nests in March, April, or May. The nest is a loosely constructed platform of small twigs, ten inches to a foot across and about two inches deep. It is placed at any height from eight to thirty feet above the mud, on a lateral branch. The usual clutch is three. The eggs are pale bluish green and smooth in texture. Their shape varies from regular to broad oval, and in size eight eggs average 1.51 by 1.11 in.

Habits.—This heron is widely distributed throughout the country, but is by far more common on the coast, among the mangroves, though it is occasionally seen in more open stretches and on coral reefs. Up country it is confined to large swamps and to the banks of the larger rivers. On the coast it is distinctly diurnal and may be seen at all times of the day, but on the rivers away from the sea it is much more nocturnal, lying up for the day amongst thick bushes or on trees in the swamps. It feeds on crabs, frogs and small crustaceans.

When perched among the mangroves this bird is protectively coloured. It sits with its wings hunched up and its bill pointed almost vertically upwards, and is quite difficult to distinguish from a broken stump. Except at the breeding season it is generally met with solitary or in pairs, but Kelham has noted it sitting in hundreds on the fishing stakes in the Singapore Straits.

Ardeola bacchus

The Chinese Pond-Heron

Buphus bacchus, Bonaparte, *Consp. Gen. Av.*, ii., 1855, p. 127 (Malay Peninsula).

Ardeola bacchus, Sharpe, *Cat. Birds, Brit. Mus.*, xxvi., 1898, p. 211; Blanford, *Faun. Brit. Ind., Birds*, iv., 1898, p. 394; Oates, *Cat. Birds' Eggs, Brit. Mus.*, ii., 1902, p. 129; Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1921, p. 80; Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), vi., 1929, p. 355.

Malay Names.—Puchong; puchong padi; bangau; burong tampong bajau (Kedah; A. W. Hamilton).

Description.—*Adult in breeding plumage.*—Chin and throat, white; head and neck, deep chestnut, almost maroon on the lengthened plumes of the foreneck. A patch of blackish plumes on each side of the upper breast. Back, dorsal plumes and some of the scapulars, black; outer primaries, irregularly washed with grey-brown. Rest of the plumage, white.

Adult in winter plumage and immature.—Chin, throat and foreneck, white,

perhaps faintly washed with buff, streaked with brown; rest of head, the crest and neck, yellowish buff, streaked with black on the crown and crest and brown elsewhere; on each side of the upper breast an indistinct patch of pale brownish maroon, streaked with yellowish buff. Mantle, back and decomposed scapulars, brown; dark, almost maroon on the mantle and palest, perhaps washed with ashy, on the scapulars; sometimes long yellow streaks on the scapulars. Short hidden scapulars, white, or nearly so; remainder of plumage, white, the inner secondaries partly ashy brown. Most of the birds in our series have the wing coverts and outer primaries washed with grey-brown; presumably they are young, but some adults also seem to be washed with dusky on the wings in winter.

Soft Parts.—Irides, bright yellow; one-third of the bill from tip, black, then yellow, gradually shading to pale blue at the base of the upper mandible; facial skin, gape and base of lower mandible, greenish yellow; feet, pale orange; legs and nude portions of tibia, similar, but with a pinkish tinge; claws, pale brownish green (April: *Davison*). Most authors record the tarsi and toes as yellowish green with yellow soles, which agrees with our limited experience.

Dimensions.—Total length, 18 to 19 in.; tail, 3 to 3.75 in.; wing, 8.25 to 9.2 in.; tarsus, 2.15 to 2.45 in.; bill from gape, 2.95 to 3.3 in. The foregoing measurements illustrate the local variation in size. They were taken from two adult Malayan birds, the smaller example a female in mixed plumage, the larger a male in almost complete breeding plumage.

Range in the Malay Peninsula.—From Peninsular Siam, including the island of Junk Zeylon on the west coast, and Koh Samui in the Bight of Bandon on the east coast, to the Langkawi Islands. South through Perak to the inland districts of Selangor. Recorded from "Malacca." Rare in Singapore Island. Very rare in the south of the Peninsula, commoner north of about the latitude of Penang.

Extralimital Range.—From Ussuri and Japan south through China to East Assam, Manipur, Burma, Tenasserim, Yunnan, throughout Siam, French Indo-China and Hainan. Also known from the Andaman Islands, the Natuna Islands and Borneo. In India as far west as the Persian Gulf the Indian pond-heron (*A. grayi*) replaces *A. bacchus*. In the south of French Indo-China and in Siam a third form very like *A. speciosa* of Celebes and Java breeds.

Nidification.—H. R. and J. C. Caldwell have given an account of the breeding of this species in South China where, as usual, the birds nest in colonies, in company with other species. "The nest is a frail platform of twigs, placed at heights varying from thirty to sixty or seventy feet, in pines, banyans or other large trees. The eggs number from two to three or six or more, and are of a pale greenish-blue colour. Average size of eggs, 1.77 by 1.35 in. Season, May to September, probably several broods." "The Chinese collect the eggs of these birds for eating purposes. The noise of a large heronry in full swing is almost deafening. The food of the pond-heron consists of frogs, small fish, etc., taken in the paddy-fields or on the edge of small ponds."

Habits.—All our local specimens of this heron are winter birds and we



regard it as a migrant to the north of the Peninsula, rarely straying south. In Trang it is met with in large flocks, so shy as to be almost unapproachable. Right up the Pakchan estuary it is common in flocks of from forty to fifty individuals. In Patani it is found consorting with the cattle egret on flooded meadows at the beginning of the wet season.

The Indian pond-heron (*Ardeola grayi*) has often been recorded from the Malay Peninsula, but, apparently, in error. We cannot distinguish between the Indian and Chinese forms in winter, or immature plumage, and all birds showing signs of the breeding plumage examined by us from the Peninsula are *bacchus*. In breeding plumage *A. grayi* has the head and neck yellowish brown, not chestnut.

Bubulcus ibis coromandus

The Cattle Egret

Vol. I., p. 40.

Cancroma coromanda, Bodd., *Tabl. Pl. Enl.*, 1783, p. 54 (Coromandel).

Buphus coromandus, Kelham, *Ibis*, 1882, p. 193.

Bubulcus coromandus, Blanford, *Faun. Brit. Ind.*, *Birds*, iv., 1898, p. 39 ; Oates, *Cat. Birds' Eggs, Brit. Mus.*, ii., 1902, p. 130, pl. v., fig. 2.

Bubulcus ibis coromandus, Herbert, *Journ. Siam. Soc.*, *Nat. Hist. Suppl.*, vi., 1926, p. 352 ; Stuart Baker, *Faun. Brit. Ind.*, *Birds* (2nd ed.), vi., 1929, p. 349.

Malay Name.—Burong bangau : nok kin-pling (*Siamese*).

Description.—*Adult in breeding plumage.*—With coloured ornamental plumes on breast and back. Back of head with lengthened feathers. Head, neck, all round throat and lengthened plumes on breast, bright orange, the plumes on the back more vinaceous or apricot. Rest of the plumage pure white.

Adult in winter plumage.—Without any ornamental plumes, plumage pure white, with only a small patch of pale orange in the centre of the crown.

Immature.—Similar to the winter plumage, very young birds lacking even the orange on the crown.

Soft Parts.—*In breeding plumage.*—Iris, bright yellow ; bill and orbits, orange-yellow ; feet and toes, black with a greenish tinge. *In winter plumage and young.*—Iris, yellowish white ; bill and orbits, pale yellow or yellowish chrome ; feet, black.

Dimensions.—Total length, 18.5 to 20 in. ; wing, 9.5 to 10 in. ; tail, 3.4 to 3.8 in. ; bill from gape, 3 to 3.2 in. ; tarsus, 3.3 to 3.5 in.

Range in the Malay Peninsula.—Throughout the Peninsula and on all the larger islands in suitable localities.

Extralimital Range.—India, Ceylon, the Andamans, north through China to East Siberia, Korea and Japan ; east through the Indo-Chinese countries to Hainan, Formosa and the Philippines, through the Malay Archipelago to Celebes and the Moluccas.

Nidification.—Though it is certain to breed in the country there are no records of the nesting habits of this bird from the Malay Peninsula.

Robinson and Seimund found it commencing to nest on nearly dead mangrove-trees, dividing the swamps from the ricefields, near the mouth of the Bandon river in Peninsular Siam. The birds were in flocks of from fifty to a hundred, and very many were young birds or had not yet assumed the orange breeding plumes.

Mr Herbert found this egret breeding in Central Siam in June and July. He describes the eggs as "almost white, with a faint tinge of blue. The texture is fine and smooth but the shell is not very hard and the surface is without gloss. Either three or four eggs are laid." The average dimensions of twenty-five eggs are given as 1.76 by 1.35 in.

In India it breeds often in very large associations in company with other egrets. The nests are made of loose sticks, built in trees, and the clutch consists of from three to five very pale greenish eggs, sometimes nearly white and often with a faint tinge of blue.

Habits.—The cattle egret is very widely distributed throughout the Malay Peninsula, but like many ricefield birds is vastly more numerous in the north and east of the Peninsula than it is in the south and west. It is common at times in Perak and also in the south of Johore, but, even where there are ricefields, is not numerous in Selangor or in Negri Sembilan and Malacca, where the conditions are apparently favourable.

It is nearly always in close attendance on cattle and buffalo and is often seen perching on their backs or following them when engaged in cultivation. It feeds on insects and ticks obtained from the cattle, grasshoppers, small crustacea and worms. It is equally at home on the embankments and drier portions of the ricefields and on the grazing-grounds, roosting at night in company on the higher trees at the edge of cultivation. It is not—or only very rarely—found on mud-flats on the coast or in salt-water swamps.

In the Malay Peninsula the breeding plumage is assumed some time in March and entirely lost by the middle of November. As in Sumatra, the species is partially migratory, but in Sumatra the birds arrive in March, April and May, whereas in the Peninsula numbers are increased in the winter months. This is probably due to merely local movements, as the species does not appear to make extensive sea-passages, and it is of rare occurrence in the Straits of Malacca, at any rate in the northern and central sections.

Ixobrychus sinensis sinensis

The Yellow Bittern

Ardea sinensis, Gmelin, *Syst. Nat.*, i., 1789, p. 642 (China).

Ardetta sinensis, Oates in Hume's *Nests and Eggs Ind. Birds* (2nd ed.), iii., 1890, p. 255; Sharpe, *Cat. Birds, Brit. Mus.*, xxvi., 1898, p. 227; Blanford, *Faun. Brit. Ind., Birds*, iv., 1898, p. 401; Oates, *Cat. Birds, Brit. Mus.*, ii., 1902, p. 131; Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1921, p. 81.



Ixobrychus sinensis sinensis, Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), vi., 1929, p. 365.

Malay Names.—Puchong kěladi; puchong gėlām; puchong merah (*Selangor*, E. Seimund).

Description.—*Adult male*.—Top of head, including a short nuchal crest, black. Mantle, back and scapulars, yellowish brown; rump, grey; tail, black; wing coverts, yellowish buff, the greater series slightly paler at edges; edge of wing, under wing coverts and axillaries, white. Primary coverts and wing quills, except long inner secondaries which are grey washed with brownish buff, black. An indistinct grey area on each side of the black crown. Sides of the head and of the neck, on which the feathers are lengthened into a "frill," brownish pink, or vinous. Under parts, yellowish buff, whitest on the throat and foreneck. A zone of feathers, lengthened on the sides, across the upper breast, blackish brown edged with buff, the long feathers of the lower foreneck concealing this zone in the centre.

Adult female.—The females in our series have the forehead streaked with rufous, the vinous-colour on head and neck much reduced, the back and scapulars dull rufous streaked with yellowish buff, and the whiter under parts heavily streaked on the throat and foreneck with tawny buff; a few dark streaks on the sides of the body.

These birds are more or less like the females described by Sharpe and Blanford, but it is certain that, at least occasionally, perhaps in the case of very old birds, the sexes are much alike, because Mr Stuart Baker writes: "Female only differs in having a mesial buff line down the throat and foreneck, and in old birds even this disappears, and I have frequently shot pairs of birds exactly alike in plumage."

Immature.—Like the more common type of female described above, but the wing coverts streaked with brown.

Soft Parts.—*Adult*.—Iris, bright yellow; orbital skin and lores, greenish yellow; bill, yellowish white; culmen, brownish horn; feet, chrome with a slight greenish cast.

Immature.—Iris, yellow; orbital skin and lids, light green, a brown streak from eye to nostril; bill, pale horn-colour; culmen, brown; feet, light yellowish green; soles and back of tarsi, yellow.

Dimensions.—Total length, 14.5 in.; tail, 1.75 in.; wing, 5.25 to 5.5 in.; tarsus, 1.85 in.; bill from gape, 2.5 to 2.8 in.

Range in the Malay Peninsula.—From Peninsular Siam, including the islands of Junk Zeylon on the west coast and Koh Pennan on the east coast, ranging south throughout the country to Singapore. Common in the inland districts of *Selangor* and on Singapore Island. During migration occurs in the Straits of Malacca.

Extralimital Range.—From South-East Siberia and Japan through China and Yunnan to Burma, India and Ceylon. Siam, French Indo-China, Formosa, the Philippines, Celebes, throughout Malaysia, to New Guinea, North Australia, the Marianne Islands, etc. Also recorded from the Seychelles.

Nidification.—We have no original observations. The following notes

referring to the bird in Burma are by Oates: "Common as this bird is, its nest is one of the most difficult to find, and when found, to secure. It selects the matted leaves of immense reeds, and places its nest on the summit where wind and rain have entangled the leaves and worked them into a platform. The nest itself is a mere pad of dry grass and leaves." Sometimes the nest is placed in the middle of a tussock of grass. Three to five pale green eggs are laid; the average size is about 1.25 by 0.95 in.

Habits.—Excluding a bird from the island of Koh Pennan collected on 30th May, our local specimens are dated from October to March, and at least the great majority of birds occurring in the Peninsula must be merely winter visitors; specimens have been obtained, with other migratory species, at the One Fathom Bank Lighthouse, in the Straits of Malacca, in November. Although by no means rare in marshy areas and in reed-beds, and often killed by snipe-shooters, this little bittern is much less common than the very similar chestnut bittern (*Ixobrychus cinnamomeus*) which is found in similar situations.

Ixobrychus cinnamomeus

The Chestnut Bittern

PLATE 20 (*lower figure*)

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Ardea cinnamomea, Gmel., *Syst. Nat.*, i., 1788, p. 643 (China).

Ardetta cinnamomea, Kelham, *Ibis*, 1882, pp. 189, 195; Oates in Hume's *Nests and Eggs Ind. Birds* (2nd ed.), 1890, iii., p. 252; Sharpe, *Cat. Birds, Brit. Mus.*, xxvi., 1898, p. 236; Blanford, *Faun. Brit. Ind., Birds*, iv., 1898, p. 402; Oates, *Cat. Birds' Eggs, Brit. Mus.*, ii., 1902, p. 132.

Ixobrychus cinnamomeus, Herbert, *Journ. Siam. Soc., Nat. Hist. Suppl.*, vi., 1926, p. 353; Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), vi., 1929, p. 367.

Malay Name.—Burong puchong bëndang: nok yang sawey (*Siamese*).

Description.—*Adult male.*—Chestnut-rufous bay above, including wings and tail, head rather darker; inner aspect of wings, cinnamon, the axillaries and under wing coverts golden buff, with a pinkish tinge; sides of the face and ear coverts as the back. Chin and throat, whitish with a narrow median stripe of blackish chestnut; rest of the under surface, buffy chestnut, paler on the middle of the belly and the under tail coverts; elongate feathers on each side of the breast, blackish with pale buffy margins.

Adult female.—Mantle and back, dull brown with a pinkish wash, the head darker, the forehead greyish; wing coverts, rufous chestnut, toothed on the outer webs with triangular spots of blackish and pale sandy. Primaries and secondaries, pale chestnut, greyish at the tips and base. Inner aspect of quills, pale salmon at tips, grey at base; under wing coverts, buffy, with dark streaks; tail feathers, pale cinnamon. Sides of the face and neck, chestnut. Chin and throat, whitish, with a dark median streak; rest of the under surface, yellowish buff, broadly streaked with blackish brown; flanks,



cinnamon ; lower belly and under tail coverts, pale sandy ; thighs, dark cinnamon, almost purplish.

Immature.—Like the female but the head darker, the upper surface blackish with broad yellowish white edgings to the feathers, giving a mottled effect ; wing coverts the same but the edges broader ; sides of the head streaked ; the centres of the feathers dark, with pale rufous edges.

Soft Parts.—Iris, yellow or brownish, with a white ring round pupil ; upper mandible, blackish sepia with yellow edges ; lower mandible, dull yellowish with light brownish base ; feet, greenish or yellowish green, soles yellow. *Immature birds* have the upper mandible paler.

Dimensions.—Total length, about 15 in. ; wing, 5.3 to 5.7 in. ; tail, 1.8 in. ; tarsus, 2.1 in. ; bill from gape, 2.5 in.

Range in the Malay Peninsula.—Throughout its length ; in Junk Zeylon and Penang, and probably on the islands of the Bandon Bight. Abundant on Singapore Island many years ago, but scarcer now, as it has been much persecuted by Chinese shooters.

Extralimital Range.—Very much the same as the little green bittern, but not in the Mascarene Islands.

Nidification.—The nest, as described by Oates, is a loose pad of grass, built on swampy ground among reeds. In Pegu the clutch is from five to six, but Seimund has obtained nests near Kuala Lumpur containing only three. The eggs are oval, without gloss, and dull, almost chalky white, sometimes with a very faint blue tinge. Eggs in the British Museum average 1.31 by 1.04 in. The breeding season in the Malay Peninsula is probably from April to July, but little information is available.

Herbert (*loc. cit.*) describes nests and eggs found near Bangkok at the end of June, and at Tachin in August, in very similar terms. The eggs measured 1.26 by 1.05. He comments on the difficulty of finding the nest. Malays note the same ; the discovery of a nest of this bird, or of the white-breasted water-hen, confers on the fortunate finder the gift of invisibility. The nest therefore commands a high price among the criminal classes !

Habits.—This bittern is resident throughout the year in the Malay Peninsula, but it is possible that its numbers are augmented during the months from November to March by migrants from the north, though the route followed is not by sea, as the bird is never obtained at the lighthouses or on the small islands in the Straits of Malacca. It lives in the neighbourhood of ricefields and in the thick vegetation bordering the rivers and water-courses, but is not a denizen of salt or brackish-water marshes. It is a very familiar bird to sportsmen when out snipe-shooting, as it is constantly flushed, flying in a very direct line, with the neck rather bent back and the feet extended stiffly, close together, behind the tail.

*Ixobrychus eurhythmus***Schrenck's Bittern**PLATE 20 (*upper figure*)*Ardetta eurhythmia*, Swinhoe, *Ibis*, 1873, p. 74 (Amoy).*Nannocnus eurhythmus*, Sharpe, *Cat. Birds, Brit. Mus.*, xxvi., 1898, p. 242 ; Oates, *Cat. Birds' Eggs, Brit. Mus.*, ii., 1902, p. 133.*Ardetta pulchra* (not of Hume), Robinson, *Journ. Fed. Mal. States Mus.*, iv., 1909, p. 131.**Malay Names.**—Puchong kēladi ; puchong gēlam.**Description.**—*Adult male.*—Top of the head, blackish brown ; sides of the head and hind neck, chestnut ; mantle, back and scapulars, rich dark brown. Lower back, rump and tail, dark brownish grey. Wing coverts, olive-buff, a few on the inner edge of the wing chestnut or brown ; a large chestnut patch on the lesser coverts at the angle of the wing. Primary coverts and wing quills, blackish grey, the former tipped with white ; inner secondaries washed with brown. Under parts, yellowish buff, streaked with rich brown on the centre line of chin, throat and foreneck. A few narrow brown streaks on the breast. A patch of feathers on each side of the upper breast, brownish black with broad buff margins.*Adult female.*—A bird from Selangor sexed as a female is very slightly darker on the upper parts than the male, with the back, scapulars and chestnut patch on the lesser wing coverts marked with large buffy white spots. Wing coverts and under parts rather yellower than in the male and rather more heavily marked. According to some authors the wing coverts are largely chestnut, but these should, perhaps, be regarded as immature, as according to Swinhoe the female, probably when old, is sometimes found in a plumage like that of the adult male.*Immature.*—Much of the upper surface spotted with pale buff or white, the wing coverts variegated with large chestnut patches, instead of being plain olive-buff, and the foreneck and breast more freely streaked with brown.*Note.*—This bird and *Ixobrychus cinnamomeus* both differ from *Ixobrychus sinensis* in having the tibia partly naked instead of feathered nearly to the ankle, while the basal joint of the middle toe is as long as the second instead of being much shorter.**Soft Parts.**—Iris, yellow ; bill, greenish yellow, dusky on the culmen ; feet, green.**Dimensions.**—Total length, 12 in. ; tail, 1·6 in. ; wing, 6 in. ; tarsus, 2 in. ; bill from gape, 2·4 in.**Range in the Malay Peninsula.**—Known only from Penang Island, Perak, the neighbourhood of Kuala Lumpur, Malacca and Pulau Angsa in the Straits of Malacca.**Extralimital Range.**—From South-East Siberia, Japan and China, south to the Philippines, Celebes, and throughout Malaysia. Known from Annam and Cochin-China, but not yet recorded from Siam.

Nidification.—"The nest is composed of grasses and leaves to the proportions of a thick and slightly cupped pad, and is placed in reeds and grass near the ground, or in overhanging grass at a distance of several feet from the ground. The eggs usually number from three to five, and are rather elliptical in shape, varying from a pale creamy to pale greenish white. Season, May and June" (*H. R. and J. C. Caldwell*).

Habits.—This is an uncommon species in the Peninsula and we know little of its habits beyond that it is found in localities similar to those affected by *Ixobrychus sinensis* and *I. cinnamomeus*, the thick vegetation bordering rivers and watercourses. Judging from the range of the species, it should only be a winter migrant to our area, and we have a specimen taken on Pulau Angsa, a small island in the Straits of Malacca, on 25th October 1926 which is certainly a migrating bird. On the other hand we have two birds taken in April, one near Kuala Lumpur and another on Penang Island, and Robinson has recorded a June bird. The local status of the species is therefore very doubtful.

The bird figured (one-half natural size) is the male from Pulau Angsa mentioned above.

Dupetor flavicollis flavicollis

The Black Bittern

Ardea flavicollis, Latham, *Ind. Orn.*, ii., 1790, p. 701 (India).

Ardeiralla flavicollis, Oates in Hume's *Nests and Eggs Ind. Birds*, iii., 1890, p. 251.

Dupetor flavicollis, Sharpe, *Cat. Birds, Brit. Mus.*, xxvi., 1898, p. 247; Blanford, *Faun. Brit. Ind., Birds*, iv., 1898, p. 403; Oates, *Cat. Birds' Eggs, Brit. Mus.*, ii., 1902, p. 133; Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1921, p. 81.

Dupetor flavicollis flavicollis, Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), vi., 1929, p. 368.

Malay Name.—Puchong hitam (*Selangor*, E. Seimund): nok yang kark (*Siamese*).

Description.—*Adult male.*—Upper parts, slaty black to black, very faintly glossed with green. Below the eye, mixed chestnut and black; a broad yellow stripe extending from the chin along the sides of the neck. Centre of the chin and throat, together with the foreneck, brownish chestnut, the feathers heavily tipped with black and on the foreneck streaked with white or yellowish white. On the lower foreneck the long feathers overhanging the breast are mostly black with irregular whitish-yellow edges. Breast, abdomen and under tail coverts, slaty black, with a few very fine whitish fringes. Edge of the wing occasionally mottled with white.

Adult female.—Sharpe considered that the female did not differ from the male, but later authors recognized a difference in carefully sexed birds, and the series before us is readily divisible on plumage.

Compared with the male, the female is much browner and less blackened.

This is especially noticeable in the general tone of the upper parts and on the throat and foreneck, which are streaked pale chestnut and whitish, with little admixture of black. The yellow band along the sides of the neck is less conspicuous, and the buff fringes on the abdomen are more marked.

Immature.—Even browner than females, the feathers of the upper parts with narrow buff fringes. Abdomen, mixed whitish and buff or pale chestnut ; thighs, similar, washed with dusky.

Soft Parts.—Iris, hazel to reddish brown ; upper mandible, blackish brown ; lower mandible, brown ; feet, brown or black.

“ Bill, dusky reddish brown, lighter below ; facial skin, purplish brown ; eyelids, bluish ; iris, golden brown or pale red ; legs, dark brown ; claws, dark horn-colour ” (*Oates*).

Dimensions.—Total length, about 23 in. ; wing, 8 to 8.5 in. ; tail, 2.75 in. ; tarsus, 2.5 to 2.75 in. ; bill from gape, 3.75 to 4 in. ; culmen, 3 to 3.25 in.

Range in the Malay Peninsula.—From the extreme north to the extreme south on the coasts, the coastal islands and in inland districts. We have specimens from most of the small islands in the Straits of Malacca. No formal record from the east coast or the Tioman Archipelago.

Extralimital Range.—From South China through French Indo-China, Siam, Burma, Assam, to India and Ceylon. Throughout Malaysia to the Philippines and Celebes. Allied races inhabit the Moluccas, Timor, Australia, etc.

Nidification.—Not yet known to breed in the Malay Peninsula. Eggs taken by Mr C. J. Aagaard's collectors in Siam, in June 1927, are very pale green, almost white, and average 1.7 by 1.3 in. in size. In Ceylon Mr W. E. Wait says it breeds about April. Two nests found were small structures of twigs placed on low thorny trees within three feet of water. The eggs are usually four in number.

Habits.—A shy bird of nocturnal habits, normally found in the reed-beds and swamps of inland districts ; at times it is not uncommon along the forested edges of the lake-like reservoirs on Singapore Island. In Tenasserim Davison records it as frequenting shady streams during the day, coming out into the open marshes at dusk. We have no evidence that the species is resident in the Malay Peninsula, and all our specimens were taken between November and February, the majority of them with large numbers of other migratory species on small islands in the Malacca Straits in November. Exhausted or dead migrants of this species are not infrequently found in unusual situations in Singapore.

Botaurus stellaris stellaris

The Bittern

Ardea stellaris, Linn., *Syst. Nat.*, 10th ed., 1758, p. 144 (Sweden).

Botaurus stellaris, Sharpe, *Cat. Birds, Brit. Mus.*, xxvi., 1898, p. 253 ; Blanford, *Faun. Brit. Ind., Birds*, iv., 1898, p. 405 ; Oates, *Cat. Birds' Eggs*,

Brit. Mus., ii., 1902, p. 134; Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1921, p. 81.

Botaurus stellaris stellaris, Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), vi., 1929, p. 370.

Malay Name.—Unrecorded.

Description.—Crown and nape, black; a dark malar streak; upper parts, deep yellowish buff, heavily and very irregularly streaked and barred with black, or brownish black, and variegated with a deeper orange-buff. The markings are heaviest on the mantle and scapulars, become finer and even more irregular on the lower back, tail and wing coverts, and take the form of fairly regular bars on the sides of the neck. Under parts, rather paler buff, whitest on the chin and throat. A median line of pale rich brown on the throat; foreneck heavily streaked with the same colour. Lengthened patches of feathers on each side of the upper breast, with bold, blackish centres; rest of the under parts with broad brown streaks. Thighs, mottled with brown. Primary coverts and wing quills, barred blackish and rufous, the barring breaking into an irregular pattern on the inner secondaries. The sexes alike in plumage.

Soft Parts.—Iris, yellow; bill, greenish yellow, darker on the culmen; feet, green; orbital skin and lores, yellowish green to bluish.

Dimensions.—Total length, 24 to 28 in.; tail, 4 in.; wing, 12 to 13.5 in.; tarsus, 3.5 to 4 in.; bill from gape, 3.5 to 4 in.

Range in the Malay Peninsula.—Only known from two specimens. One was shot on Perseverance Estate, Singapore Island, in the autumn of 1908, and another near Malacca on 3rd March 1909.

Extralimital Range.—North Africa and Europe, across temperate Asia to Japan. In winter south to India, Burma (rare), and Siam (rare). Not known from French Indo-China, or Malaysia other than from the Malay Peninsula and Borneo. Recorded from the Philippine Islands (Luzon). Other subspecies are found in South Africa and Australia, and there are closely related forms in America.

Nidification.—In Europe the nest is placed just above water-level, or on the ground, in dense vegetation in swamps, reed-beds, or near lakes. The brownish-green eggs, four to six in number, measure about 2 by 1.5 in.

Habits.—The bittern can be regarded only as a very rare, or indeed accidental, winter visitor to the Malay Peninsula. In other parts of its range it usually remains in the cover of reed-beds, etc., during the day and feeds at night on frogs, fish, small mammals, etc. The male makes a curious booming noise during the breeding season. The usual note is a croak.

