

GULLS, TERNS AND SKIMMERS

Order LARIFORMES

Vol. I., p. 23.

THIS order comprises the gulls, terns and skimmers, of which only the terns are other than accidental in Malayan waters ; these, however, are abundant both in species and in individuals.

The feet are always strongly webbed and the hind toe small, sometimes absent, generally raised above the plane of the others, and not united to them by the web. The bill is of moderate length, but always longer than the tarsus. The wing is very pointed and narrow, with the outermost primary very short. The tail is variable, either square, cuneate or forked, the outer tail feathers in many of the terns much narrowed and pointed. The plumage is always white, grey, black or sooty, or some combination of these, but in some species there is a beautiful though evanescent rosy flush on the lower plumage in the breeding season. The winter plumage is distinct from the breeding one. The sexes are alike, though there is often a small difference in size, and it is two, three or even four years before the fully adult plumage is assumed.

The eggs are very pointed at one end, spotted and blotched with two colours, one beneath the surface. In the local species a nest is almost lacking, and the eggs are laid on the rocks or on sand or among grass, and are one or two only in number. The young are hatched covered with down, generally of two colours, and are cared for by the parents.

The distribution is cosmopolitan and mainly marine, though a few forms are lake and river birds ; some breed in inland districts or visit them in search of food.

Some of the Malayan species are permanent residents, but others are winter visitors only.

Of the two families into which the order is divided, *Laridæ* and *Stercorariidæ*, or robber gulls, the latter is characterized mainly by the presence of a cere or fleshy base to the bill and very strong curved claws. It is temperate and circumpolar in its distribution, though one species has been obtained as far south as Moulmein, while another is regularly found on the northern coasts of the Arabian Sea.

The *Laridæ* include the true gulls, the terns and the skimmers, the latter aberrant river-haunting birds, in which the bill is long, much compressed laterally, and knife-like in form. They are not known in Malaya, though one species is found in India, Burma and Siam.

The true gulls can be separated from the terns by the character of the bill, which is stouter and less pointed, the upper mandible longer than the lower, whereas in the terns the mandibles are of equal length. In build gulls are heavier and less slender.

Gulls are practically unknown in Malaya, but in the north the brown-headed gull, *Larus brunnicephalus*, common in Rangoon, has been doubtfully recorded from Tongkah or Junk Zeylon, while recently a wandering specimen of the laughing or "black-headed" gull, *Larus ridibundus*, has been obtained in Singapore.

The terns are numerous, and a number of species of very varied appearance are known from the seas and islands in the vicinity of the Malay Peninsula.

KEY TO THE SPECIES HERE DESCRIBED

- Outer primary mostly white . . . *Larus r. ridibundus*, p. 89
 Outer primary mostly black . . . *Larus brunnicephalus*, p. 90

Larus ridibundus ridibundus

The Laughing Gull

Larus ridibundus, Linn., *Syst. Nat.* (12th ed.), 1767, p. 225 (Europe); Saunders, *Cat. Birds, Brit. Mus.*, xxv., 1896, p. 207; Blanford, *Faun. Brit. Ind., Birds*, iv., 1898, p. 320; Oates, *Cat. Birds' Eggs, Brit. Mus.*, i., 1901, p. 208; Kloss, *Journ. Malay Br. Roy. Asiat. Soc.*, iv., 1926, p. 157.

Malay Name.—Unrecorded.

Description.—*Adult in breeding plumage.*—Head and neck all round, dark brown, a small white patch above and below the hinder part of the eye, white; hind neck, white; mantle, back and wing coverts, pearl-grey. Upper tail coverts and tail, pure white. Outer primaries, white, the outer web of the outer one, black; the tips of all increasingly black; the inner webs margined with black. The black disappears on the inner primaries, which are grey, as are the secondaries. Under parts white.

Adult in winter plumage.—Without the brown hood. A small patch in front of the eye, blackish, and a larger patch behind the ear coverts, dark grey; back of the head tinged with grey.

Immature.—Upper parts largely mixed with brown, especially on the wing coverts; a black bar on the end of the tail and more black on the primaries. In a later stage (as in the single bird on record from Singapore) the plumage is like that of the adult in winter, but the lesser wing coverts have dark centres; the median coverts are fringed with buffy white, and there is more black on the primaries; the black bar on the end of the tail persists.

Soft Parts.—Iris, brown; bill and feet, red. In young birds the bill is dull yellow, dusky at the tip; feet, dull orange.

Dimensions.—Total length, about 16 in.; wing, 12 in.; tail, 4.75 in.; tarsus, 1.7 in.; bill from gape, 1.8 in.

Range in the Malay Peninsula.—The only specimen actually obtained in

Malayan waters was shot on the east coast of Singapore Island on 16th December 1925. Mr H. G. Alexander records seeing an adult near Singapore on 17th January 1928 (*Ibis*, 1929, p. 48).

Extralimital Range.—Throughout Europe, south in winter to North Africa, the Red Sea, the Persian Gulf and India; also in China and Japan. A larger race, *L. ridibundus sibiricus* Buturlin, with a longer, heavier bill, breeds in Eastern Siberia and winters on the coasts of China and Japan and possibly in the Philippine Islands.

Nidification.—Does not breed within Malayan limits, but in temperate Europe and Asia it nests in colonies, making its scanty nest on the ground, laying usually three eggs very variable in colour, but generally with a ground-colour of greenish grey to olive-brown, marked with brown and blackish brown, and underlying greyish purple.

Habits.—This gull can only be regarded as an accidental straggler to Malayan waters; it is, normally, a gregarious species frequenting rivers, estuaries and coasts.

Larus brunnicephalus

The Indian Brown-headed Gull

Larus brunnicephalus, Jerdon, *Madras Journ. Lit. and Sci.*, xii., 1840, p. 225 (India); Saunders, *Cat. Birds, Brit. Mus.*, xxv., 1896, p. 215; Blanford, *Faun. Brit. Ind., Birds*, iv., 1898, p. 320; Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1921, p. 48; Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), vi., 1929, p. 103.

Malay Name.—Unrecorded.

Description.—At all seasons very similar to the laughing gull, but in summer the brown of the head next to the white neck rather blacker than in front, and thus suggesting a dark ring. Outer primaries, black, white at the extreme base, the white increasing in area from the first to the fifth primary. In adults the first and second primaries have a white spot near the tip.

Soft Parts.—Iris, white (immature) to brown; bill and feet, red in adults; in immature birds the bill and feet yellowish or orange, the former with a dusky tip.

Dimensions.—Rather larger than the laughing gull. Total length, about 17 in.; wing, 13 in.; tail, 5.5 in.; tarsus, 2 in.; bill from gape, 2.2 in.

Range in the Malay Peninsula.—This gull has never been actually obtained within our limits, but there are specimens from South Tenasserim in the British Museum, and Davison records having observed it off the coast of Junk Zeylon.

Extralimital Range.—Breeds in Central Asia from Turkestan to South Mongolia and in North India. Winters in Siam and along the northern border of the Indian Ocean from Tenasserim to Ceylon and the coasts of India, west to Aden.

Nidification.—Breeds in colonies on the shores of lakes in Central Asia.

Habits.—Apparently only a straggler within Malaysian limits in the northern portion of the Peninsula, though it seems to be fairly common in the

vicinity of Bangkok during the winter months. The habits are those of other gulls; it is found in flocks in harbours and along the sea-coast. Its voice and flight are said to be exactly like those of *Larus ridibundus*.

KEY TO THE MALAYAN TERNS

1	{	Tail almost square, the difference between the shortest and longest feathers less than one-fifth the total tail length	<i>Chlidonias leucoptera grisea</i> , p. 91
		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> , p. 107
		Bill very slender; crown whiter	<i>Anous minutus worcesteri</i> , p. 108
4	{	Tarsus longer than middle toe and claw	<i>Gelochelidon nilotica affinis</i> , p. 93
		Tarsus shorter than middle toe and claw	5
5	{	Very dark above; outer tail feathers extremely long	<i>Sterna a. anæthetus</i> , p. 100
		Pearl-grey above; outer tail feathers shorter	6
6	{	Bill large and coarse; a nuchal crest; wing over 11 in.	7
		Bill slender; not markedly crested; wing under 11 in.	8
		Bill relatively stout; wing under 8 in.; smaller, wing less than 12 in.; black of head in breeding plumage reaching the bill	<i>Sterna albifrons</i> subsp., p. 102
7	{	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> subsp., p. 98
		Size larger; wing not less than 9.75 in.	<i>Sterna hirundo longipennis</i> , p. 94
8	{	Size smaller; wing not more than 9 in.	9
		Crown mainly black	<i>Sterna dougalli bangsi</i> , p. 96
9	{	Crown mainly white	<i>Sterna s. sumatrana</i> , p. 105

*Chlidonias leucoptera grisea***The White-winged Black Tern**

Sterna grisea, Horsf., *Trans. Linn. Soc.*, xiii., 1821, p. 199 (Java).

Hydrochelidon leucoptera, Saunders, *Cat. Birds, Brit. Mus.*, xxv., 1896, p. 6 (part); Blanford, *Faun. Brit. Ind., Birds*, iv., 1898, p. 308 (part); Oates,

Cat. Birds' Eggs, Brit. Mus., i., 1901, p. 174 (*typical race*); Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1921, p. 48.

Chlidonias leucoptera leucoptera, Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), vi., 1929, p. 114 (part).

Malay Name.—Chamar.

Description.—*Adult in breeding plumage.*—Head, neck and upper back, dark glossy black; edge of the wing, pure white; greater wing coverts, pearl-grey; secondaries darker, passing into slate-grey; primaries frosted with pearl-grey, which soon wears off the outer quills, leaving the webs blackish, with a broad whitish streak down the middle of the inner webs of the four outer primaries; shafts, white; back and rump, greyish black; upper tail coverts and tail, pure white; under surface, deep black; vent, white; flanks, under wing coverts and axillaries, black.

Adult in winter plumage.—Whole under surface, pure white; forehead, lores and a collar on the hind neck, also white, a black spot in front of the eye. Crown behind the eyes, and nape, blackish mottled with white; upper surface, including mantle, wing coverts and secondaries, pearl-grey, the feathers immediately succeeding the white collar darker, as also the lesser wing coverts. Wing quills as above; axillaries and under wing coverts, white. Tail feathers, pale grey, except the outer pair which are partly white.

Immature.—Much as the adult in winter plumage, but the secondaries and tertiaries with brownish tips, the inner margin of the wing blackish, the other wing coverts with dark centres and pale edges.

Soft Parts.—*Adult in breeding plumage.*—Iris, brown; bill and feet, red.

Adult in winter plumage.—Bill, black, rusty red at the gape; feet, brownish black, with a reddish tinge.

Dimensions.—Total length, 9 in.; wing, 8·4 in.; tail, 3·1 in.; tarsus, 0·75 in.; bill from gape, 1·4 in.

Range in the Malay Peninsula.—Not uncommon in the Straits of Malacca, generally in winter; not recorded from the eastern side of the Peninsula. It has been met with at Penang and in the Perak river estuary and has also been seen on one or two occasions off the Selangor coast. There is one female in the British Museum, shot in December 1865 at Malacca, collected by Dr Maingay.

Extralimital Range.—The *species* occurs in Europe, eastwards across temperate Asia to China; southwards in winter to Africa, India, Australia, New Zealand, etc. We have followed certain modern authors and have recognized an eastern race of this tern, but not without much hesitation. The restricted range of this race can be regarded as from its breeding-grounds on the Amur, Siberia, south in winter through China to Burma and through the Philippine Islands to Celebes, Borneo, Java and Australia; occasionally in Ceylon and in the Andaman Islands, but doubtfully in India proper.

Nidification.—Does not breed within Malayan limits. In other parts of its range the species breeds in colonies in swamps.

Habits.—At times this tern appears in considerable numbers in the vicinity of Penang in the channel between the island and the mainland, sitting in long rows on the fishing stakes. In the middle of April 1915 large series were ob-

tained, all in heavy moult except one bird which had attained the full black plumage; many had scattered black feathers on the under surface and black under wing coverts and axillaries. At the end of October they were equally numerous, but all were then either in winter plumage or young birds. The species is also common in the Perak estuary in April and May and occasionally in the same months off the Selangor coast, though commoner in December and January. It has never been met with south of Malacca nor on the east coast within Malayan limits, nor is it known from any of the islands or from fresh water. It appears to prefer shores where there are large stretches of soft mud banks and is never seen on rocky coasts.

Note.—The whiskered tern (*Chlidonias leucopareia javanica*) is abundant in the vicinity of Bangkok and in East and Central Siam, and may therefore occur in the Malay Peninsula though there is as yet no actual record of the species within our area. In breeding plumage it is unmistakable; upper surface of the head, black; rest of upper surface, pale grey; on the under surface the grey throat shades away to black on the abdomen; bill and feet, red. In winter it differs from the white-winged black tern only in its rather larger size: wing, 8.6 to 9.2 in.; culmen, 1.12 to 1.25 in.; tarsus, 0.8 to 0.95 in.; against 8.2 to 8.7 in.; 0.95 to 1.08 in., and 0.6 to 0.8 in. for the same measurements in *C. leucoptera grisea*.

Gelochelidon nilotica affinis

The Eastern Gull-billed Tern

Sterna affinis, Horsf., *Trans. Linn. Soc.*, xiii., 1821, p. 199 (Java).

Gelochelidon anglica, Saunders, *Cat. Birds, Brit. Mus.*, xxv., 1896, p. 25 (part); Oates, *Cat. Birds' Eggs, Brit. Mus.*, i., 1901, p. 177 (part); Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1921, p. 49.

Sterna anglica, Blanford, *Faun. Brit. Ind., Birds*, iv., 1898, p. 311 (part); Oates in Hume's *Nests and Eggs Ind. Birds* (2nd ed.), iii., 1890, p. 304 (part).

Gelochelidon nilotica affinis, Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), vi., 1929, p. 118.

Malay Name.—Chamar.

Description.—Head, sides of the face, except a small patch in front of the eye and the ear coverts which are blackish, whole under surface, including under wing coverts and axillaries and under tail coverts, white; edge of wing all round, white; rest of upper surface, delicate pearl-grey; upper tail coverts whiter; tail, pale pearl-grey, the outer feathers almost white. Primaries frosted when freshly moulted, but becoming darker when worn, with conspicuously darker tips; outer primaries conspicuously whiter on the inner webs; shafts, ivory-white.

Adult in breeding plumage.—Similar to the above, but with the top of the head, upper part of lores, nape and a nuchal crest glossy jet-black.

Immature.—Crown, greyish, mixed with white and with narrow brownish-black streaks; lores, narrowly streaked with black; upper surface with buff

tips to the feathers. Primaries darker; secondaries and tail feathers, blackish near the tips.

Soft Parts.—Iris, dark hazel; bill, black, yellowish or brownish towards base in young birds; feet, black, sometimes with a slight brownish or reddish-brown tinge.

Dimensions.—Total length, 14 in.; wing, 12 in.; tail, 5 in.; tarsus, 1.2 in.; bill from gape, 1.9 in.

Range in the Malay Peninsula.—The Straits of Malacca; rarer on the east coast.

Extralimital Range.—The distribution of the species as a whole is practically world-wide, except in high latitudes. The local form extends through the Malay Archipelago, but not to Australia; north to China, the Liu Kiu Islands and Mongolia, and west to parts of Burma and the Andaman Islands. In India it meets the typical race.

Nidification.—Not a breeding bird in the Malay Peninsula. Elsewhere this tern breeds in colonies in marshes and sometimes on sandy islands. The clutch is usually three, and the eggs of the usual tern type, but rather broad. Eggs of the typical race measure about 1.95 by 1.4 in.

Habits.—In the Straits of Malacca this large tern is not uncommon in autumn and winter, but does not seem to occur, or at any rate has not been noted, in summer. It is also met with off the Pahang river, but not commonly. Most of the birds from our area are immature or in winter plumage. The habits are those of other terns, but the flight is heavier and more gull-like. In Malaya the bird is purely coastal and estuarine and has not yet been observed inland as in Europe and India.

Sterna hirundo longipennis

Nordmann's Tern

Sterna longipennis, Nordmann in Ermann's *Verz. Thieren u. Pflanzen*, 1835, p. 17 (Ochatsk, Siberia); Saunders, *Cat. Birds, Brit. Mus.*, xxv., 1896, p. 67; Blanford, *Faun. Brit. Ind., Birds*, iv., 1898, p. 319; Oates, *Cat. Birds' Eggs, Brit. Mus.*, i., 1901, p. 185.

Sterna fluviatilis tibetana, Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1921, p. 50.

Sterna hirundo longipennis, Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), vi., 1929, p. 131.

Malay Name.—Chamar.

Description.—*Adult in breeding plumage.*—Upper surface of the head and nape, black, a narrow white collar on the hind neck; mantle and external aspect of wings, dark pearl-grey; upper tail coverts, white. Tail, white, tinged with grey on the outer feathers, especially on the outer webs of the outer pair. Primaries, grey, partly white on the inner web, the outermost feather darkest; secondaries, silvery grey margined with white. Under surface, pale vinaceous grey, white on the sides of the face and throat (described from a Japanese bird).

Adult in winter plumage.—The forehead largely white ; much less grey beneath, perhaps quite white ; tail greyer.

Immature.—Pure white beneath, forehead to level of eyes white, a blackish spot before the eye, hinder crown and nape as in the winter adult, but duller black, the feathers of the nape shorter ; tail feathers darker. Inner edge of wing with a strong greyish-black bar ; greater wing coverts with white edges ; secondaries with much wider white edges and with darker centres.

Juvenile.—Younger birds still have the mantle more brownish grey, the feathers with pale edges, the outer webs of the tail feathers still darker, almost blackish ; inner secondaries and tertials brownish with blackish subterminal edgings. The dark bar on the inner edge of the wing very marked.

Soft Parts.—*Adult breeding.*—“ Bill, dark horn, tinged with red, the red showing more at base of lower mandible ; legs, deep red ; claws dark ” (*Barrett Hamilton*).

Adult in winter and immature.—Iris, dark brown ; bill, black, sometimes paler at the tip ; feet, reddish brown, drying almost black. A very young bird had the “ legs yellowish red, more red on the bill than in the adult and of a lighter shade ” (*Barrett Hamilton*).

Dimensions.—Total length, 15 in. ; wing, 10·75 in. ; tail (to tips of longest feathers in an adult), 7 in. ; tarsus, 0·75 in. ; bill from gape, 2 in. Females average slightly smaller than males, especially in the bill.

Range in the Malay Peninsula.—The Straits of Malacca from Junk Zeylon to Malacca. Lacon on the north-east coast of the Peninsula. Not recorded from the Straits of Singapore. Common near Penang.

Extralimital Range.—Northern Asia from the Yenesei and Lake Baikal east to the Kurile Islands, Japan, and south to China. Wintering south to New Guinea and the Solomon Islands and also occurring in Ceylon, Sumatra and Java.

Nidification.—Not a breeding bird in the Malay Peninsula. According to Mr Stuart Baker this tern breeds in colonies on the coast of Sakhalin, the three eggs being laid in rubbish just above high-water mark. The eggs are like those of the common tern.

Habits.—This tern appears to be a winter visitor to the Malay Peninsula, though birds have been obtained at the end of May and at the end of July. All that we have seen, with a single exception, have been immature with the dark wing-bar well developed. In the Straits of Malacca it is largely an estuarine and shallow-water bird, frequenting the fishing stakes in large numbers.

Note.—This bird appears to be only an eastern race of the common tern, differing principally in the colour of the bill, which is never distinctly red at any season. Immature birds are separable with extreme difficulty from that of the common tern. In the *Catalogue of Birds in the British Museum* both races are recorded from the Straits of Malacca, but after examination of the specimens and our own series we are of opinion that only the present form occurs in Malayan waters.

*Sterna dougalli bangsi***The Eastern Roseate Tern**

Sterna dougallii bangsi, Mathews, *Birds Austr.*, ii., 1912, p. 364 (Foochow, China).

Sterna dougalli, Saunders, *Cat. Birds, Brit. Mus.*, xxv., 1896, p. 70 (part); Oates in Hume's *Nests and Eggs Ind. Birds* (2nd ed.), iii., 1897, p. 301 (allied race, *korustes*); Blanford, *Faun. Brit. Ind., Birds*, iv., 1898, p. 319 (part); Oates, *Cat. Birds' Eggs, Brit. Mus.*, i., 1901, p. 186 (*species*); Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1921, p. 51.

Malay Name.—Chamar jambu.

Description.—*Adult in breeding plumage.*—Whole under surface, silky white, with a delicate pink flush, rapidly fading after death. Top of the head and nuchal crest, glossy black, a white collar round the hind neck; rest of the upper parts including the tail, except the outermost feathers, which are white, delicate pearly grey. Outer aspect of the wing the same; primaries slightly darker, much darker in worn specimens. All the primaries, secondaries and tertials edged with white on the inner webs and at the tip of the outer webs. Outer edge of the first primary very dark grey. Edge of the wing, white.

Adult in winter plumage.—Pink flush on lower plumage almost absent. Forehead spotted and streaked with white. Feathers on the nape shorter. Primaries darker, owing to the wearing off of the frosting.

Immature.—Like the adult in winter, but black of the head more sooty; a dark band on the inner edge of the wing; bases of inner secondaries, dark grey, and the white edges to the inner webs broader and more conspicuous.

Juvenile.—Lores, brownish; crown more streaked with brownish black; mantle with the feathers tipped with dark brown; scapulars with a double transverse bar of blackish, separated by a white bar. Inner four pairs of tail feathers with a blackish subterminal bar and a narrow white tip.

Soft Parts.—*Adult.*—Iris, dark brown; bill very variable, either completely black, or black with a red base, completely orange, or orange with a variable black tip, all these apparently occurring in fully adult breeding birds; feet, orange-red.

Immature and winter plumage.—Iris, dark; bill, black, rather paler at the base, sometimes with a greyish tip; feet, blackish.

Dimensions.—Total length, 14.5 in.; wing, 8.9 in.; tail, 6.5 in. to extreme end of streamers; tarsus, 0.75 in.; bill from gape, 2 in.

Range in the Malay Peninsula.—The Aroa Islands, a small group of sandy and rocky islands in the middle of the Straits of Malacca, between the coasts of Selangor and Sumatra; the eastern entrance to Singapore Straits; Pulau Tioman; Koh Pennan in the Bandon Bight; Kuala Pahang.

Extralimital Range.—The coast of Tenasserim, south of Mergui; the inner Gulf of Siam; the coast of South China and the Liu Kiu Islands; the Sulu Sea, Moluccas and Mysol and also the Seychelles and other Mascarene

Islands. In a broad sense the *species* has a very wide range, being found in the temperate and tropical parts of the Atlantic Ocean, the Mediterranean, the Indian Ocean, up the China coast and south to Australia.

Nidification.—Although the species almost certainly breeds in the localities at which it has been obtained in Malayan seas we have not seen eggs. In most localities it breeds in large colonies on sandy islands or coral reefs, not on rocks, and lays two eggs, or very frequently one only. In colour the eggs are described as very like those of the majority of terns; specimens from Ceylon measure about 1·58 by 1·12 in.

Habits.—In Malayan seas the roseate tern is by no means a common bird and is always outnumbered by *Sterna sumatrana*. It is an off-shore species, haunting the neighbourhood of sandy islets and coral reefs, and it seems to dislike muddy water.

Note.—Though we have included all Malayan terns of this species under one name we are not fully convinced that the birds from the east coast of the Peninsula are racially identical with those occurring in the Straits of Malacca.

Sterna bengalensis bengalensis

The Smaller Crested Tern

Sterna bengalensis, Lesson, *Traite d'Orn.*, 1831, p. 621 (coasts of India).

Sterna media (not of Vieill., 1820), Oates in Hume's *Nests and Eggs Ind. Birds* (2nd ed.), 1890, p. 299; Saunders, *Cat. Birds, Brit. Mus.*, xxv., 1896, p. 86 (part); Blanford, *Faun. Brit. Ind., Birds*, iv., 1898, p. 313; Oates, *Cat. Birds' Eggs, Brit. Mus.*, i., 1901, p. 188; Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1921, p. 50.

Thalasseus bengalensis bengalensis, Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), vi., 1929, p. 124.

Malay Name.—Chamar.

Description.—*Adult in winter plumage.*—Forehead and lores, white; a patch in front of the eye, running through the eye to the nape, crown and nape, black; feathers of the crown with white edges. Collar on hind neck, edge of wing all round, and under surface, white. Rest of the upper surface, pale grey. Primaries strongly frosted with silver when newly moulted, otherwise nearly black, but largely white on the inner webs. Tail, pale grey, the feathers darker at the tips; outermost pair mostly white.

Adult in breeding plumage.—Differs from the above in having the forehead, crown, nape and sides of the head to below the eye entirely glossy black, without admixture of white. Feathers of the nape much elongated and pointed, forming a crest. This plumage is very rarely seen in Malayan birds.

Immature.—Like the winter plumage of the adult, but the inner margin of the wing and the primaries darker; greater wing coverts broadly edged with white; secondaries and tertials broadly edged with white or buffy white near the tips, and with dark centres. Tail feathers very much darker on the terminal half of the four outer pairs. Grey of the mantle with a brownish cast.

Soft Parts.—Bill, orange or deep yellow ; iris, brown ; feet, black.

Dimensions.—Total length, 16 in. ; wing, 12 in. ; tail, 6 in. ; tarsus, 1.1 in. ; bill from gape, 2.6 in.

Range in the Malay Peninsula.—The Straits of Malacca from Penang, south to Singapore.

Extralimital Range.—The Arabian Sea ; Bay of Bengal to Sumatra, Java and Celebes. Not recorded from the Philippine Islands or Hainan. Other races have been described covering a much larger area, from the Mediterranean, through the Red Sea to the coast of Africa, across the Indian Ocean to North Australia : a race has also been described from the coast of China.

Nidification.—This tern breeds in large colonies, usually on sandy islands, but no such colonies are known in Malayan waters, though Meyer records the bird as breeding in Celebes in May. Eggs of the Persian Gulf race, of which there are large numbers in the British Museum, are pointed ovals, in size averaging 2.12 by 1.44 in. ; the ground-colour is white to rosy buff, with surface markings of black or blackish brown and subsurface blotches of pale purplish. A few eggs are absolutely unmarked (*Oates*).

Habits.—Met with sparingly in the Straits of Malacca, but not yet obtained on the eastern side of the Peninsula ; also known from the neighbourhood of Penang and Singapore. The species is by no means common in Malayan waters and it does not, as a rule, occur in large flocks. Most of the specimens that have been obtained are immature or in winter plumage, though they are dated April, May and July as well as December, January and February.

This is more of an estuarine and inshore bird than its congener *Sterna bergii* and of lighter and more graceful flight.

Sterna bergii cristata

The Chinese Crested Tern

Sterna cristata, Stephens, *Gen. Zool.*, xiii., pt. i., 1826, p. 146 (China).

Sterna bergii, Saunders, *Cat. Birds, Brit. Mus.*, xxv., 1892, p. 89 (part) ; Oates, *Cat. Birds' Eggs, Brit. Mus.*, i., 1901, p. 188.

Sterna bergii pelecanoides, Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1921, p. 49 (part).

Thalasseus bergii cristata, Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), vi., 1929, p. 123.

Malay Name.—Chamar bēsar.

Description.—*Adult in breeding plumage.*—A broad band across the forehead at the base of the bill, sides of the head and whole under surface, pure white. Top of the head and nape, black, the feathers of the nape pointed and forming a crest ; rest of the upper plumage, pearl-grey. Primaries, dark grey, the inner webs partly white ; shafts, white. Greater wing coverts, inner secondaries and tertials with a narrow edging of white on the outer webs ; outer edge of the wing, under wing coverts and axillaries, white. Tail, pearl-grey above, rather whiter below, the outer webs of the outer feathers and the inner webs of all towards the base, whitish.

Adult in winter plumage.—Fore part of the crown mottled with white ; a blackish spot in front of the eye ; tail rather darker grey, almost blackish towards the tips of the outer feathers. Primaries blackish, owing to the wearing off of the frosting seen in fresh-plumaged breeding birds.

Immature.—Like the winter plumage, but the sides of neck and the upper mantle with large, rounded, dark grey spots ; outer tail feathers darker still ; a dark grey band on inner margin of wing.

Juvenile.—The feathers of the crest with narrow whitish tips. Mottling much more marked, the dark centres larger and extending on to the mantle, rump and external aspect of the wing. Edgings of the wing coverts and secondaries more broadly white. Primaries brownish black, the shafts, especially of the inner ones, pale brownish, not pure white.

Soft Parts.—*Breeding.*—Iris, brown ; bill, greenish yellow ; feet, black.

Winter.—Iris, brown ; bill, pale yellow ; feet, black ; under surface of toes, whitish flesh. *Immature.*—Iris, dark brown ; bill, dirty-yellow, tinged with green ; feet, black.

Dimensions.—Total length, 18 in. ; wing, 13·5 in. ; tail, up to about 8·25 in. ; tarsus, 1·13 in. ; bill from gape, 3·3 in.

Range in the Malay Peninsula.—The whole of the eastern side of the Malay Peninsula, from the Inner Gulf of Siam to the Straits of Singapore, but not extending far up the Straits of Malacca.

Extralimital Range.—The whole of the Malaysian Archipelago, the coast of China, east and south to New Guinea and North-Eastern Australia.

Nidification.—Actually within our limits this large sea-tern is not as yet known to breed, and it is doubtful if it does so, as birds in full breeding plumage are always in a small minority. Sir W. J. F. Williamson found it breeding in large numbers on islands in the Inner Gulf of Siam in May and June, and found that the usual number of eggs was one. The egg was laid either on shingle, not the slightest attempt having been made to scrape out any sort of a hollow or depression to receive the eggs, or on a bare, low-lying rock. Despite their large size and the promiscuous way in which they were laid, these eggs required to be carefully looked for, as their coloration and markings, varying from a dead to a creamy white, with spots, blotches and streaks of reddish brown to dark brown, exactly matched those of the white streaky pebbles on which they were laid. The ground-colour of a number of eggs taken in 1918 on bare rock was a very pale greenish blue, but this tint faded gradually to a dead white. Dimensions may be expected to be very slightly smaller than those of *S. bergii edwardsi* (q.v.).

Habits.—This species keeps, as a rule, well out to sea and, unlike some of the smaller terns, appears to dislike muddy waters and mud-banks. It also frequents fishing stakes, sometimes perching in long rows on the horizontal timbers, and it also follows the seine nets both when drawn up on the beach or at sea. Flight is rather heavy for a tern, and the birds are often seen flying very low over the surface of the sea, almost like gannets. When fishing they often dive.

Note.—The Chinese and Malayan forms of this tern are by some authorities

regarded as distinct races, but examination of large series, however, shows that the differences in size are minute and in colour variable and inconstant: we therefore regard the two races as inseparable.

Sterna bergii edwardsi

The Ceylon Crested Tern

Sterna bergii (part), Oates in Hume's *Nests and Eggs Ind. Birds* (2nd ed.), iii., 1890, p. 299; Saunders, *Cat. Birds, Brit. Mus.*, xxv., 1892, p. 89; Blanford, *Faun. Brit. Ind., Birds*, iv., 1898, p. 314.

Thalasseus bergii edwardsi, Matthews, *Birds of Austr.*, ii., 1912, p. 347 (Ceylon); Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), vii., 1929, p. 122.

Sterna bergii pelecanoides, Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1921, p. 49 (part).

Malay Name.—Chamar bēsār.

Description.—Very close indeed to *S. bergii cristata*, but mantle, back and tail slightly darker, more brownish grey.

Soft Parts.—As in *S. bergii cristata*.

Dimensions.—Size averaging slightly larger and maximum higher. Wing generally over 13·75 in., and running up to 15 in. in length.

Range in the Malay Peninsula.—The Straits of Malacca north to the Tenasserim border.

Extralimital Range.—The Tenasserim coast; Ceylon and the Bay of Bengal generally; the Laccadive Islands.

Nidification.—In Ceylon, where it breeds from the end of April to June, two is the usual clutch, very rarely three, and according to Phillips there is nearly always an attempt at a nest. The eggs are exceedingly variable, both in ground-colour and markings, and are occasionally almost unmarked. Oates gives the average dimensions as 2·45 by 1·71 in.

Habits.—Precisely those of *S. bergii cristata*.

Note.—The validity of this race is somewhat open to question. As might be expected, it is intermediate in all its characters between the race inhabiting the Red and Arabian Seas and the Malaysian bird from Singapore eastwards.

Sterna anæthetus anæthetus

The Panayan or Bridled Tern

Sterna anæthetus, Scopoli, *Del. Flor. Faun. Insubr.*, 1786, p. 92 (Panay, Philippine Islands); Oates in Hume's *Nests and Eggs Ind. Birds* (2nd ed.), iii., 1890, p. 300; Saunders, *Cat. Birds, Brit. Mus.*, xxv., 1896, p. 101 (part); Blanford, *Faun. Brit. Ind., Birds*, iv., 1898, p. 323; Oates, *Cat. Birds' Eggs, Brit. Mus.*, i., 1901, p. 190 (part).

Sterna anætheta anætheta, Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1921, p. 52; Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), vi., 1929, p. 141.

Malay Name.—Chamar.

Description.—*Adult in breeding plumage.*—Top of head and nuchal crest and a broad loreal stripe from bill to eye, deep black. A superciliary stripe from the bill to above the eye, including the forehead, silky white. The rest of the upper surface and wings, umber-brown, greyer on the mantle, and darker on the primaries; throat, under wing coverts, greater part of outer web of outermost tail feather and half the inner web and the base of the next pair of tail feathers, white; rest of the under surface, white tinged with smoky grey, deepest on a patch on each side of the breast. Inner webs of outer primaries, whitish grey, except towards the tips; shafts, white below, black above.

Adult in winter plumage.—Lores and crown, mottled with white; upper surface, paler and greyer; under surface whiter, with less of the smoky grey tint so evident in breeding birds. Outer tail feathers shorter.

Immature.—With much more white on the crown; lores, mottled greyish brown and white; mantle, wing coverts and secondaries broadly tipped with whitish. Tail darker than in adults, the outer webs of the outer feathers brownish with no white. A dark bar along the inner margin of wing. Under surface, almost pure white.

Nestling.—Clad in brownish down, tipped with whitish, producing a finely mottled effect. Head and throat darker; belly rather paler (Foochow, July).

Soft Parts.—Iris, dark brown; bill, black, occasionally with a grey tip; feet, black.

Dimensions.—Total length, 14 in.; wing, 10.4 in.; tail (including the long tail feathers) up to 7.6 in.; tarsus, 0.75 in.; bill from gape, 2.3 in.

Range in the Malay Peninsula.—Down the Straits of Malacca from Penang southwards; the east coast of the Peninsula from the Inner Gulf of Siam to the eastern entrance of the Straits of Singapore.

Extralimital Range.—From China and Japan to the Philippines and the Pelew Islands in the West Pacific, the Australian Seas and through the Malay Archipelago to the Bay of Bengal. Other races of the species are found throughout the tropical seas of the world.

Nidification.—Some small rocks known as the "Tokong Burong," about 150 ft. high, between the islands of Sri Buat and Tioman, off the coast of Pahang, are frequented by myriads of this tern. Here, on 15th June, Robinson secured a considerable number of incubated eggs, although no young birds were seen. The rocks are almost precipitous, with flat tops, and are covered with a coarse wiry grass growing in isolated tussocks. The eggs are laid singly, underneath or by the side of these tussocks, and take a good deal of finding. In a series of fifteen eggs the ground-colour varies from greenish white to pinky brown, and there is an equally wide range in the character of the mottling, which varies from an almost evenly distributed speckling of dull pinkish brown to bold patches of rich chocolate-brown, either evenly distributed over the shell or congregated at the larger end. In all the specimens there are underlying markings of clouded pinky buff. One egg was almost pure white. Sir W. J. F. Williamson found this tern breeding on rocky islands in the Inner Gulf of Siam in May and June. Of a very large number of clutches only two contained two

eggs. We believe that there is also a breeding place on the Aroa Islands in the Malacca Straits, midway between Selangor and Sumatra, where the birds lay about the end of July. Mr A. T. Edgar found this tern breeding on Fairway Rock, half-way between the islands of Pangkor and Rumbia, off the coast of Perak, in June 1935. There is a large colony on Barren Island, between Singapore and Borneo.

The eggs measure about 1.9 by 1.28 in.

Habits.—Found far out to sea near rocky islets and rarely approaching the coasts. The flight is very swift, light, and graceful, but this species rarely follows ships as do the other terns, though it frequently alights on them at night and is attracted to the light of lighthouses in stormy weather. The food is fish and small surface crustacea. The note is the melancholy scream of the family and is deafening near the breeding colonies, which often number many thousands of birds.

Sterna albifrons sinensis

The White-shafted Ternlet

Vol. I., p. 24.

Sterna sinensis, Gmelin, *Syst. Nat.*, i., 1788, p. 608 (China); Oates, *Birds, Burma*, ii., 1883, p. 430; *id.* in Hume's *Nests and Eggs Ind. Birds* (2nd ed.), iii., 1890, p. 312; H. Saunders, *Cat. Birds, Brit. Mus.*, xxv., 1896, p. 113; Blanford, *Faun. Brit. Ind., Birds*, iv., 1898, p. 320.

Sterna albifrons sinensis, Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), vi., 1929, p. 136.

Malay Name.—Chamar kěchil.

Description.—A small species, wing less than 7.5 in.; shafts of all the primaries white.

Adult in breeding plumage.—Forehead to back of eyes, white, forming a triangular patch, the point directed backwards; crown and a stripe from the eye to the lores, separated from the base of the bill by a narrow white stripe, black; back, rump and wing coverts, pale pearl-grey; upper tail coverts and tail, white. Primaries, darker grey, the outer primary, with the outer web and part of the inner web, blackish, the inner webs of all broadly bordered with white; all the shafts of all the primaries, white; under surface, white.

Adult in non-breeding plumage.—The white on the forehead more extensive and the black of the nape much duller; outer tail coverts and tail mixed with grey, with the outermost tail feathers shorter.

Immature.—Crown, greyish white, mixed with black, a dark grey band on the lesser upper wing coverts.

Soft Parts.—*Adult breeding.*—Irides, dark hazel; legs and feet, yellowish orange; bill, yellow, with a broad black tip. *Adult non-breeding.*—Feet, brownish red; bill, brownish, the black tip discernible. *Immature.*—Feet, dark brown; bill, black.

Dimensions.—Total length, 10 in.; wing, 7.3 in.; tail about 5 in.; tarsus, 0.7 in.; bill from culmen, 1.3 in.; bill from gape, 1.6 in.

Range in the Malay Peninsula.—Along the coasts on both sides of the Malay Peninsula and for some distance up the larger rivers on the east, but not the western side.

Extralimital Range.—Ceylon and the east coast of India, throughout South-East Asia to the Malay Archipelago, Southern Japan and Eastern Australia.

Nidification.—On the east coast of the Peninsula this species breeds after the conclusion of the north-east monsoon, on the sand and gravel banks of the Pahang river and, probably, also on the Kelantan river. Robinson also thought that it bred on the extensive sand-beaches at Tanjong Patani, though he never obtained eggs. The first Malayan eggs appear to have been seen by Messrs G. C. Madoc and V. W. Ryves, who found five nests on a sandbank in the Pahang river near Kuala Bera on 9th June. Mr Madoc has kindly forwarded the following details. The nests were without cover, or protection of any sort, being merely slight depressions in the gravel. In two cases footprints had been used as nesting-sites. The maximum clutch was three eggs. The eggs are medium ovals, sharply pointed at one end. The average size of four is 1.27 by 0.94 in. Mr Madoc describes the eggs of a clutch as olive-brown covered with small lavender and dark brown spots, and a single egg as stone-colour with the spots much larger.

Habits.—This is the only species of tern that is ever found far inland in the Malay Peninsula, being met with for over a hundred miles from the mouth of the Pahang river, as far as there are extensive sandbanks. We have never seen it on the Tembeling river, where the conditions would appear to be the same. In winter it frequents the coast, generally near the shore, where there are muddy flats. It is not a rock tern, and we have never seen it at Tioman or other islands on the east coast. Its habits are those of other terns, and it feeds on small fish and surface crustacea. It rarely swims or settles on the water for any length of time, and does not hover when fishing like some of the larger terns.

Sterna albifrons pusilla

Hume's Ternlet

Sterna pusilla, Temm., *Man. d'Orn.* (2nd ed.), 1840, pt. 4, p. 465 (Java).

Sterna gouldi (not of Reich., 1848), Hume, *Stray Feathers*, v., 1877, p. 326 (North India).

Sterna sinensis, Oates in Hume's *Nests and Eggs Ind. Birds* (2nd ed.), iii., 1890, p. 312 (part).

Sterna minuta, Saunders, *Cat. Birds, Brit. Mus.*, xxv., 1896, p. 116 (part); Blanford, *Faun. Brit. Ind., Birds*, iv., 1898, p. 321 (part); Oates, *Cat. Birds' Eggs, Brit. Mus.*, i., 1901, p. 193 (part); Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1921, p. 53.

Malay Name.—Chamar kēchil.

Description.—Merely differs from the preceding form in having only the

first primary with the shaft white, and that, too, distinctly sullied with brownish towards the base.

Soft Parts.—As in *S. albifrons sinensis*.

Dimensions.—Practically the same size as *S. a. sinensis* or a little smaller. Wing in adults, 6·8 to 7·05 in.

Range in the Malay Peninsula.—Obtained in the Straits of Malacca in considerable numbers between Penang and Selangor from October to March and again in July.

Extralimital Range.—Northern India in the basin of the Ganges and the Brahmaputra and south to Pegu. Apparently wintering in Java. Birds from the Mahanadi and Godavary rivers appear to be intermediate between this race and *S. a. sinensis*.

Nidification.—So far as is known this is not a breeding bird in the Malay Peninsula. In India and Burma it breeds in March and April in the beds of the larger rivers and not on the sea-coast. The clutch seems to be two or three eggs, which are described by Oates as pointed ovals of a pale cream or buff-brown colour, boldly blotched with different shades of brown and with underlying markings of a pale inky purple. Measurements about 1·24 by 0·96 in.

Habits.—As noted above, this ternlet occurs in considerable numbers during the winter months in the Straits of Malacca, but not, so far as is known, on the east coast. Nearly all the birds are, of course, in winter plumage, though two obtained by Davison on 24th March at Jeram, off the Selangor coast, are assuming breeding plumage. Wherever we have met with it, it has been in large flocks, in shallow muddy water.

Note.—Dr C. B. Ticehurst considers that this race cannot be distinguished from *S. a. albifrons* of Europe. On average characters, however, we consider that it is easy to separate birds from the Ganges and Brahmaputra, and from Burma, from European birds, though whether those from the Indus and farther west are identical with *albifrons* or *pusilla*, or different from both, we are not prepared to say.

Sterna albifrons saundersi

The Black-shafted Ternlet

Sterna saundersi, Hume, *Stray Feathers*, v., 1877, pp. 324-326 (Karachi); Saunders, *Cat. Birds, Brit. Mus.*, xxv., 1896, p. 120; Blanford, *Faun. Brit. Ind., Birds*, iv., 1898, p. 321; Oates, *Cat. Birds' Eggs, Brit. Mus.*, i., 1901, p. 194, pl. xiv., fig. 2; Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1921, p. 53.

Sterna sinensis (part), Oates in Hume's *Nests and Eggs Ind. Birds* (2nd ed.), iii., 1890, p. 312.

Sterna albifrons saundersi, Stuart Baker, *Faun. Brit. Ind., Birds*, vi., 1929, p. 138.

Malay Name.—Chamar kěchil.

Description.—*Adult in breeding plumage.*—Lighter grey on mantle and back than in the other two races described above. Primaries all with dark

shafts, the three outer ones with the outer webs and part of the inner webs very black in strong contrast to the rest of the feathers.

Adult in winter plumage and immature.—Differ in the same way from the breeding birds as in the other races. Shafts of the primaries, especially in worn plumage, not quite so dark.

Soft Parts.—*Adult breeding.*—Bill, yellow, black at the tip; tarsi and toes anteriorly and webs, yellowish brown, yellower at back of tarsi and soles (*Ticehurst*). The soft parts of young birds and adults in winter are like those of the other races.

Dimensions.—Rather smaller than *sinensis*; the wing ranges from 6.5 to 6.85 in. in length.

Range in the Malay Peninsula.—Four birds from Penang and the Selangor coast, dated January, July and November, appear to belong to this form, but we are not absolutely certain of the identification. One is young, the July bird is moulting into the winter plumage, and all are a trifle darker grey above than the real *saundersi* from Karachi.

Extralimital Range.—A breeding bird on the coast of Sind and along the Mekran coast; the Persian Gulf; the coasts of Arabia and the Red Sea. Southwards in winter, along the East African coast, Ceylon, Burma, the north-east coast of Sumatra and possibly Java.

Nidification.—Will certainly not be found breeding in Malaya. According to Butler and *Ticehurst* this race breeds at Karachi, laying two eggs in the usual hollow in sand. The eggs are very uniform in colour; ground-colour light buff, sometimes almost warm buff, with small spots and scrolls of dark brown evenly distributed over the whole egg, and with violet-grey secondary markings, which are really primary markings covered by a thin calcareous film (*Ticehurst*). Size about 1.3 by 0.96 in.

Habits.—It is with all reserve that we record this tern as occurring in the Straits of Malacca and on the north-east coast of Sumatra. The real winter quarters of the race are, as Dr *Ticehurst* remarks, not known with any certainty, though specimens which can plausibly be referred to it in winter or immature plumages are known from many localities.

Sterna sumatrana sumatrana

The Black-naped Tern

PLATE 12

Sterna sumatrana, Raffles, *Trans. Linn. Soc.*, xiii., 1821, p. 329 (Sumatra).

Sterna melanauchen, Oates in Hume's *Nests and Eggs Ind. Birds* (2nd ed.), iii., 1890, p. 302; Saunders, *Cat. Birds, Brit. Mus.*, xxv., 1896, p. 126; Blanford, *Faun. Brit. Ind., Birds*, iv., 1898, p. 322; Oates, *Cat. Birds' Eggs, Brit. Mus.*, i., 1901, p. 195, pl. xv., fig. 3.

Sterna sumatrana sumatrana, Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1921, p. 51; Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), vi., 1929, p. 139.

Malay Name.—Chamar.

Description.—*Adult in breeding plumage.*—Forehead and crown, pure white; in front of the eye a black streak narrowing to a point, not reaching the eye; from behind the eye, round the crown a black band, broadening on the nape where the feathers are somewhat lengthened; a white collar on the hind neck, not very distinct. Mantle, back, upper tail coverts and wing coverts, very pale grey.

Primaries, white, with very pale grey centres, the outer web of the outermost blackish; shafts, white; secondaries, more greyish. Tail with the two centre pairs of feathers pale grey, the rest white. Under surface, under wing coverts, axillaries and inner aspects of wing quills, white; the under surface with a very delicate rosy flush which, as in the roseate tern, is very evanescent.

Adult in winter plumage.—Lacks the rosy flush on the lower surface, black in front of eye less defined.

Juvenile.—Crown, white, spotted with black; mantle, scapulars and secondaries with blackish V-shaped, subterminal edging to the feathers; a dark grey band on the inner edge of wing, the coverts near the edge of the wing with dark grey centres. Four outer primaries, dark grey, with a broad white stripe on the inner web extending to the extreme tip of the feather. Tail feathers tipped with blackish.

Soft Parts.—Iris, dark brown; bill and feet, black. Young birds have the tip of the bill greyish, the base brownish yellow; feet, brown.

Dimensions.—Total length, 13.25 in.; wing, 8.6 in.; tail, 5.5 in.; tarsus, 0.7 in.; bill from gape, 1.9 in.

Range in the Malay Peninsula.—Along the coasts from north to south.

Extralimital Range.—As a species, the tropical and subtropical parts of the Indian Ocean, south to Madagascar, east to Australia; the Central Pacific; coasts of South China and the Liu Kiu Islands. Within this range several subspecies have been named.

Nidification.—The Malayan race breeds from May to August, laying one or two eggs on small islands, often only three or four feet above high-water level. The eggs are extremely like those of the Panayan tern but are not very variable, the differences being mainly in the size and tint of the olive-brown blotches. Eggs from Pulau Aor in the Tioman group measure about 1.64 by 1.12 in. In the Andaman Islands the clutch may be either one or two, and on the small islands in the Inner Gulf of Siam about half the clutches are said to consist of two eggs.

Habits.—In Malaya this very active and beautiful tern is usually a blue-water bird, very common round the rocky islands off the east coast of the Peninsula and also in the neighbourhood of the Langkawi and Terutau Islands off the west coast. At times it is seen inshore, usually in the winter months. The habits are those of the roseate tern, with which it associates, though in most localities it is a much commoner bird than that species.

The birds figured (half natural size) are an adult female from Koh Pennan, off the north-east coast of the Malay Peninsula, 23rd May 1913, and an immature female, collected at the Horsburgh Lighthouse, thirty-three miles due east of Singapore, on 13th October 1921, by Mr P. M. de Fontaine.

*Anous stolidus pileatus***The Philippine Noddy**

Sterna pileata, Scopoli., *Del. Flor. et Faun. Insubr.*, ii., 1786, p. 92 (Philippine Islands).

Anous stolidus, Oates in Hume's *Nests and Eggs Ind. Birds* (2nd ed.), iii., 1890, p. 315; Saunders, *Cat. Birds, Brit. Mus.*, xxv., 1896, p. 136 (part); Blanford, *Faun. Brit. Ind., Birds*, iv., 1898, p. 325; Oates, *Cat. Birds' Eggs, Brit. Mus.*, i., 1901, p. 197 (part); Robinson and Kloss, *Journ. Nat. Hist. Soc. Siam*, v., 1921, p. 53.

Anous stolidus pileatus, Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), vi., 1927, p. 145.

Malay Name.—Chamar hitam.

Description.—*Adult.*—Top of the head, white; the occiput tinged with lavender-grey; the nape, plumbeous grey; lores and a stripe above the eye, black; a small patch beneath the eye and a spot under it, white. Mantle and back, brownish, with a faint pearly grey wash; tail feathers the same, but darker towards the tips; wing coverts like the back, but mostly browner. Primaries, blackish; quill lining, under wing coverts and axillaries, dull brownish lead-grey. Beneath, sooty brown. Sides of the head, throat and upper breast, dark lead-grey tinged with purplish brown.

Immature.—Much browner above, without the pearl-grey sheen; throat uniform with the breast and belly. Wing coverts, a richer brown with faint pale edges, those on the inner margin of the wing darker, forming a blackish stripe.

Juvenile.—Browner still. The white on the head restricted to a narrow superciliary line; bases of the feathers of the nape and mantle, pure white. Black of lores less deep.

Nestling.—Uniform sooty brown, soon acquiring a white line above the lores.

Soft Parts.—Iris, brown; bill, black; feet, dark brown; claws, black.

Dimensions.—Total length, 16.5 in.; wing, 10.75 in.; tail, 6.5 in.; tarsus, 1 in.; bill from gape, 2.25 in.

Range in the Malay Peninsula.—Actually within our limits this noddy is known from two specimens only, a very young bird, obtained near Penang by Dr Cantor, now in the British Museum, and a very nearly adult male, obtained by Mr E. Seimund on Pulau Jarak, in the middle of the Straits of Malacca, on 16th November 1919, when many others were observed.

Extralimital Range.—As a species the noddy is found throughout the tropical oceans, breeding on small islands. It has been divided into a number of subspecies. The typical form occurs in the Atlantic, and names have been applied to races inhabiting the Red Sea; Madagascar, Mauritius, etc.; the South Pacific Islands; the West Pacific Islands; the Pacific coast of Mexico; Australia. There is some difference of opinion concerning the status of these races, but the Malayan race (*pileatus*) can perhaps be regarded as extending

along the China coast from the Japanese islands, south through the Philippine Islands to Australia, Norfolk Island and the South Pacific. Also in the Nicobars, Laccadives, Seychelles, Andamans, and perhaps even in Madagascar.

Nidification.—In Malaysian and neighbouring seas breeding colonies of this race are known in the Paracel Islands, off the coast of Annam; in the Inner Gulf of Siam; in the Tambelan Islands; and on Barren Island, half-way between Singapore and Borneo; on islands in the Sulu Sea; on Christmas Island in the Indian Ocean and in the Keeling atollon farther to the west. Robinson also thought that the bird bred on Pulau Perak, a naked rock, some seventy miles from Penang, but the fact has not been definitely ascertained. Sometimes the single egg is laid on the bare rock, but in some colonies a rough nest is made. In Christmas Island the bird nests on ledges of the sea-cliff. In Malaysia most eggs are laid in May and June—that is, soon after the beginning of the fine season or dry monsoon. The egg is “whitish as a rule, very sparingly spotted with dark brown and pale purple, and measures about 2.08 by 1.38 in.” (*Blanford*).

Habits.—Very rare on Malayan coasts, this noddy is a bird of the open sea, often apparently roosting at night on floating timber, etc., but also often on the wing at night. The flight is described as much less buoyant than that of the true terns.

Note.—The varying plumages of the noddy are not yet thoroughly understood, but it would appear that the fresh breeding plumage, on which there is a pearly grey wash on the upper surface, is only retained for a very short time, and that non-breeding birds are darker and sootier above and below.

Anous minutus worcesteri

The Philippine White-headed Noddy

Micranous worcesteri, McGregor, *Philippine Journ. Sci.*, vi., 1911, p. 183 (Cavilli Island, Sulu Sea).

Micranous leucocapillus (part), Saunders, *Cat. Birds, Brit. Mus.*, xxv., 1896, p. 145.

Anous leucocapillus (not of Gould), Blanford, *Faun. Brit. Ind., Birds*, iv., 1898, p. 326.

Anous minutus worcesteri, Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.), vi., 1929, p. 147.

Malay Name.—Chamar hitam.

Description.—Head, greyish white with a slight lavender tinge; nape and mantle, dull grey; back, rump, wing coverts and secondaries, sooty brown; tail coverts, darker. Tail feathers, greyish brown, darker on the outer feathers and at the tips. Primaries, blackish, the shafts pale brown towards the base; quill lining, greyish; under wing coverts and axillaries, sooty brown. Lores and a narrow stripe over the eye, deep black. Feathers round the eye, whitish. Ear coverts, dark grey. Beneath, deep sooty brown, darker on the chin and throat.

Immature.—Pale sooty brown above and below, with darker, ill-defined bars and paler edges to the feathers; tail feathers with a darker tip, preceded by a narrow, pale brownish edging.

Soft Parts.—Bill, black; tarsus and toes, dark reddish brown; nails, black (*McGregor*).

Dimensions.—Wing, 8.45 in.; tail, 4.7 in.; culmen, 1.5 in.; tarsus, 0.8 in.

Range in the Malay Peninsula.—Known only from a single adult female collected by Dr Maingay off Malacca in August 1865 and now in the British Museum.

Extralimital Range.—The species as such is practically cosmopolitan in all tropical and subtropical seas. The subspecies to which we have tentatively referred the above bird was described from a breeding colony on Cavilli Island in the Sulu Sea, and appears to occur off the North Bornean coasts also. Two skins from near Minicoy and between Ceylon and the Nicobars are larger in the bill and much darker on the mantle, back and tail than the specimen described above. Possibly they come from a breeding colony in the Laccadives.

Nidification.—According to *McGregor*, the nest of this race consists of a mass of leaves, with little or no depression for the egg and about 4 in. in diameter, built on the branch of a tree. A single ripe egg obtained at the end of September was dull white with a few large spots of burnt-umber about the larger end. The egg measures 1.84 by 1.08 in.

Habits.—Terns of this genus are all oceanic birds breeding on small islands or reefs, and rarely seen near land except during the breeding season or in stormy weather.