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## THE BIRDS OF SOUTH-WEST AND PENINSULAR SIAM,

BEING AN ACCOUNT OF THE BIRDS OF SIAM FROM THE HEAD OF THE GULF OF SIAM TO THE MALAYAN BORDER, WITH REFERENCES TO THE RECORDED OCCURRENCES AND A KEY TO THE INDIVIDUAL SPECIES.

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AND

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(With a map).

### *INTRODUCTION*

By Herbert C. Robinson.

The Kingdom of Siam from a zoological point of view contains such a mixture of different faunas that, unless dealt with in the most elaborate detail, any general list of its avifauna will convey little of zoogeographical value. In the extreme south its fauna is almost exclusively Malayan. Further north, to the west of the Chao Praya river, it is identical with that of Tenasserim, while that of the N.W. and the neighbourhood of Chiengmai approximates to the dry zone of Burma and the Shan States. The extreme N. and N.E., which are least known, probably contains a certain proportion of Yunnanese birds. The central and eastern portions of the Kingdom are the only areas which contain forms that may be claimed as distinctively Siamese, and, with a few notable exceptions, these forms are not strongly differentiated. The fauna of S.E. Siam, as shown by the collections made by one of us, is, as might be expected, largely Cambodian and French Indo-Chinese. (Ibis 1915, pp. 718–761).

It will therefore be found that the total number of species of birds found in Siam will vastly exceed the corresponding lists for the Malay Peninsula, Burma, and other surrounding countries, and will probably be not much less than 1,200–1,300 species. Of late years much ornithological work has been done in Siam by Williamson, Gairdner, Herbert, Gyldenstolpe, Eisenhofer, Barton and ourselves, and a considerable amount of literature on the subject has been published. No exhaustive faunal and regional lists have as yet been issued, with the exception of a List of the Birds of Bangkok by Williamson [1], and a general list of the Birds of Siam by Count Nyls Gyldenstolpe [2], and we have therefore thought it well to publish a full and detailed account of the birds of S. W. and Peninsular Siam, which we have defined as the portion of Siam south of the head of the Gulf of Siam. As regards Peninsular Siam—that portion of the country south of the Isthmus of Kra or Pakchan river—we can claim that our list is almost complete: excluding whatever new forms may be found in the Nakorn range, no new additions are likely to be made other than casual migrants, small owls and frogmouths, and other nocturnal birds whose capture is always a matter of chance, and common southern Malayan birds of which actual specimens, for some reason or other, may not be in the possession of our own or other museums. For the northern portion of the area, from the Gulf of Siam to the Pakchan river, i. e., S. W. Siam, we do not claim any such completeness, though even in this section we do not think that the number of species that will ultimately be added to the list will prove large or of great importance.

Some statement may be given as to material on which this paper is founded. Since 1901 one or other, or both of us, as well as parties of the collectors attached to the F. M. S. Museums, have collected over the southern portion of the area, and the collections made have numbered several thousand skins. A considerable number of these are in the British Museum (Nat. Hist.), South Kensington, and a few at Tring, but the bulk remain with us and must outnumber very

1. Journ. Nat. Hist. Soc. Siam, vols. i and ii.
2. Ibis, 1919.

many times all other collections made in the area. We have also had the advantage from time to time of examining collections made by Mr. Williamson and Mr. Herbert and their collectors, but the number so dealt with has not been large.

A word is necessary as to the general plan of the paper. From considerations of expense and time it has not been thought necessary or desirable to list all the specimens examined of every form included by us. Only those specimens, therefore, some 1500 in number, which were collected on our last expedition from January–April 1919, are listed. These specimens were all carefully measured in the flesh, which has not been the case with previous collections. The dimensions given are in the same order as the specimens are listed in.

As our publication is intended to be exhaustive to date, it has been thought desirable to give as fully as possible all records of occurrences in the area. Synonymic and taxonomical references are as far as possible omitted. As articles on the area are few in number, but have constantly to be referred to, it has been found to be a saving of space to denote each by a capital, A. B. C., etc., after the first.

The full references of the whole series are printed at the foot of each page. We have adopted this ingenious plan from Mr. Stanley Kemp's "Catalogue of the Scientific Serial Publications in the Principal Libraries of Calcutta." (Calcutta, 1918).

In a certain number of cases where we are convinced that a form *must* occur in the area, though it has not been recorded, we have added it to our list. Such species are distinguished, apart from any context, by having no serial number attached. ?

It is hoped that the keys may be of use to those wishful of identifying birds from this region. There are, as a rule, so few species to each genus that it has been found simpler to combine the keys into one for each family: it must be understood that these are strictly artificial and will only work against the species in our list. It has been found undesirable to attempt to provide primary keys for the orders and families. These it is hoped will not be found necessary, it being presumed that the majority of persons into whose hands this

publication is likely to fall will have some slight knowledge of ornithology. We have as far as possible made use of trinomials throughout. In those cases in which binomials appear, it is not because we are assured that a species does not vary, but merely because we are not in a position to decide whether such is, or is not, the case. Nor are we yet prepared to subscribe to the theory that identical subspecies may occur in widely separated localities between which other forms occur. It is true that, especially in the case of certain South Indian and Malayan forms, there are cases that appear to support this theory, but diligent examination will generally disclose points of difference, even if extremely slight, which are generally constant. Similar anomalies occur among certain bats and lemurs inhabiting islands on opposite sides of the Malay Peninsula.

We have been conservative in the matter of genera and have not adopted several recent emendations, though we confess we have no logical defence for not doing it.

We have described elsewhere [1], on admittedly slight grounds, certain new forms that have occurred to us in the writing of thie paper and have, as it may appear to some people, possibly unreasonably, questioned the reality of others already described; but in all cases we have given our arguments.

It is hoped that the map accompanying this paper will prove useful, while the following short description of some of the principal collecting stations, as visited by us, may prove of interest (see also Journ. Fed. Malay States Mus. x, Part 2, 1920, pp. 66-80).

*Places visited on the Present Expedition: January 28—April 28, 1919.*

PULAU MOHEA OR PULAU TUPAI.

A twin island with a shallow and narrow dividing strait. The western island rocky and with tall cliffs to the south and west: the eastern island lower and more flat. Both islands heavily timbered in places. Situated on a coral bank of small extent in 20–25 fathoms, about 20 miles off the coast of Trang. Very dry, with water-courses dried up at the time of our visit, though there is said to

1. Journ. F. M. S. Mus. x, part 3, 1921, pp. 203-213.

be a waterfall from the top of the western island to the sea in wet weather. General formation, sandstone.

We obtained little of interest: a new form of dwarfed *Sciurus caniceps*, with representative races on each islet; green pigeon, *Muscadivores aenea*, *Caloenas nicobarica*; two species of sunbird; and a mangrove flycatcher; while we saw crows and sea-eagles and heard a hawk-owl. We stayed here two nights.

KOH PIPIDON.

A limestone island in Ghirbi Bay, near Puket, about ten miles from the shore, the eastern side fairly flat and covered with heavy jungle amongst which immense Aroids, 12–18 ft. high *(Colocasia)*, were growing. The western side, a magnificent crag of variegated greyish limestone almost marble in parts: on this crag the vegetation was interesting but little was in flower. We noticed some large *Dracaenæ*, *Euphorbia quadrangularis* and masses of the huge orchid, *Stauropsis gigas* Bentham.

We obtained little of interest—a new squirrel, a bat or two and a few common birds; and noted, but did not obtain, two species of *Collocalia* and *Hirundo badia*.

JUNK SEYLON or PUKET or TONGKA.

Three hours steam from Koh Pipidon. On the present occasion we stayed three days coaling and taking in water, which was bad and hard to obtain; but did not collect, as the island had been thoroughly worked by a party of ours the year previously. We noted vultures in numbers *(Pseudogyps bengalensis)* feeding on offal in the town, and one or two King Vultures *(Otogyps calvus)* outside the actual town.

PANG-NGA OR PUNGA.

On our way north we visited Pang-nga, at the head of the bay, and some miles up a muddy river lined with mangrove and dotted here and there with limestone rocks. The town is picturesquely situated between tall limestone cliffs, with a clear rippling stream running between, but had recently been burnt down. On its outskirts was a cool and shady Wat or Siamese temple.

On our way north we passed through the straits separating

Tongka and the mainland, only two hundred yards wide and, according to the Admiralty Sailing Directions, reported to have a bar dangerous even to small craft such as ours, drawing little more than six feet of water. On this occasion the passage proved simple and we could have easily piloted our boat out ourselves, instead of, as it turned out, wasting an unnecessary and exorbitant fee on an ancient and decrepit Chinaman who took us over the shallows.

TAKUATUNG.

Our next stop was at Takuatung, a deep and sheltered inlet, where we collected on a hilly cape forming the west side of the inlet, the eastern shore being a long sweep of dazzling white sand, edged with noble casuarinas, while further inland the shores of the inlet degenerated into mangrove swamp. We stopped a couple of days and obtained two species new to the Malay Peninsula proper, viz, *Pericrocotus peregrinus* and *Palæornis fasciata*. Mammals were scarce and uninteresting.

TAKUAPAH.

Some miles up the coast from Takuatung is Takuapah, another deep inlet. It has three entrances, but only the northernmost is safe and practicable at all seasons, the two other having dangerous bars, especially in the S. W. monsoon. About thirty miles up the inlet and some miles up the small river, navigable to small steamers, lies the mining town of Takuapah, capital of the province of the same name which exports a considerable amount of tin.

We stopped for three days in the inlet, to the north of an island which forms what is marked as Kopah Head on the charts, and anchored next further up the inlet at Koh Rah, a small eminence surrounded by mangrove and, further inland, *Melaleuca* trees. We obtained nothing of great interest in the inlet.

KOH YAM YAI AND KOH YAM NOI.

Leaving Takuapah we spent a night in the channel between these two islands, about 2 miles in extent, marked on the chart as the "Sugar Loaves." Nothing was obtained except Myna birds, *Gracula javana*, and Imperial pigeon, *Muscadivores aenea*, though other birds exist.

DE LISLE ISLAND.

Really one of the Mergui Archipelago; a large island five or six miles square of undulating surface higher to the S. and W. We anchored about the centre of the northern coast and spent a day collecting, the most interesting bird obtained being the Stone-plover *(Esacus magnirostris)*, previously obtained by Kloss in another of the Mergui group and by myself in Bintang, Rhio Archipelago; but not hitherto obtained within the limits of the Malay Peninsula. We also trapped a form of *Rattus vociferans* which we had not obtained on any of the smaller islands to the southward.

RENONG RIVER.

After a tortuous course of a few miles through narrow channels, with strong tides, which caused us some anxiety (as the pilot, whom we had brought from Penang, but had not had occasion to use hitherto, inspired us with no confidence; the few accidents that had happened to us in the last few years cruising in these little-charted waters having invariably taken place while the boat was in charge of one of these native gentry), we arrived at Renong anchorage, a small and inconvenient one, in very shallow water between a small islet and the mouth of the river which, at low tide, is reduced to a dirty ditch. A broad mud-bank was between us and the shore.

We spent three or four days at Renong river, during which time our men collected on a small patch of hilly jungle at the north of the river, but obtained nothing of great interest. In the meantime we were transacting necessary business with the Siamese Governor of the province, residing at Renong, some miles up the river. This town is of considerable importance as a supply centre for several large and prosperous tin dredging concerns—mostly Australian—which are working in the vicinity.

We had here to arrange for firewood, which was dear and difficult to obtain: for water, which was exorbitant in price and abominable in quality: and for a pilot for the Pakchan, which in its upper course is encumbered with sand banks and rocks.

On the present occasion, more by good luck than knowledge, the man whom we obtained through the Harbour Master, Renong,

conveyed us without grounding more than once or twice as far as the Amphur's headquarters of Namchuk, beyond which he professed unable to go.

### Victoria Point.

During our stay at Renong we visited, on two occasions Victoria Point, about 5 miles across the estuary. Victoria Point is the southernmost station of Burma, and is, or used to be, the headquarters of an officer of the Burma Commission, but since the war has been in charge of a Sub-divisional officer. There is a small wireless station at the top of the hill, which we visited. Since the working out of the Pearl beds, and the cessation of mining at Malewon, there is little activity of any kind in the place, and hardly anything is to be obtained in the way of stores. A little Para rubber is planted in the neighbourhood, notably on Victoria Island opposite the settlement.

### Namchuk.

We left Victoria Point at about 10 a.m., and after one or two difficulties with shoals arrived at Namchuk, which is the seat of an Amphur or district officer, at about 4.30. Here we found the local population busy tidying up the place in preparation for a visit from the Lord-Lieutentant of the province, who was expected on a tour of inspection on the morrow. The neighbourhood of Namchuk is open country, mainly ricefields and village lands, but we obtained a few interesting birds including the rare eagle, *Spizaetus nepalensis*, and the beautiful harrier, *Circus melanoleucus*.

Next day, as our pilot professed to be unable to take us further, we took the boat and prospected the river up to Tapli, distant about 10 miles, and found ample water as far as the foot of a small hill called Mamoh, though the depths were variable and there were rocks in mid-channel. We started next morning on the rising tide and reached Mamoh safely, though not without a nasty bump over a flat rock which put our hearts in our mouths, but fortunately did no damage to our lightly-scantled craft.

### Mamoh.

There is a small hill here with patches of evergreen jungle, on which we collected for a few days while re-sorting our outfit and mak-

ing ready for our land journeys, as we had decided to send back the launch. We got but little at Mamoh.

TAPLI.

We accordingly moved on to Tapli, the terminus of the road across the Isthums of Kra, where we met the Lord-Lieutenant who treated us with great courtesy. Here we found quarters in a large hard-wood house built originally for the King of Siam when travelling across the Peninsula.

We stayed at Tapli longer than we anticipated though we obtained a few species that we were anxious to possess from this area, notably the broadbill, *Serilophus lunatus*, and a specimen of the long-billed partridge, *Rhizothera longirostris*. After some difficulty we secured ten elephants, the only method of transport in this district, but we had loads for twenty, so that our men and equipment had to leave for Tasan, our next stopping place, distant about twelve miles and slightly on the eastern side of the Peninsular divide, in two detachments.

Compared with Indian and Burmese elephants, we had always been accustomed to consider the Malay elephant, as used in the north of the Federated Malay States, a poor and inefficient baggage carrier. An average animal can, however, be expected to carry a load of four to five pikuls* and do twelve to fourteen miles a day over ordinary country. The same is true of Patani and Bandon animals, though the howdahs and panniers are inconvenient for carrying light and miscellaneous loads.

The local elephants, mostly from the province of Chumpon, were inferior creatures, with cranky and ill-devised panniers. Their mahouts protested vigorously if they were expected to carry more than 1½–2 pikuls, and I do not think there was one that took as much as three. Their only merit was that they would do a fairly long day's march.

For the last three years a cart road has been under construction from Tapli (which is the highest navigable point on the Pakchan, for boats of moderate draught), to Chumpon on the Bangkok railway. The total length of the road is about 36 miles and the earth-

* 1 pikul = 133⅓ lbs. av.

work is now complete, while the road is also metalled in parts. Except for the fact that the bridges are temporary and much below the general level of the formation, the road would even now be available for light motor cars in dry weather. For the last few months the work had been under the supervision of the Siamese Department of Ways, but it seems doubtful when the road will finally be open to traffic. The route practically follows the line of the Kra ship-canal—a project much mooted in the first half of the 19th century. Though the summit level is low, less than 300 feet, the country is very rugged, and it does not require the eye of an engineer to see what a stupendous undertaking a sea-level canal would be, rivalling even the Panama Canal, while lack of adequate water would probably render a lock system impossible. The idea, however, has long entered the limbo of forgotten and chimerical projects and is not likely ever to be renewed.

From Tapli the road follows the river to the village of Pakchan through rice fields, a distance of some 2½–3 miles. It then leaves cultivation and runs for some miles through dry, thorny and deciduous jungle, lacking in interest, until it reaches a narrow gorge, with a pleasant little stream purling through it, where the vegetation is more of an evergreen character. This is maintained to the summit level, about ten miles from Tapli, and on to Tasan about a mile further.

TASAN.

Tasan, which is in the province of Chumpon and outside the Monthon of Puket in which we had hitherto been working, is pleasantly situated among low hills covered with evergreen forest at the confluence of two clear-water streams, and had been made his headquarters by the Engineer-in-charge of the road, who courteously assisted us in many ways. Here, by the banks of the lesser stream, in the shade of some large trees, we established a camp which was cool and pleasant and free from intrusion. We collected many interesting species of birds, mammals and reptiles, including the rare warbler, *Tribura*, the clouded leopard, *Felis nebulosa*, and the most northerly known specimen of the long-nosed squirrel, *Rhinosciurus*,

while we added the reptilian genus, *Tropidophorus*, a scink of semi-aquatic habits, to the fauna of the Malay Peninsula.

After exhausting the possibilities of this place we moved on to Chumpon, encountering the same difficulties about transport as we had from Tasan, but this time in an accentuated degree, as the distance to be traversed was greater and, as before, we had to use two detachments.

We ourselves and most of our men walked, and though the distance, 22 miles, was comparatively trifling, we all agreed that we had seldom undertaken a more trying march. The first few miles, through open and semi-deciduous forest in the early part of the day, was pleasant enough, but the last twelve or thirteen miles was through open country, utterly without shade, over a somewhat sandy road, in a temperature that approached, if it did not exceed, 100° F. We were never more delighted than when we saw in the distance the big iron girder bridge that carries the railway over the Chumpon river. We arrived at the Chumpon rest-house utterly exhausted.

### Chumpon.

Chumpon is a considerable town, the head-quarters of a province and the seat of a Governor. It is situated in the middle of a large plain with some low, lalang-covered hills to the north and about 5–6 miles from the sea. The population in the vicinity, which is pure Siamese unmixed with Malay, appears fairly dense and is devoted to the cultivation of rice. As everywhere in Siam, a large proportion of the petty traders are Chinese or Indian, and there are a good many Chinese fishermen at the river mouth.

We remained here two or three days, sending back such of the collections as were dry, to Kuala Lumpur in charge of one of the men who had fallen sick.

We also called on the Governor and made arrangements through him for our accommodation at Koh Lak, a sea-side place some 100 miles to the north, which was to be our next collecting station. We did no collecting at Chumpon, but through the kindness of Mr. Daniels, the Section Engineer, who was very hospitable to us, we obtained the *remains* of a hare, which registers the southernmost limit of *Lepus siamensis*.

Through the courtesy of the Governor we made an excursion by motor boat to the river mouth, which is a large fishing centre. At the time of our visit not much work was being carried on, but the methods consisted of seines of various kinds, dip-nets and fish-traps, several of widely different kinds from these used in Malaya. The rail from Chumpon to Koh Lak (now called Prachuap Kirikan) runs through fairly varied country, but in this region, comparatively near the coast, we had entirely left evergreen forest, which only exists on the higher slopes of the hill ranges forming the boundary of Siam and Lower Tenasserim. Much of the country was undulating low hills, covered with lalang and other coarse grasses, but as the time of our visit was approaching the end of the dry season, everything was much burnt up and desiccated. Elsewhere was flatter country covered also with coarse grass or large patches of scrub, amongst which a tall and uncommonly thorny bamboo was extremely prominent. Occasionally we passed isolated and precipitous limestone hills arising abruptly from the plain and which, while the line was being built, formed a most convenient source of ballast. In places there were small fields of rice and buffalo-grazing lands, but the general aspect of the country, with the exception of the district round Bangtaphan, was one of great poverty and desolation.

Tradition has it that in the early part of the 19th century one of the terrific storms, which on rare occasions visit this coast, blew down much good forest that originally grew in the district. This destruction was accompanied by fires from which the land never recovered and, owing to the denudation during wet season, has progressively deteriorated ever since. Much of the country, however, looks as if it might be at least as well adapted for stock raising as parts of tropical Australia, in which that industry has been found successful.

### Koh Lak.

On arrival at Koh Lak we were met by a representative of the Governor and inducted into quarters in a pleasant little house on the beach. These we occupied for some days, but had to vacate on the rumours of the arrival of personages from Bangkok, who,

however, never eventuated. The substitute quarters, though not so comfortable or well situated, served our purpose sufficiently well. Koh Lak, or Prachuap Kirikan as it is now officially called, is a large sandy bay with rocky limestone headlands or islands connected to the shore at each end. Behind are saltings, low thorny scrub and a certain amount of mangrove beyond the bay.

The place is much used as a watering place by the princes and noblity from Bangkok and is often crowded.

We stayed here nearly a fortnight and made large additions to our collections, including some interesting squirrels, a *Lepus siamensis* and, among birds, 2 species of jacana and a large series of a little *Gerygone* on which a new species had been erected by Count Nils Glydenstolpe. Very little fishing appeared to be done in the bay, and food of all kinds was dear owing to the number of visitors, while the quality of the water was indifferent.

HAT SANUK.

After our stay at Koh Lak we decided to move a few miles into the interior to a place called Hat Sanuk, which had been visited by Count Nyls Glydenstolpe and which was reported to be a good collecting ground. The usual difficulties about transport occurred, but eventually we received fourteen of the local country carts drawn by bullocks or buffaloes.

The track led at first through saltings liable to be inundated in the wet season, then through open country studded with clumps of thorny bushes and, in places, through a dry and stunted jungle. Everything was parched and dried up, and the rough track was inches deep in a fine impalpable dust that was raised in clouds by the carts, and made walking in their vicinity very disagreeable. Towards noon we reached a small village surrounded by groves of thorny bamboo, through which a pleasant little stream ran. Here we had to stop four hours as the draught cattle cannot work during the middle of the day in the hot season.

The route then led through open grassy country with scattered trees (some, of a very beautiful species of *Lagerstroemia*), and clumps of bushes, and eventually entered true jungle, through which

we passed for some miles, eventually reaching Hat Sanuk at dusk.

Our bullock-cart drivers had evidently taken us by a very circuitous route, hoping to make a two days journey. The forest in which Hat Sanuk is situated is, to those used to the Malayan equatorial jungles, of very peculiar type. On the higher ridges and dryer parts it is in the main composed of two trees only :— a stumpy holly-like tree, *Balanostreblus ilicifolia* and *Euphorbia quadrangularis*. Near the water courses there was an abundance of big trees, chiefly species of *Ficus*, but we noticed no, or hardly any, *Dipterocarpaceæ*, which are the characteristic feature of virgin jungle in the dryer parts of the Malayan lowland forests. The tops of the trees were in places covered with the long trailing pseudo-bulbs and flower-spikes of the beautiful orchid, *Vanda teres*, of which thousands of blooms could have been plucked in a few minutes. Less common, but still abundant, was the scarlet *Renanthera coccinea*, and another species of the same genus with yellow, brown and white petals.

We camped for some days at Hat Sanuk near a sluggish stream of indifferent water which was rapidly drying up. Many interesting species of birds were obtained, including several new records for the country. Perhaps the most interesting was a silver pheasant, *Gennaeus n. sharpii*, of which we were unfortunate in only obtaining the female. Dry weather made stalking of any kind impossible and the pheasants were very shy.

Big game, including elephants, rhinoceros and wild cattle, as well as pig, sambur and barking deer, were abundant in the district, and game tracks ran in every direction.

After Hat Sanuk the time we could spare for field work expired, and we made the best of our way back to Kuala Lumpur, stopping a couple of days at Singora which, in its way, is one of the most beautiful places in the Malay Peninsula.

Throughout the trip, from leaving Penang on January 30th to our return to Kuala Lumpur at the end of April, we had no rain with the exception of a few showers passing through Koh Lak on our return. The heat was intense, and in the Pakchan river, where however it was mitigated by dense white fogs, which lasted sometimes as late as 8.30 a.m., it quite prostrated some of our Malay crew.

The result of our work shows that, so far as Siam is concerned, the Malayan fauna stops short at the Pakchan river, whence, at low levels northward, it is purely Indo-Burmese. What the fauna is on the high dividing range between Siam and Tenasserim, which in places reaches 5,000 feet, we are unable to say; but from a distance the range does not look heavily forested. Possibly it may contain forms identical with those of Nwalabo and Muleyit, possibly more southern forms; but everything is necessarily pure conjecture.

In Tenasserim, on the other hand, the Malayan fauna continues almost undiluted as far as Tavoy. Its greater extension on this side, it is perhaps trite to remark, is evidently connected with the persistence of evergreen forests which, again, is due to the apparently much heavier rainfall on the western than on the Siamese side.

### Other Localities.

In the various papers on collections made by us in this region, references to which will be found in the bibliography, brief accounts will be found of the various collecting stations, which are not specifically mentioned in the proceding pages. We do not think it necessary to repeat these accounts.

## GALLIFORMES.

### Game Birds.

1 { With three toes only ... ... ... 2
  { With four toes ... ... ... ... 3

2 { Breast barred across... *Turnix pugnax plumbipes.*
  { Breast uniform in centre ... *Turnix tanki blanfordi.*

3 { Large birds, wing 13 inches or over ... ... 4
  { Medium sized birds, wing 12–18 inches ... ... 5
  { Small birds, wing 8 inches or less ... ... 9

4 { Crested; upper tail-coverts forming a train exceeding the tail feathers in length *Pavo muticus.*
  { Not crested; tail coverts normal ... *Argusianus argus.*

5 { With metallic ocelli in the plumage ... ... 6
  { With no metallic ocelli ... ... ... 7

6 { Greyer, with no metallic sheen on crest *Polyplectron bicalcaratum.*
  { Browner, with metallic sheen on crest *Polyplectron malaccensis.*

7 { Head uncrested ... *Gallus ferrugineus ferrugineus.*
  { Head crested ... ... ... ... 8

8 { Without wattles ... *Gennaeus lineatus sharpei.*
  { With wattles ... ... *Lophura rufa.*

9 { Crested ... ... *Rollulus roulroul.*
  { No crest ... ... ... ... 10

10 { Legs of the male armed with a spur ... ... 11
   { Legs of the male spurless ... ... ... 13

11 { Hind toe with a claw ... ... ... 12
   { Hind toe with a small nail only *Caloperdix oculea.*

12 { Throat rufous ... ... *Rhizothera longirostris.*
   { Throat white ... ...*Francolinus pintadeanus.*

13 { Tail with 14 feathers, exceeding the tail coverts ... 14
   { Tail with 8 feathers, concealed by the coverts *Excalfactoria chinensis.*

14 { With the patch of silky feathers beneath the wing, white 15
   { With the patch of silky feathers beneath the wing, grey *Arboricola brunneipectus.*

15 { With marked chestnut neck-patch and black post-auricular patch ... *Tropidoperdix charltoni.*
   { With no marked chestnut neck-patch and black auricular patch ...*Tropidoperdix chloropus.*

### 1. Francolinus pintadeanus (Scop.).

*Tetrao pintadeanus*, Scop., Del. Flor. et Faun. Insubr. ii, 1786, p. 93 (Bourbon); Oberholser, Proc. Biol. Soc. Washington, 32, 1919, p. 21.

*Francolinus chinensis*, G., p. 151 (Ratburi and Petchaburi).

The above citation by Gairdner, without any details of exact locality of specimens obtained, is the only authority for the occurrence of the Francolin within the limits now dealt with. In Tenasserim it only occurs in the extreme north, but is apparently not uncommon near Bangkok, though whether the bird is really wild there is strongly queried.*

This is the species known hitherto as *Francolinus chinensis* — a name which Oberholser has shown to be untenable.

### 2. Rhizothera longirostris (Temm.).

*Perdix longirostris*, Temm., Pig. et Gall. iii, 1815, pp. 323, 721 (Sumatra).

*Rhizothera longirostris*, Inglis, Journ. Nat. Hist. Soc. Bombay, xxvi, 1918, p. 291 (Bokpyin, S. Tenasserim); M.1, p. 35 (Patiyu).

♀. Tapli, Pakchan Estuary, Peninsular Siam. 9 March, 1919. [No. 4528].

"Iris chocolate; bill black; feet pale whitish yellow."

Total length 370; wing 195; tail 85; tarsus 54; bill from gape 33 mm.

This bird was shot in dry bamboo jungle and is the second record for the kingdom of Siam, though it is doubtless common in Patani. It agrees exactly with birds of the same sex from Selangor and Pahang. The northernmost record is the specimen recorded above from S. Tenasserim.

### 3. Tropicoperdix charltoni (Eyton).

*Perdix charltonii*, Eyton, Ann. and Mag. Nat. Hist. xvi, 1845, p. 230 (Malacca).

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*We are now of opinion that Williamson's entry of this species in his "Preliminary List of the Birds of Bangkok" was incorrect, and that the bird does not occur in the neighbourhood of Bangkok in a really wild state. *Vide* Vol. i, pp. 47 and 120 of this Journal.—Eds.

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**I.** Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
**J.** Robinson, Journ. F.M.S. Mus. vii, 1917.
**K.** Kloss, Ibis, 1918.
**L.** Robinson and Kloss, Journ. N.H. Soc. Siam, iii, 1919.
**M.** Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker, Journ. N.H. Soc. Siam, iii, 1919. (second part).
**M. 1.** Baker, Journ. N.H. Soc. Siam, iv, 1920. (third part).

*Arboricola charltoni*, H., pp. 15, 86 (Perlis and Bandon).
*Tropicoperdix charltoni*, M.1, p. 35 (Patiyu).

2 ♂. Ban Kok Klap, Bandon, Peninsular Siam. June, July, 1913.

"Iris dark hazel; bill blackish, yellowish green at tip of lower mandible, reddish at base; orbital skin reddish orange; tarsi and claws waxy yellow."

The species was common in dry jungle at the above locality. Common in north and central Perak.

### 4. Tropicoperdix chloropus Blyth.

*Tropicoperdix chloropus*, Blyth, Journ. Asiat. Soc. Bengal, xxxviii, 1859, p. 415 (Tenasserim).
*Arbori ola chloropus*, A., p. 444; G, p. 151 (Ratburi & Petchaburi).

2 ♂, ♀. Hat Sanuk, nr. Koh Lak, S. W. Siam. 16–19 April, 1919. [Nos. 5338, 5407, 5408].

"Iris brown; orbital space dull maroon; bill sage green distally, dull red basally; feet and claws clear sage green".

Total length ♂, 252, 285; ♀, 265; wing ♂, 152, 153; ♀, 146 (worn); tail ♂, 80, 75; ♀, 68; tarsus ♂, 33, 40; ♀, 38; bill from gape ♂, 21, 22; ♀, 20 mm.

Shot by our Dyaks in dry jungle: these specimens constitute a southerly record for the species.

### 5. Caloperdix oculea oculea (Temm.).

*Perdix oculea*, Temm., Pig. et Gall. iii, 1815, pp. 408, 732 (India: here restricted to central parts of Malay Peninsula).
*Caloperdix oculea*, A., p. 449 (Bankasoon); C.ii, p. 329; F., p. 671 (Trang); H., p. 87 (Bandon); G., p. 151 (Ratburi and Petchaburi); Hume, Stray Feathers, ix, 1880, p. 121 (Takuapa).
*Caloperdix oculea oculea*, M. 1, p. 35 (Patiyu).

We did not on this occasion obtain this partridge in Peninsular Siam, though we saw the remains of recently trapped specimens at Tasan. It is common in Trang and Bandon in bamboo and secondary jungle and still more so in the state of Perlis on the international boundary. In the Federated Malay States it is extremely rare and only known from high elevations.

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**A.** Hume & Davison, Stray Feathers, vi, 1878.
**B.** Müller, Die Ornis der Insel Salanga, 1882.
**C.** Oates, Birds Brit. Burmah, Vols. i & ii, 1883.
**D.** Bonhote, P. Z. S. 1901, Vol. i.
**E.** O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
**F.** Robinson and Kloss, Ibis, 1910-11.
**G.** Gairdner, Journ. N. H. Soc. Siam, i, 1915.
**H.** Robinson, Journ. F. M. S. Museums, v, 1915.

**Arboricola brunneipectus brunneipectus** Tickell.

*Arboricola brunneopectus*, Tickell, Blyth, Journ. Asiat. Soc. Bengal, xxiv, 1855, p. 276 (Tenasserim Mountains); Williamson, Journ. Nat. Hist. Soc. Siam, iii, 1918, p. 32 (Sai Yoke, W. Siam).

The specimen recorded by Mr. Williamson comes from a locality so near our northern boundary that the species will almost certainly be found, sooner or later, within our area.

6. **Rollulus roulroul** (Scop.).

*Phasianus roulroul*, Scop., Del Flor. et Faun. Insubr. ii, 1786, p. 93 (Malacca).

*Rollulus roulroul*, A., p. 448 (Bankasoon, etc.); C ii. p. 330; H., p. 87 (Bandon); G., p. 151 (Ratburi and Petchaburi); M. 1, p. 34 (Tung Song).

♀. Tang Pran, Takuatung, W. Coast Siam. 14 February, 1919. [No. 3987].

♀. Tasan, Pakchan Estuary, Peninsular Siam. 16 March, 1919. [No. 4622].

"Iris hazel; bill black; eyelid carmine; feet coral; post-orbital patch lake".

Total length 260, 277; wing 133, 132; tail 64, 64; tarsus 39.5, 42.5; bill from gape 23, 21 mm.

Though very common indeed in the south of the Peninsula, this wood partridge rapidly grows rarer in more northern latitudes: it is strictly confined to dense evergreen forests and has a wide range in altitude.

7. **Excalfactoria chinensis chinensis** (Linn.).

*Tetrao chinensis*, Linn., Syst. Nat. i, p. 277 (1766).

*Excalfactoria chinensis*, A., p. 447 (Pakchan, etc.); C.ii, p. 334; D., p. 77 (Jalor, Patani).

*Excalfactoria chinensis chinensis*, M.1, p. 34 (Patiyu).

Common throughout the area in suitable localities, especially between Patani and Singora, though there are very few records.

8. **Lophura rufa** (Raffles).

*Phasianus rufus*, Raffles, Trans. Linn. Soc. xiii, 1822, p. 321 (Sumatra).

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I. Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
J. Robinson, Journ. F. M. S. Mus. vii, 1917
K. Kloss, Ibis, 1918.
L. Robinson and Kloss, Journ. N. H. Soc. Siam, iii, 1919.
M. Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker, Journ N. H. Soc. Siam, iii, 1919. (second part).
M.I. Baker, Journ. N. H. Soc. Siam, iv, 1920. (third part).

*Phasianus castaneus*, Gray in Griffith's Cuv. Anim. K., iii, 1829, p. 25.
*Euplocamus vieilloti*, A., p. 431 (Pakchan); B., p. 160 (Junk Seylon); C.ii, p. 320.
*Lophura rufa*, L., p. 89 (Ghirbi); M 1, p. 34 (Patiyu).

♀ ad. (capt.). Tasan, Chumpon, Peninsular Siam. 7 March, 1919. [No. 4469].

"Iris red, orbits smalt; bill bluish horn, lower mandible yellowish; feet coral pink".

Total length 540; wing 265; tail 220; tarsus 91; bill from gape 48 mm.

This species was said to be common in the heavily wooded area near Tasan, though we never came across it ourselves. Our specimen was presented by Mr. L. Giacone, of the Siamese Department of Ways, who had several females in captivity; southwards it is not uncommon in Perlis, but in the Federated Malay States and further south it is very rarely met with.

In adult males from Perlis and Ghirbi the flank shaft-stripes are pure white: in a half grown male from the former locality they are deep buff, becoming white anteriorly.

### 9. Gennaeus lineatus sharpii Oates.

*Gennaeus sharpii*, Oates, Manual Game Birds, i, 1898, p. 357 (Hills between Burma and Siam); Ibis, 1903, p. 101.
*Gennaeus andersoni*, Ogilvie Grant (nec. Elliot), Cat. Birds Brit. Mus. xxii, p 306 (1893).
*Gennaeus lineatus sharpii*, Stuart Baker, Journ. Nat. Hist. Soc. Bombay, xxiii, 1915, p. 678; *id. op. cit.*, xxv, 1918, p. 336 (Raheng: Korat).
*Gennaeus lineatus lineatus*, I., p. 158 (Hat Sanuk).
*Gennaeus* sp.? *sharpii*, G., p. 151 (Ratburi and Petchaburi).

♀ ad. Hat Sanuk, nr. Koh Lak, S. W. Siam. 19 April, 1919. [No. 5409].

"Iris rich ochreous brown; bill greyish horn, greenish at base of lower mandible; feet and orbits crimson, soles yellow-grey."

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A. Hume & Davison, Stray Feathers, vi. 1878.
B. Müller, Die Ornis der Insel Salanga, 1882.
C. Oates, Birds Brit. Burmah, Vols. i & ii, 1883.
D. Bonhote, P. Z. S. 1901, Vol. i.
E. O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
F. Robinson and Kloss, Ibis, 1910-11.
G. Gairdner, Journ. N. H. Soc. Siam, i, 1915.
H. Robinson, Journ. F. M. S. Museums, v, 1915.

Total length 565 ; wing 236 ; tail 228 ; tarsus 68; bill from gape 33 mm.

We think that there can be but little doubt that this pheasant is referable to the above race, which has an extensive range down the hill-ranges between Burma and Siam. Our specimen agrees closely with those described and identified by Ogilvie Grant as *G. andersoni*, which subsequently formed part of the material on which the present race was founded by Oates. Gyldenstolpe obtained no females, while owing to dry weather we were unable to obtain a series, as the birds were so wild as to be unapproachable. A scapular feather picked up in the track was pure white, with very narrow lineated black bars parallel to the edge of the feather.

The undersurface of our bird is brownish black, with a broad white shaft-stripe and a broad subterminal V-shaped white bar on each feather: there is no trace of rufous on the mantle which, with the nape, has a narrow white shaft and a broader white V-shaped band on each feather, edged posteriorly with blackish.

### 10. Gallus ferrugineus ferrugineus (Gm.).

*Tetrao ferrugineus*, Gm., Syst. Nat. i, pt. 2, 1788, p. 761 ("China").
*Gallus ferrugineus*, A., pp. 442, 521 (Pakchan) ; B., p. 80 (Puket) ; G., p. 151 (Ratburi and Petchaburi).
*Gallus gallus*, E., p. 122 (Patani) ; H., p. 57 (Bandon) ; I., p. 157 (Hat Sanuk) ; L., p. 89 (Junk Seylon) ; K., p. 51 (Koh Lak).
*Gallus bankiva*, Sclater, F., p. 672 (Trang).
*Gallus bankiva bankiva*, Stuart Baker, Journ. Nat. Hist. Soc. Bombay, xxv, 1917, p. 18.
*Gallus ferrugineus ferrugineus*, Robinson and Kloss, Records Indian Mus. xix, 1920, p. 14 ; Kloss, *tom. cit.*, p. 151.

7 ♂ 5 ♀. Tasan, Chumpon, Peninsular Siam. 13 and 19 March, 1919. [Nos. 4563-5, 4571, 4588, 4678,9 ; 4687-91].

♀, pull. Koh Lak, S. W. Siam. 2 and 4 April, 1919. [Nos. 5004, 5021].

"*Males.* Iris orange ; bill pinkish at base, blackish horn on culmen, etc. ; feet lead ; lappets and comb pinkish red."

"*Females.* Iris dull orange ; bill greyish horn ; feet lead-grey."

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I. Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
J. Robinson, Journ. F. M. S. Mus. vii, 1917.
K. Kloss, Ibis, 1918.
L. Robinson and Kloss, Journ. N. H. Soc. Siam, iii, 1919.
M. Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker, Journ. N. H. Soc. Siam, iii, 1919. (second part).
M. I. Baker, Journ. N. H. Soc. Siam, iv, 1920. (third part).

*Males.* Total length 670, 542, 532, 630, 675, 504, 480; wing 228, 224, 222, 223, 237, 226, 220; tail 337, 243, 305, 304, 343, 180, 175; tarsus 73, 70, 79, 73, 75, 76, 70; bill from gape 31, 32, 34, 30, 28, 30, 27 mm.

*Females.* Total length 462, 438, 403, 440, 435, 468; wing 206, 192, 195, 196, 192, 220; tail 160, 148, 148, 145, 140, 158; tarsus 57, 63, 56, 60, 62, 64; bill from gape 26, 26, 25, 26, 28, 27 mm.

Common throughout the area dealt with, in the usual situations at the edge of cultivation and in secondary jungle. Especially numerous at Tasan, where at the time of our visit they were breeding, the clutches being of five to seven eggs.

### 11. Polyplectron bicalcaratum (Linn.).

*Pavo bicalcaratus*, Linn., Syst. Nat. i, 1766, p. 268 (China).
*Polyplectron tibetanum*, A., pp. 432, 521 (Nwalabo).
*Polyplectron chinquis*, Ogilvie Grant, Cat. Birds Brit. Mus. xxii, 1893, p. 357 (Mergui and Nwalabo); G., p. 151 (Ratburi and Petchaburi).
*Polyplectron bicalcaratum*, Stuart Baker, Journ. Nat. Hist. Soc. Bombay, xxiv, 1916, p. 209.
*Polyplectron malaccensis*, I., p. 158 (Koon Tan).
*Polyplectron bicalaratum chinquis*, M.1, p. 33 (Patiyu).

The only definite records for our area are those of Gairdner and Stuart Baker, *loc. cit. supra.* Gyldenstolpe's ♀ from Koon Tan, N. Siam, referred to *P. malaccensis*, undoubtedly belongs here, as he specially mentions the outer tail-feathers as having ocelli on both webs.

### 12. Polyplectron malaccense (Scop.).

*Phasianus malaccensis*, Scop., Del. Flor et Faun. Insubr. ii, 1786, p. 93 (Malacca).
*Polyplectron bicalcaratum*, A., p. 434 (Mergui, Hills of South Tenasserim?) B., p. 80 (Puket).
*Polyplectron malaccensis*, Stuart Baker, Journ. Nat. Hist. Soc. Bombay, xxiv, 1916, p. 221 (South Tenasserim).

Though it is probable that the Peacock Pheasant is quite common in Patani, the only definite records are those of Müller and Stuart Baker given above.

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**A.** Hume, & Davison, Stray Feathers, vi, 1878.
**B.** Müller, Die Ornis der Insel Salanga, 1882.
**C.** Oates, Birds Brit. Burmah, Vols. i. & ii, 1883.
**D.** Bonhote, P. Z. S. 1901, Vol. i
**E.** O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
**F.** Robinson and Kloss, Ibis, 1910-11.
**G.** Gairdner, Journ. N. H. Soc. Siam, i, 1915.
**H.** Robinson, Journ. F. M. S. Museums, v, 1915.

### 13. Argusianus argus argus (Linn.).

*Phasianus argus* Linn., Syst. Nat. i, 1766, p. 272 (Tartaria).
*Argusianus argus*, Hartert, Nov. Zool. ix, 1902, p. 538 (type locality fixed as Malacca); C.ii, p. 313; D., p. 78 (Patani); E., p. 123 (Rhaman); H., p. 87 (Bandon); Stuart Baker, Journ. Nat Hist. Soc. Bombay, xxiv, 1916 p. 202; I, p. 158 (Koh Lak).
*Argus giganteus*, A., p. 427 (Pakchan).

Probably common in suitable localities in southern and south-western Siam, wherever there is hilly country covered with evergreen forest.

### 14. Pavo muticus Linn.

*Pavo muticus*, Linn., Syst. Nat. i, 1766, p. 268 (Japan); Hartert, Nov. Zool. ix, 1902, p. 538 (type locality designated as Java); A., p. 425 (Pakchan); C.ii, p. 312; E., p. 123 (Patani); F., p. 672 (Trang); H., p. 87 (Bandon); G., p. 151 (Ratburi and Petchaburi); L., p. 89 (Ghirbi).

In suitable county, i. e., in the scrub along river courses and at the edges of rice fields, Peafowl are spread throughout Peninsular and Lower Siam. They are usually in full feather in January or February, while the trains are completely shed in June and July.

### 15 Turnix pugnax plumbipes (Hodgs.).

*Hemipodius plumbipes*, Hodgs., Bengal Sporting Mag. 1837, p. 346 (Nipal).
*Turnix plumbipes*, A., p. 450 (Bankasoon); B., p. 81; C.ii, p. 337.
*Turnix taigoor*, D., p. 79 (Patelung & Patani States); E., p. 122 (Patani); H., p. 140 (Koh Pennan & Koh Samui).
*Turuix pugnax plumbipes*, Stuart Baker, Journ. Nat. Hist. Soc. Bombay, xxiii, 1914, p. 395; L., p. 89 (Ghirbi & Puket).

Our series is not large and is deficient in females, but males from the islands in the Bandon Bight can be matched by others from the south of Pahang.

### 16. Turnix tanki blanfordi Blyth.

*Turnix blanfordi*, Blyth, Journ. Asiat. Soc. Bengal, xxxii, 1863, p. 80 (Pegu).
*Turnix maculosus*, A., p. 452 (Pakchan & Bankasoon); C.ii, p. 335.
*Turnix tanki blanfordi*, Stuart Baker, Journ. Nat. Hist. Soc. Bombay, xxxii, 1915, p. 601.

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**I.** Gyldentolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
**J.** Robinson, Journ. F. M. S. Mus. vii, 1917.
**K.** Kloss, Ibis, 1918.
**L.** Robinson and Kloss, Journ. N. H. Soc. Siam, iii, 1919.
**M.** Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker, Journ. N. H. Soc. Siam, iii, 1919. (second part).
**M. I.** Baker, Journ. N. H. Soc. Siam, iv, 1920. (third part).

♂. Tasan, Chumpon, Peninsular Siam. 23 March, 1919. [No. 4796].

2 ♂, ♂ imm. Koh Lak (Prachuap-kirikan), S. W. Siam. 5 April, 1919. [Nos. 5078, 9].

"Iris white; bill dark horn, yellow on tomia and basal half of lower mandible; feet yellow, toes darker".

Total length 161, 158, 165; wing 80, 90, 88; tail 33, 30, 34; tarsus 23, 23, 25; bill from gape 18, 17, 17 mm.

Tasan and the Pakchan estuary represent the southernmost limit of this Quail; we found it common in grass-lands at Tasan and Koh Lak and between that place and Hat Sanuk.

**A.** Hume & Davison, Stray Feathers, vi, 1878.
**B.** Müller, Die Ornis der Insel Salanga, 1882.
**C.** Oates, Birds Brit. Burmah, Vols. i & ii, 1883.
**D.** Bonhote. P. Z. S. 1901, Vol. i.
**E.** O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
**F.** Robinson and Kloss, Ibis, 1910-11.
**G.** Gairdner, Journ. N. H. Soc. Siam, i, 1915.
**H.** Robinson, Journ. F. M. S. Museums, v, 1915.

## COLUMBIFORMES.

### PIGEONS.

1 (Large birds, wing more than 8 inches .. .. .. .. 2
(Smaller birds, wing less than 8 inches .. .. .. .. 5

2 (With elongated hackles on hind neck .. .. *Calaenas nicobarica.*
(Feathers on hind neck normal .. .. .. .. .. 3

3 (General colour lead-grey .. .. *Columba livia intermedia.*
(General colour ivory-white .. .. .. *Myristicivora bicolor.*
(General colour above bronzy green .. .. *Muscadivora aenea.*
(General colour above maroon or liver-brown .. .. .. 4

4 (Breast grey, rump uniform with back .. *Ducula badia* and *griseicapilla.*
(Breast ochraceous, rump grey contrasting with back .. *Alsocomus puniceus.*

5 (Always with metallic bronzy green in plumage .. *Chalcophaps indica.*
(Always with non-metallic green in plumage.. .. .. .. 6
(Always without any green in plumage .. .. .. .. 13

6 (Wing exceeding 7 inches .. .. .. *Butreron capelli.*
(Wing less than 7 inches .. .. .. .. .. 7

7 (With a magenta cap or magenta wash on crown .. *Ptilonopus jambu.*
(With no magenta cap or wash .. .. .. .. .. 8

8 (Bill swollen towards tip .. .. *Treron curvirostra nipalensis.*
(Bill slender, not swollen towards tip .. .. .. .. 9

9 (Wing less than 5 inches .. .. .. .. *Treron olax.*
(Wing more than 5 inches .. .. .. .. .. 10

10 (Middle feathers of tail green .. .. .. .. .. 11
(Middle feathers of tail grey .. .. .. .. .. 12

11 (Tibial plumes bright chrome yellow .. .. *Treron fulvicollis.*
(Tibial plumes buff or dull yellow .. *Treron pompadora phayrei.*

12 (Pale apical band to tail ½ inch or more broad *Treron bicincta praetermissa.*
(Pale apical band less than ½ inch broad .. .. *Treron vernans.*

13 (With a black collar on nape .. .. .. .. .. 14
(With no black collar .. .. .. .. .. 15

14 (Collar narrow and entirely black.. *Oenopopelia tranquebarica humilis.*
(Collar broad and spotted with white .. *Streptopelia suratensis tigrina.*

15 (Wing about 7 inches .. .. *Macropygia leptogrammica.*
(Wing about 5·5 inches .. .. .. *Macropygia ruficeps.*
(Wing about 4 inches .. .. .. *Geopelia striata.*

### 17. Butreron capelli (Temm.).

*Columba capelli*, Temm., Pl. Col., 1823, pl. 143 (Java).

*Butreron capelli*, Anderson, Journ. Linn. Soc., Zool., xxi., 1887, p. 152 (Elphinstone Island, Mergui Archipelago); E., p. 122 (Patani States); F., p. 672 (Trang); Stuart Baker, Indian Pigeons and Doves, 1913, p. 64, pl. 4.

"Iris dark; eyelids green and yellow; bill pale greenish white; cere dull olive; feet ochre yellow".

Rare in Peninsular, and apparently not found in S. W. Siam.

### 18. Treron curvirostra nipalensis (Hodgs.).

*Toria nipalensis*, Hodgs. Asiat. Res. xix, 1836, p. 164, pl. ix (Nepal).

*Treron nipalensis*, A., p. 410 (Tavoy to Malewoon); C. ii, p. 306; F., p. 674 (Trang); G., p. 151 (Ratburi and Petchaburi); Stuart Baker, Indian Pigeons and Doves, 1913, p. 66, pl. 5; H., p. 140 (Koh Samui, Bandon); Buttikofer, Notes Leyden Museum, xxi, 1899, p. 266; I., p. 153 (Koh Lak).

*Treron curvirostra nipalensis*, J., p. 135 (Pulau Telibun); L, p. 90 (Junk Seylon).

♂, ♀. Koh Pipidon, W. Siam. 3 February, 1919. [Nos. 3929, 30].

♂. Pang-nga river, W. Siam. 11 February, 1919. [No. 3947].

♂. De Lisle Island, W. Coast Siam. 19 February, 1919. [No. 4122].

♂, 2 ♀. Tapli, Pakchan Estuary, Peninsular Siam. 3–7 March, 1919. [Nos. 4392, 4412, 4466].

♂. Tasan, Chumpon, Peninsular Siam. 14 March, 1919. [No. 4586].

"*Male*. Iris, inner ring yellow, outer deep bronze, orbits verditer; bill, frontal half pale yellow-green, base crimson; feet magenta-lake or maroon".

Total length ♂, 248,—, 265, 248, 247; ♀, 260, 258, 257; wing ♂, 138, 133 (dry skin) 148, 138, 136; ♀, 143, 138, 136; tail ♂, 89,—, 90, 84, 92; ♀, 85, 80, 80; tarsus ♂, 19,—, —, 19.5, 16; ♀, 20, 18.5, 18; bill from gape ♂, 22,—, 20, 21, 20; ♀, 22, 23, 20 mm.

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**A.** Hume, & Davison, Stray Feathers, vi, 1878.
**B.** Müller, Die Ornis der Insel Salanga, 1882.
**C.** Oates, Birds Brit. Burmah, Vols. i. & ii, 1883.
**D.** Bonhote, P. Z. S. 1901, Vol. i
**E.** O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
**F.** Robinson and Kloss, Ibis, 1910-11.
**G.** Gairdner, Journ. N. H. Soc. Siam, i, 1915.
**H.** Robinson, Journ. F. M. S. Museums, v, 1915.

A great deal of confusion has arisen over the races of the Thick-billed Green Pigeon. It appears to be borne out by the statements of all writers that the continental race southwards, to the northern third of the Malay Peninsula, is consistently larger than birds from the southern two-thirds of the Malay Peninsula, Sumatra, Borneo and Bangka. Palawan and Sulu birds are also stated to be larger.

Every area has its name, *viz*:—

| | | |
|---|---|---|
| *Treron curvirostra* Gm. | ... 1788. | Malay Peninsula, *terra typica* designated by Oberholser, 1912. Now restricted to Selangor. |
| *Treron nipalensis* Hodgson | ... 1836. | Nepal, etc. |
| *Treron griseicauda* Gray | ... 1856. | Java. |
| *Treron nasica* Schleg. | ... 1863. | Borneo and Sumatra (?) |
| *Treron harterti* Parrot | ... 1907. | N. E. Sumatra. |

There are also other races from the Barussan Islands.

No one will probably dispute that the bird figured by Latham (Gen. Syn. Birds, ii, 1788, p. 632, pl. 59: and latinized by Gmelin as *Columba curvirostra*, Syst. Nat. i, 1788, p. 777) represents the first description of the species, though attached to a wrong locality (Tanna, New Hebrides). Unless we are prepared to recognize the mere references by Raffles and Vigors of Sumatran birds to *Columba curvirostra* (Gm.), as a fixation of the type locality, we are bound to admit *T. c. harterti* as the name for the Sumatran bird (if distinct from the Bornean and Javanese);* *T. c. nasica*† for the Bornean; *T. c. curvirostra* for the Malayan; and *T. c. griseicauda* for the Javan-

*Schlegel (Ned. Tijd. Dierk, i, 1864, pp. 67, 8) records both *griseicauda* and *nasica* from Sumatra.

†Some authorities, however, including Wallace, claim that *T. nasica* is a distinct species, occurring together with *T. curvirostra* and differing mainly in the colour of the soft parts.

I. Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
J. Robinson, Journ. F. M. S. Mus. vii, 1917.
K. Kloss, Ibis, 1918.
L. Robinson and Kloss, Journ. N. H. Soc. Siam, iii, 1919.
M. Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker, Journ. N. H. Soc. Siam, iii, 1919. (second part).
M. I. Baker, Journ. N. H. Soc. Siam, iv, 1920. (third part)

ese bird. We have been able to compare Bornean, Malayan, Siamese, Cochin-Chinese and Annamese specimens, and are certain that, broadly speaking, no real colour-distinction can be correlated with range, but the northern birds are undoubtedly on average larger than the Malayan.

The whole of the series of the Malay Peninsula, from its extreme northern limit to the islands south of Singapore, does not afford any bird approaching in smallness the minimum wing dimensions for *T. curvirostra* given by Stuart Baker (124 mm.), while some from the extreme south are as large as others from the extreme north.

On the whole, however, it is true that northern birds average larger than the southern. Rather than use the elaborate typography of Stresemann, we have recorded the northern birds within Siamese limits as *T. c. nipalensis*, while the southern birds are, by Oberholser's designation, typical *T. c. curvirostra*. For convenience sake we specify as a more exact type locality, Rawang, Selangor—as the Malay Peninsula is 800 miles long and contains two forms of the species.

In the Journ. Nat. Hist. Soc. Siam, iv, 1920, p. 31, Baker claims that Oberholser cannot select the Malay Peninsula for the typical locality of *T. c. curvirostra*, as he himself had already shown, in his "Indian Pigeons and Doves," that the correct type locality was Sumatra. Mr. Baker's claim, however, comes too late: his book was published in 1913, whereas Oberholser had already selected the Malay Peninsula in 1912. We, ourselves, do not consider that anything in Baker's remarks (*op. cit.*, p. 68) constitutes a fixation of type locality.

In any event Sumatra has been ruled out in this connection since 1907, as Parrot then described and named the island bird.

### 19. Treron vernans vernans (Linn.).

*Columba vernans*, Linn., Mant., 1771, p. 526 (Philippines).
*Osmotreron viridis*, B., p. 78 (Peninsular Siam).
*Osmotreron vernans*, C. i, p. 309 (Malay Peninsula); D., p. 76 (Patani); E., p. 122 (Patani); F., p. 674 (Malay Peninsula); H.,

**A.** Hume & Davison, Stray Feathers, vi, 1878.
**B.** Müller, Die Ornis der Insel Salanga, 1882.
**C.** Oates, Birds Brit. Burmah, Vols. i & ii, 1883.
**D.** Bonhote. P. Z. S. 1901, Vol. i.
**E.** O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
**F.** Robinson and Kloss, Ibis, 1910-11.
**G.** Gairdner, Journ. N. H. Soc. Siam, i, 1915.
**H.** Robinson, Journ. F. M. S. Museums, v, 1915.

pp. 88,140 (Bandon, Koh Samui and Koh Pennan); J., p. 135 (Langkawi Islands); L., p. 89 (Ghirbi and islands).
*Treron vernans vernans*, M.1, p. 31 (Tung Song and Patiyu).

A common bird throughout our region in suitable localities.

**20. Treron bicincta prætermissa** Rob. and Kloss.

*Treron bisincta prætermissa*, Robinson & Kloss, Journ. Fed. Malay States Mus. x, 1921, p. 203 (Koh Lak).
*Osmotreron bicincta*, A., p. 411: C. ii, 1883, p. 308; B., p. 159 (Salanga); F., p. 674 (Trang); G., p. 151 (Ratburi & Petchaburi).
*Osmotreron bicincta domvillii*, Stuart Baker, Indian Pigeons & Doves, 1913, p. 49; I., p. 154 (Koh Lak); L., p. 89 (Ghirbi & Pulau Panjang).

♂. De Lisle Island, W. Coast Siam. 19 February, 1919. [No. 4121].

♂ ♀. Koh Lak, S. W. Siam. 5 April, 1919. [Nos. 5075, 7075].

"Iris, outer ring pale orange, inner ring blue; bill ivory, greenish at tip; feet pink."

Total length ♂, 292, 285*; ♀, 273*; wing ♂, 158, 161*; ♀, 162*; tail ♂, 103, 105*; ♀, 100*; tarsus ♂, 19, 23*; ♀, 21*; bill from gape ♂, 22, 22*; ♀, 23* mm.

*Diagnosis.* Larger than *D. b. bisincta* from Madras (wing 144): differs from *D. b. domvillii* Swinh. from Hainan in having the grey nuchal patch in the female clear and more extensive, whereas (*fide* Hartert) it is "indistinct and small" in the island bird.

Hartert has inadvertently (Nov. Zool. xvii, 1910, p. 192) described the Ceylon bird as being smaller, though his specimens are exactly the same size as the typical birds from Madras. Swinhoe states that his *domvillii* is smaller than the typical form (presumably the bird now described), but this is denied by Hartert.

E. and S. E. Siam birds appear to be small; those measured by us have the wing always under 150 mm.

In addition to the above three specimens, we have examined four males and four females from various localities from Junk

* Types.

I. Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
J. Robinson, Journ. F. M. S. Mus. vii, 1917
K. Kloss, Ibis, 1918.
L. Robinson and Kloss, Journ. N. H. Soc. Siam, iii, 1919.
M. Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker. Journ N. H. Soc. Siam, iii, 1919. (second part).
M.1. Baker, Journ. N. H. Soc. Siam, iv, 1920. (third part).

Seylon to Selangor; wings varying from 157–163 mm. in males and 157–160 in females.

**21. Treron pompadora phayrei** (Blyth).

*Osmotreron phayrei*, Blyth, Journ. Asiat. Soc. Bengal, xxxi, 1862, p. 344 (Tounghoo); A., pp. 412, 414 (Tavoy, Nwalabo); G., p. 151 (Ratburi and Petchaburi).

*Osmotreron pompadora phayrei*, Stuart Baker, Indian Pigeons and Doves, 1913, p. 27.

Mr. Gairdner's record is the only one for our portion of Siam. The bird however extends to Cochin-China. On the Tenasserim coast it ranges south as far as Tavoy.

**22. Treron fulvicollis fulvicollis** (Wagl.).

*Columba fulvicollis*, Wagler, Syst. Av. Columba, sp. 8 (1827, Java).

*Osmotreron fulvicollis*, A., p. 413 (Pakchan); Stuart Baker, Indian Pigeons and Doves, 1913, p. 46, pl. 2.

This species has not hitherto been obtained in Siam, though it is abundant in the Pakchan estuary from December to March.

It should be noted that the type description is founded on *Columba aromatica* var., Temm. & Knip, fig. 1, p. 30, pl. 6 (1808–11), said to be from Batavia. The species however does not occur in Java, so far as is known, and it will be convenient to regard the *terra typica* as fixed on Sumatra.

The mainland representative, if it is ever recognised as distinct, will be known as *T. f. tenuirostre* (Eyton, 1845, type locality Malacca). The north Bornean, or possibly the montane form in Borneo, is *T. f. baramensis* (Meyer, 1891), from Baram river, N. Sarawak.

The lowland and south Bornean form, if it is distinct, has no name, as *Columba cinnamomea* Temm., 1835, applied to birds from Pontianak, is antedated by *Columba cinnamomea* Swains. (*fide* Salvadori, Cat. Birds Brit. Mus. xxi, 1893, p. 53).

It should further be observed that Celebes and the Phillippines, quoted in the distribution by certain authors, are not definitely known to be inhabited by this species.

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**A.** Hume & Davison, Stray Feathers, vi, 1878.
**B.** Müller, Die Ornis der Insel Salanga, 1882.
**C.** Oates, Birds Brit. Burmah, Vols. i & ii, 1883.
**D.** Bonhote, P. Z. S. 1901, Vol. i.
**E.** O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
**F.** Robinson and Kloss, Ibis, 1910-11.
**G.** Gairdner, Journ. N. H. Soc. Siam, i, 1915.
**H.** Robinson, Journ. F. M. S. Museums, v, 1915.

### 23. Treron olax (Temm.).

*Columba olax*, Temm., Pl. Col., 1823, pl. 241 (Sumatra).
*Osmotreron olax*, Salvad., Cat. Birds Brit. Mus. xxi, 1893, p. 64 (Kossoum).
*Treron olax*, M.1, p. 30 (Klong Wang Hip, Tung Song).

A pair collected by J. Darling near Ghirbi in June, and now in the British Museum, appear to be the most northerly records for Siam of the Little Green Pigeon.

### 24. Ptilinopus jambu (Gm.).

*Columba jambu*, Gm., Syst Nat. ii, 2, 1788, p. 784 (Sumatra).
*Rhamphiculus jambu*, B., p. 79 ("Malay Peninsula").

In his paper on the birds of Salanga (Puket or Junk Seylon), H. Müller mentions two males and two females from "the Malay Peninsula" without precise locality. As he probably obtained them from the adjacent mainland, and as there is no inherent improbability for the occurrence, we include them here, though hitherto the species has not been recorded from further north than Province Wellesley.

Both sexes differ from all other local pigeons in having a magenta cap: the female is green beneath with a small cinnamon patch on the chin: the adult male is pure ivory white below with a large rose coloured patch on the breast.

"Iris crimson; bill slate, base of culmen dull crimson; feet crimson lake."

### 25. Muscadivora aenea ænea (Linn.).

*Columba ænea*, Linn., Syst. Nat., i, 1766, p. 283 (Moluccas).
*Carpophaga ænea*, A., p. 416; C. ii, 1883, p. 301; H., p. 141 (Koh Pennan and Koh Samui); G., p. 151 (Ratburi and Petchaburi).
*Carpophaga ænea ænea*, Stuart Baker, Indian Pigeons and Doves, 1912, p. 91, pl. 7; I., p. 155 (Hat Sanuk); J., p. 136 (Terutau and Pulau Muntia); L., p. 90 (Pulau Payang, Ghirbi Bay).

♂, ♀. Pulau Mohea (N. Island), W. Coast Siam. 1–2 February, 1919. [Nos. 3913, 3915].

♂. Koh Pipidon, Ghirbi Bay, W. Siam. 4 February, 1919. [No. 3935].

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**I.** Gyldentolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
**J.** Robinson, Journ. F. M. S. Mus. vii, 1917.
**K.** Kloss, Ibis, 1918.
**L.** Robinson and Kloss, Journ. N. H. Soc. Siam, iii, 1919.
**M.** Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker, Journ. N. H. Soc. Siam, iii, 1919. (second part).
**M. I.** Baker, Journ. N. H. Soc. Siam, iv, 1920. (third part).

♀. Koh Yam Yai, W. Siam. 18 February, 1919. [No. 4115].

♀. Koh Yam Noi, W. Siam. 19 February, 1919. [No. 4120].

Total length ♂, 390, 435; ♀, 425, 400, 404; wing ♂, 233, 234; ♀, 244, 223, 238; tail ♂, 146, 170; ♀, 163, 148, 150; tarsus ♂, 39, 36; ♀, 31, 39, 39; bill from gape ♂, 34, 36; ♀, 38, 34, 32 mm.

This small series varies much in the tint of the bronzy green upper surface and in the degree of the vinaceous wash on the head and neck. In size the birds agree with other specimens from the south of the the Malay Peninsula and adjacent islands. The original type locality given by Linnæus was the Moluccas, where the species is not found.

### Ducula badia badia (Raffles).

*Columba badia*, Raffles, Trans. Linn. Soc. xiii, 1822, p. 317 (Sumatra).

*Carpophaga sp.*, A., p. 417 (Mergui); Anderson, Journ. Linn. Soc. Zool., xxi, 1187, p. 151 (Sullivan Id., Mergui Archipelago).

There is no definite record of this species in Peninsular or S. W. Siam, though it is extremely common in the mountains throughout the Federated Malay States, coming down to the coast at certain seasons. It is almost certain to be found in the mountains of Trang or in the high mountains separating Patani from Perak. As Hume observes, the fruit pigeons seen by Davison in immense numbers at Mergui in August were probably this form.

### 26. Ducula badia griseicapilla Wald.

*Ducula griseicapilla*, Wald., Ann. and Mag. Nat. Hist (4) xvi, 1875, p. 228 (Karin Hills); G., p. 515 (Ratburi and Petchaburi).

*Ducula insignis griseicapilla*, Stuart Baker, Indian Pigeons and Doves, 1913, p. 104, pl. 8.

The only record for our area is that of Gairdner from Ratburi or Petchaburi. All the forms of the subgenus currently accepted as *Ducula*, with the possible exception of the Javan *D. lacernulata* and allied races from Bali and Lombok, obviously stand in subspecific relation to each other. The plate given by S. Baker, *loc. cit.*, is brighter on the shoulders than our specimens of *D. b. griseicapilla* from

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**A.** Hume & Davison, Stray Feathers, vi, 1878.
**B.** Müller, Die Ornis der Insel Salanga, 1882.
**C.** Oates, Birds Brit. Burmah, Vols. i & ii, 1883.
**D.** Bonhote, P. Z. S. 1901, Vol. i.
**E.** O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
**F.** Robinson and Kloss, Ibis, 1910-11.
**G.** Gairdner, Journ. N. H. Soc. Siam, i, 1915.
**H.** Robinson, Journ. F. M. S. Museums, v, 1915.

Annam, and in this respect approaches *D. b. badia*. The present subspecies may be separated from *D. b. badia* by its rather larger size, less rich and purplish colour above and paler buff under tail-coverts.

### 27. Columba livia intermedia Strickl.

*Columba intermedia*, Strickl., Ann. and Mag. Nat. Hist. xiii, 1844, p. 39 (India); Salvad., Cat. Birds Brit. Mus., xxi, 1893, p. 261, spm. m3 (Salanga); Williamson, Journ. Nat. Hist. Soc. Siam, iii, 1918, p. 30 (Tachin and Bangkok).

It is doubtful if any rock-pigeons from central and south Siam can be regarded as truly wild: we record it for this area merely on the strength of a skin from Salanga (Puket), now in the British Museum.

### 28. Alsocomus puniceus (Tick.).

*C.* (*Alsocomus*) *puniceus*, Blyth, Journ. Asiat. Soc. Bengal, xi, 1842, p. 461 (Singhbhum, Chota Nagpur).

*Alsocomus puniceus*, A., p. 418; C. ii, 1883, p. 289; Stuart Baker, Indian Pigeons and Doves (1913), p. 176, pl. 18, I., p. 151 (nr. Koh Lak); G., p. 151 (Ratburi and Petchaburi); Kp.; 83 (Koh Lak).

*Columba punicea*, F., p 674 (Pulau Terutau); J., p. 136 (Pulau Muntia); L., p. 90 (Junk Seylon).

"Iris, inner ring yellow, outer orange; bill, plum coloured at base, whitish horn at tip; feet pinkish maroon."

This fine pigeon is fairly common in the winter months on the islands off the west coast of Siam, though whether it is a resident or a seasonal visitor is unknown, as collecting is inconvenient or impossible in these localities during the summer. On the east coast it is apparently much rarer. Our series shows that the sexes are practically alike, females with the grey cap similar to adult males, but with the undersurface with slightly less gloss and more brick-red, less purplish in tint.

On Koh Muk, in January 1917, they were roosting in mangroves behind a sandy beach, apparently feeding on the mainland, distant about three miles, during the day.

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**I.** Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
**J.** Robinson, Journ. F. M. S. Mus. vii, 1917.
**K.** Kloss, Ibis, 1918.
**L.** Robinson and Kloss, Journ. N. H. Soc. Siam, iii, 1919.
**M.** Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker, Journ. N. H. Soc. Siam, iii, 1919. (second part).
**M. I.** Baker, Journ. N. H. Soc. Siam, iv, 1920. (third part).

### 29. Myristicivora bicolor bicolor (Scop.).

*Columba bicolor*, Scop., Del. Flor. et Faun. Insubr. ii, p. 94 (1786).
*Myristicivora bicolor*, Williamson, Journ. Nat. Hist. Soc. Siam, ii, 1916, p. 61 (Chumpon Bay).

Though the species must certainly occur at times on the Siamese side of the international boundary through the Langkawi group, specimens have not actually been obtained from that locality. The only record therefore from our area is the above specimen from Chumpon. The species also occurs on the Koh-Si-Chang group in the Inner Gulf of Siam. It is likewise found in Cochin-China.

### Macropygia leptogrammica, subsp. ?

*Columba leptogrammica*, Temm., Pl. Col., 1835, pl. 560 (Java and Sumatra).
*Cœcyzura tusalia*, Hodgs. in Blyth, Journ. Asiat. Soc. Bengal, xii, 1843, p 937, note (Darjiling).
*Macropygia tusalia*, Stuart Baker, Indian Pigeons and Doves, 1913, p. 238, pl. 24.

The forms of the large Cuckoo Dove inhabiting Java, Sumatra and the southern Malay Peninsula, Hainan and the Indo-Chinese countries stand in very close subspecific relation and will, as the oldest name, have all to be called *M. leptogrammica*.

Though it is very likely that a bird of this species will be found inhabiting the higher hills, no specimen has been actually obtained, though there is a note by Gairdner of a bird, "probably *tusalia*", having been seen somewhere in Ratburi or Petchaburi.

### Macropygia ruficeps, subsp.

*Columba ruficeps*, Temm., Pl. Col., 1835, pl. 561 (Java).
*Macropygia assimilis*, Hume, Stray Feath. ii, 1874, p. 441 (Hills of Tenasserim).

Of this Cuckoo Dove, also, with the exception of one specimen from the extreme north of Siam, which is not germane to the present paper, there are no specimens whatever on record from Siam. The species, however, is certain to occur in suitable localities throughout the country.

Those from Patani, etc., will be almost certain to agree with

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A. Hume, & Davison, Stray Feathers, vi, 1878.
B. Müller, Die Ornis der Insel Salanga, 1882.
C. Oates, Birds Brit. Burmah, Vols. i. & ii, 1883.
D. Bonhote, P. Z. S. 1901, Vol. i
E. O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
F Robinson and Kloss, Ibis, 1910-11.
G. Gairdner, Journ. N. H. Soc. Siam, i, 1915.
H. Robinson, Journ. F. M. S. Museums, v, 1915.

the form found in Perak, Province Wellesley and further south; while those from Peninsular Siam to the north will probably agree with *M. assimilis*, which is always a browner and less rufous bird.

The species is a skulker, found in thick undergrowth, and is extraordinarily fond of the small chillies grown by Malays. In the Federated Malay States it is nearly always abundant in the vicinity of hot springs.

### 30. Oenopopelia tranquebarica humilis (Temm.).

*Columba humilis*, Temm., Pl. Col., 1834, pl. 259 (Bengal and Luzon).
*Turtur humilis*, Walden, Trans. Zool. Soc. ix, 1875, p. 219 (type locality selected, Luzon); A., p 423 (Pakchan); C. ii, 1883, p. 294 (Malay Peninsula).
*Oenopopelia tranquebarica humilis*, Stuart Baker, Indian Pigeons and Doves, 1913, p. 234, pl. 23; I., p. 150 (Koh Lak); K., p. 84 (Koh Lak).
*Oenopopelia tranquebarica*, G., p. 151 (Ratburi and Petchaburi).

Pakchan is the southernmost authenticated locality for this species: no credence need be placed on the locality "Malacca", attached to certain specimens.

Females differ considerably from males in being much less vinous.

### 31. Streptopelia chinensis tigrina (Temm. & Knip.).

*Columba tigrina*, Temm. Pig. i, 1808–11, pl. 43 (Batavia).
*Turtur tigrina*, A., p. 442; C. ii, 1883, p. 290; B., p. 79 (Junk Seylon); D., p. 77 (Patani); E., p. 121 (Patani); F., p. 675 (Trang); H., p. 88, 141 (Bandon and Koh Pennan); G., p. 151 (Ratburi and Petchaburi).
*Turtur tigrinus minor*, Parrot, Abhandl. der K. Bayer. Akad. der Wissench. Munchen, ii, kl. xxiv, 1907, Bd. 1, p. 275 (Sumatra).
*Streptopelia suratensis tigrina*, Stuart Baker, Indian Pigeons and Doves, 1913, p. 210, pl. 21; J., p. 136 (Pulau Lontar); K., p. 83 (Koh Lak); L., p. 90 (Junk Seylon, etc.); M.1, p. 32 (Tung Song).

2 ♂. Tapli, Pakchan Estuary, Peninsular Siam. 11 March, 1919. [Nos. 4535, 6].

♂, ♀. Koh Lak, S. W. Siam. 4–7 April, 1919. [Nos. 5015, 5147].

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**I.** Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
**J.** Robinson, Journ. F. M. S. Mus. vii, 1917.
**K.** Kloss, Ibis, 1918.
**L.** Robinson and Kloss, Journ. N. H. Soc. Siam, iii, 1919.
**M.** Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker, Journ. N. H. Soc. Siam, iii, 1919. (second part).
**M.1.** Baker, Journ. N. H. Soc. Siam, iv, 1920. (third part).

"Iris orange; bill greyish black; feet maroon".

Total length ♂, 306, 318, 317; ♀, 305; wing ♂, 140, 141, 145; ♀, 146; tail ♂, 148, 152, 147; ♀, 150 (worn); tarsus ♂, 26, 25, 25; ♀, 25; bill from gape ♂, 22.5, 20; ♀, 22 mm.

Extraordinarily common over the whole area in family parties or small flocks, keeping to open country.

The very large series that we have examined does not bear out Parrot's contention that the mainland birds are smaller than those from Java, though topotypes of his race from Deli are under 140 mm. in the wing.

### 32. Geopelia striata striata (Linn.).

*Columba striata*, Linn., Syst. Nat. i, 1766, p. 282 (East Indies).
*Geopelia striata*, A., p. 423; C. ii, 1883, p. 298; B., p. 79 (Junk Seylon); E., p. 121 (Patani); Stuart Baker, Indian Pigeons and Doves, 1913, p. 253, pl. 26; H., p. 137 (Pulau Lontar); L, p. 90 (Ghirbi); Williamson, Journ. Nat Hist. Soc. Siam, ii, 1916, p. 72.
*Geopelia striata striata*, M.1, p. 32 (Tung Song).

2 ♂. Tapli, Pakchan Estuary, Peninsular Siam. 11 March, 1919. [Nos. 4533–8].

"Iris whitish, orbits silvery verditer; cere silvery blue; bill pale horn; feet dark maroon".

Total length 230, 228; wing 98, 94; tail 108, 105; tarsus 21, 20; bill from gape 16, 17 mm.

Very common in open spaces with the preceding, possibly becoming scarcer further north.

### 33. Chalcophaps indica indica (Linn.).

*Columba indica*, Linn., Syst. Nat. i, 1766, p. 284 (East Indies).
*Chalcophaps indica*, A., p. 424; C. ii, 1883, p. 297; D., p. 77 (Patani); E., p. 122 (Patani); F., p. 675 (Trang); H., p. 88 (Bandon); *id. op. cit.* vii, 1917, p. 137 (Terutau); G., p. 151 (Ratburi and Petchaburi); Stuart Baker, Indian Pigeons and Doves, 1913, p. 121 pl. 11; L., p. 90 (Ghirbi, Puket Islands).
*Chalcophaps indica indica*, M.1, p. 32 (Tung Song and Patiyu).

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**A.** Hume & Davison, Stray Feathers, vi, 1878.
**B.** Müller, Die Ornis der Insel Salanga, 1882.
**C.** Oates, Birds Brit. Burmah, Vols. i & ii, 1883.
**D.** Bonhote, P.Z.S. 1901, Vol. i.
**E.** O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
**F.** Robinson and Kloss, Ibis, 1910-11.
**G.** Gairdner, Journ. N.H. Soc. Siam, i, 1915.
**H.** Robinson, Journ. F.M.S. Museums, v, 1915.

♀. Tapli, Pakchan Estuary, Peninsular Siam. 2 March, 1919. [No. 4375].

♂,♀. Tasan, Chumpon, Peninsular Siam. 13 March, 1919. [Nos. 4559–60].

♂. Hat Sanuk, nr. Koh Lak, S. W. Siam. 15 April, 1919. [No. 5323].

"Iris dark, eyelid crimson, orbits purplish slate; bill coral, cere maroon; feet dark maroon".

Total length ♂, 249, 245; ♀, 251, 238; wing ♂, 142, 142; ♀, 145, 137; tail ♂, 100, 88; ♀, 87, 95; tarsus ♂, 25, 24; ♀, 22, 22; bill from gape ♂, 22, 22; ♀, 20. 5, 27 mm.

Common throughout the area, wherever there are suitable evergreen forests.

### 34. Caloenas nicobarica nicobarica (Linn.).

*Columba nicobarica*, Linn., Syst. Nat. i, 1766, p. 283 (Nicobar Islands).

*Caloenas nicobarica*, A., p. 425 (Mergui Archipelago); F., p. 675 (Terutau).

♂, ♀, ad. Pulau Mohea (South Island), W. Coast Siam. 2–3 March, 1919. [Nos. 3920–1].

♂, imm. Koh Pipidon, Ghirbi Bay, W. Coast Siam. 4 March, 1919. [No. 3940].

"Iris hazel; bill and cere black, orbits dull pale olive; feet livid plum, claws gamboge". Immature birds with the iris grey and feet duller.

Total length ♂, 380, 348; ♀, 380; wing ♂, 247, 237; ♀, 257; tail ♂, 106, 100; ♀, 106; tarsus ♂, 42, 46; ♀, 45; bill from gape ♂, 35, 33; ♀, 35 mm.

Fully adult males and females are alike: immature birds differ in having the hackles shorter and the tail black, glossed with green, not pure white. At certain seasons this bird appears to be common on the islands off the west coast of Siam; on the east coast it is

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**I.** Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
**J.** Robinson, Journ. F. M. S. Mus. vii, 1917.
**K.** Kloss, Ibis, 1918.
**L.** Robinson and Kloss, Journ. N. H. Soc. Siam, iii, 1919.
**M.** Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker, Journ. N. H. Soc. Siam, iii, 1919. (second part).
**M. I.** Baker, Journ. N. H. Soc. Siam, iv, 1920. (third part)

known from the smaller islands of the Pahang and Johore Archipelago and the Redang group off Trengganu; but it has not been found on the islands off the east coast of Peninsular and S. W. Siam, though it occurs on Pulo Condore, off Cochin-China. Nowhere is it ever met with on the mainland. The habits in the main are those of the jungle game-birds; it is a runner and does not readily take to the trees unless persistently disturbed, though it roosts in them at night.

**A.** Hume & Davison, Stray Feathers, vi, 1878.
**B.** Müller, Die Ornis der Insel Salanga, 1882.
**C.** Oates, Birds Brit. Burmah, Vols. i & ii, 1883.
**D.** Bonhote, P. Z. S. 1901, Vol. i.
**E.** O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
**F.** Robinson and Kloss, Ibis, 1910-11.
**G.** Gairdner, Journ. N. H. Soc. Siam, i, 1915.
**H.** Robinson, Journ. F. M. S. Museums, v, 1915.

## RALLIFORMES.

RAILS AND GALLINULES.

| | | | |
|---|---|---|---|
| 1 | Tail-feathers eighteen | *Heliopais personata.* | |
| | Tail-feathers ten or twelve | | 2 |
| 2 | With a horny frontal shield | | 3 |
| | With no horny frontal shield | | 5 |
| 3 | General plumage blue | *Porphyrio calvus edwardsi.* | |
| | General plumage not blue | | 4 |
| 4 | Toes with a narrow membranous fringe, not lobed | *Gallinula chloropus parvifrons.* | |
| | Toes without a membranous fringe | *Gallicrex cinerea.* | |
| 5 | Plumage uniform above | | 6 |
| | Plumage streaked above | | 10 |
| 6 | Culmen expanded at base; plumage white and slate | *Amaurornis phoenicura chinensis.* | |
| | Culmen not expanded at base; plumage brown and rufous | | 7 |
| 7 | Tarsus about equal to middle toe and claw | | 8 |
| | Tarsus shorter than middle toe and claw | | 9 |
| 8 | Wing coverts barred; legs red | *Rallina fasciata.* | |
| | Wing coverts uniform; legs black | *Rallina superciliaris.* | |
| 9 | Larger; plumage partially barred below | *Limnobaenus paykulli.* | |
| | Smaller; plumage uniform below | *Limnobaenus fuscus erythrothorax.* | |
| 10 | Culmen about equal to middle toe and claw | *Hypotaenidia striata.* | |
| | Culmen much shorter than middle toe and claw | *Porzana pusilla.* | |

### 35. Heliopais personata (G. R. Gr.).

*Podica personata*, G. R. Gray, P. Z. S., 1848, p. 90, Aves, pl. 4 (Malacca); A., p. 465, (Banharon).

*Heliopais personata*, D., p. 79 (Patani); H., p. 141 (Koh Pennan, Bandon); Williamson, Journ. Nat. Hist. Soc. Siam, iii, 1918, p. 32 (Chantabun).

♂, Koh Pennan, Bandon Bight. 27 May, 1913.

Wing, 245 mm. (dry).

"Iris dark hazel; feet apple green with tinge of blue; edges of lobes and soles yellowish; lobes black beneath; bill chrome yellow, yellowish green on culmen; basal culminal process chrome yellow."

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**I.** Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
**J.** Robinson, Journ. F. M. S. Mus. vii, 1917
**K.** Kloss, Ibis, 1918.
**L.** Robinson and Kloss, Journ. N. H. Soc. Siam, iii, 1919.
**M.** Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker. Journ N. H. Soc. Siam, iii, 1919. (second part).
**M.I.** Baker, Journ. N. H. Soc. Siam, iv, 1920. (third part).

The Masked Finfoot is everywhere an extremely rare bird: it is usually found on fairly rapid rivers or small streams, feeding under the banks and, when alarmed, moving though the water with the aid of its wings, rarely taking properly to flight.

The eggs of the Masked Finfoot, hitherto unknown, have recently been discovered on the Myitmaka river, Southern Burma, and have been described by Mr. E. C. Stuart Baker in "Bull Brit. Orn. Club," xli, 1921, p. 57. A fuller account of the nidifiation is given by Mr. Cyril Hopwood, "Journ. Nat. Hist. Soc. Bombay," xxvii, 1921, pp. 634–636.

### 36. Hypotaenidia striata (Linn.).

*Rallus striatus*, Linn., Syst. Nat. i, 1766, p. 292 (Philippines).
*Rallus albiventer*, Swains. Anim. Menag. 1837, p. 337 (India).
*Hypotaenidia striata*, A., p. 468 (Tavoy); B., p. 85. (Malay Peninsula).
*Hypotaenidia striata gularis*, M.1, p. 36 (near B ngkok).

The only record for this common Rail from the area is that of Müller, from the "Malay Peninsula"—presumably adjacent to the island of Puket. Our series from the Federated Malay States is also singularly deficient, and as we have no specimens from Java we are unable to state to which of the named races the Siamese bird should be assigned. Baker calls it *gularis* (Horsf.), whereas Oberholser (Proc. U. S. Nat. Mus. 55, 1919, p. 478) confines that race to Java, and considers that birds ranging from India to the Malay Peninsula and Cochin-China should stand as *H. s. albiventris* Swainson.

Eight birds in Mr. Williamson's collection, all from the vicinity of Bangkok, agree well with three from Sumatra, but are paler both above and below than two from S. W. Borneo which are almost certainly identical with the Javan bird.

### 37. Rallina superciliaris (Eyton).

*Rallus superciliaris*, Eyton, Ann. and Mag. Nat. Hist. xvi, 1845, p. 230 (Malacca).
*Rallina fasciata*, Rob. and Kloss (*nec* Raffles); L., p 91 (Pulau Sireh, Junk Seylon).

♂. Tasan, Chumpon, Peninsular Siam. 28 March, 1919. [No. 4923].

**A.** Hume & Davison, Stray Feathers, vi, 1878.
**B.** Müller, Die Ornis der Insel Salanga, 1882.
**C.** Oates, Birds Brit. Burmah, Vols. i & ii, 1883.
**D.** Bonhote, P. Z. S. 1901, Vol. i.
**E.** O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
**F.** Robinson and Kloss, Ibis, 1910-11.
**G.** Gairdner, Journ. N. H. Soc. Siam, i, 1915.
**H.** Robinson, Journ. F. M. S. Museums, v, 1915.

Our specimen from Pulau Sireh, near Puket, which is quite immature, was unfortunately wrongly identified; it belongs to this species.

Little is known of the true breeding range: most of the specimens in our possession have been obtained either at sea or on small islands or on the tops of high mountains, evidently on passage. It can at once be distinguished from *R. fasciata* by its greenish black, not crimson, legs, and by the much smaller bill.

### 38. Rallina fasciata (Raffles).

*Rallus fasciatus*, Raffles, Trans. Linn. Soc. xiii, 1822, p. 328 (Sumatra).

*Rallina fasciata*, C. ii, p. 341 (Tavoy); D., p. 78 (Patani); H., p. 137 (Terutau).

Both this species and the following are highly migratory birds, though whether merely within local limits, or from breeding to winter quarters, is not known with certainty.

At the end of October, 1909, after a period of heavy wind and rain, this bird appeared in very large numbers near Alor Star, Kedah, and was trapped in quantity by the local Malays.

### Limnobaenus paykulli (Ljung).

*Rallus paykulli*, Ljung, Sv. Vet. Akad. Handl., 1813, p. 258, Taf. v, (Batavia).

*Rallina mandarina*, Swinh., Ann. & Mag. Nat. Hist. (4) v, 1870, p. 173 (Canton).

This species is sparsely distributed during winter in Java, Borneo and the Malay Peninsula, and appears to be a breeding bird in E. Siberia and China. It is easily confused with immature specimens of *Rallina superciliaris* from which it differs in being of a darker colour above, and in having the middle toe and claw distinctly longer than the tarsus.

The bill is shorter, and in the specimens before us the barring on the under surface is not continuous across the centre of the belly.

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**I.** Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
**J.** Robinson, Journ. F. M. S. Mus. vii, 1917.
**K.** Kloss, Ibis, 1918.
**L.** Robinson and Kloss, Journ. N. H. Soc. Siam, iii, 1919.
**M.** Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker, Journ. N. H. Soc. Siam, iii, 1919. (second part).
**M. I.** Baker, Journ. N. H. Soc. Siam, iv, 1920. (third part).

**39. Limnobaenus fuscus erythrothorax** (Temm. & Schleg.).

*Gallinula erythrothorax*, Temm. & Schleg., Faun. Japan., Aves, 1850, p. 121, pl. xxviii (Japan).
*Amaurornis fuscus*, F., p. 120 (Patani).
*Limnobaenus fuscus*, H., p. 141 (Koh Samui, Bandon).

1 ♂. West side, Koh Samui, Bandon Bight. 6 May, 1913.

Wing (dry) 103 mm.

"Iris and orbits red; bill bluish green; legs pale coral; claws black."

The typical form of this species was described from the Philippines: and birds from Java, Sumatra and the south of the Malay Peninsula, named *Rallus rubiginosus*, Temm. Pl. Col. pl. 357 (1825), are identical with it, all having the wing 98 mm. or under.

Chinese and Japanese birds, *L. f. erythrothorax*, are said to have the wing over 105 mm., while Indian (Nepal, etc.) birds, figured and named by Hodgson as *Zapornia flammiceps*, but apparently never described, are stated by Sharpe (Cat. Birds Brit. Mus. xxiii, 1894, p. 147) to be intermediate. Southern Indian birds are as small as Malayan, but have not been named.

Mr. Hartert has named the N. Indian bird *Porzana f. bakeri* (Nov. Zool. xxiv, 1917, p. 272), type from Kumaon.

We have examined twelve specimens in Mr. Williamson's collection (eleven from near Bangkok and one from Meklong), shot in the months January to May. They differ from Sumatran and Malayan birds in having the wing from 103–112 mm., against a maximum of 98, and in being paler in tint both above and below. The extent of the red on the crown is a variable quantity. We regard them all as belonging to this race and not to *P. f. bakeri*.

**40. Porzana pusilla pusilla** (Pall.).

*Rallus pusillus*, Pall., Reise Prov. Russ. Reichs. iii, p. 700 (1776—Dauria).
*Porzana auricularis*, Rchnw., Journ. für. Orn. 1898, p. 139 (new name).
*Porzana bailloni*, A., p. 467 (Tavoy).
*Porzana pusilla*, D, p. 79 (Patelung); Williamson, Journ. Nat. Hist. Soc. Siam, iii, 1918, p. 32 (Bangkok).

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A. Hume, & Davison, Stray Feathers, vi, 1878.
B. Müller, Die Ornis der Insel Salanga, 1882.
C. Oates, Birds Brit. Burmah, Vols. i. & ii, 1883.
D. Bonhote, P. Z. S. 1901, Vol. i
E. O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
F. Robinson and Kloss, Ibis, 1910-11.
G. Gairdner, Journ. N. H. Soc. Siam, i, 1915.
H. Robinson, Journ. F. M. S. Museums, v, 1915.

Rare or extremely difficult to procure in our area: probably not uncommon in the great reed beds and swamps at the north end of the Talé Sap and Talé Noi.

### 41. Amaurornis phoenicura chinensis (Bodd.).

*Fulica chinensis*, Boddaert, Tabl. Pl. Enl., 1783, p. 54 (Hong-kong).
*Gallinula phoenicura*, A., p. 466 (Banharoon).
*Erythra phoenicura*, B., p. 86 (Junk Seylon); C. ii, p. 348.
*Amaurornis phoenicura*, E., p. 120 (Jalor); F., p 11 (Trang); G., p. 132 (Ratburi and Petchaburi).
*Amaurornis phoenicura chinensis*, Stresemann, Nov. Zool. xx, 1913, p. 304 (Hong Kong); H., p. 141 (Koh Pennan); I., p. 148 (Hat Sanuk); L, p. 91 (Pulau Panjang, Ghirbi Bay); M.1, p. 37 (Patiyu).

2 ♂. Tasan, Chumpon, Peninsular Siam. 19—26 March, 1919. [Nos. 4814, 4807].

♀. Hat Sanuk, nr. Koh Lak, S. W. Siam. 17 April, 1919 [No. 5369].

"Iris red; bill sea-green, reddish above and on cere; feet yellowish brown."

Total length ♂, 323; 335; ♀, 305; wing ♂, 176, 168; ♀, 168; tail ♂, 78, 77; ♀, 70; tarsus ♂, 51, 54; ♀, 52; bill from gape ♂, 40, 40; ♀, 37.

Universally distributed over the area in suitable localities. These birds are rather large, Malayan specimens being slightly smaller than typical Chinese birds.

### Gallinula chloropus parvifrons Blyth.

*Gallinula parvifrons*, Blyth, Journ. Asiat. Soc. Bengal, xii, 1843, p. 180 (nr. Calcutta).
*Gallinula chloropus*, A., p. 466 (Tavoy Estuary).
*Gallinula chloropus parvifrons*, Claude Grant, Ibis, 1915, p. 47; Hartert, Nov. Zool. xxiv, 1917, p 268.

We have examined nine specimens from various parts of Siam, south to Bangkok. All belong to this form, which is distinguished from the European Moorhen by its small size and by having the frontal shield almost parallel-sided, not expanded posteriorly.

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I. Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
J. Robinson, Journ. F. M. S. Mus. vii, 1917.
K. Kloss, Ibis, 1918.
L. Robinson and Kloss, Journ. N. H. Soc. Siam, iii, 1919.
M. Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker, Journ. N. H. Soc. Siam, iii, 1919. (second part).
M. 1. Baker, Journ. N. H. Soc. Siam, iv, 1920. (third part)

From *Gallinula chloropus orientalis*, Horsf., Trans. Linn. Soc. xiii, 1821, p. 195 (Java), inhabitng Java, Sumatra, Borneo, and found as a breeding bird in the southern half of the Malay Peninsula, it is distinguished by the smaller frontal shield and by the brown mantle and wing coverts, which are pure grey in the Malayan bird.

There are no actual records of any kind from S. W. or Peninsular Siam, but the race is certain to be found there. *Gallinula chloropus orientalis* will probably also be found in the Patani Province.

### 42. Gallicrex cinerea (Gm.).

*Fulica cinerea*, Gm., Syst. Nat. i, 1788 p. 702, (China).
*Gallicrex cinerea*, A., p. 466 (Tavoy); D., p. 79 (Patelung); E., p. 120 (Patani town); G., p. 152 (Ratburi and Petchaburi).

The Water Cock is probably common in swampy situations and at the edges of ricefields throughout the country.

### 43. Porphyrio calvus edwardsi Elliot.

*Porphyrio edwardsi*, Elliot, Ann. & Mag. Nat. Hist. (5) i, 1878, p. 98 (Cochin China); id., Stray Feathers, vii, 1878, p. 23, pl.; Hume, Stray Feath ix, 1880, p. 121 (Klang, Selangor).
? *Porphyrio poliocephalus*, G., p. 151 (Ratburi and Petchaburi).

Gairdner's record is the only one for the genus in the vicinity of the area now being dealt with. It is just possible that his identification is correct, and that the bird he obtained was really *P. poliocephalus*, which differs from the present form in having the mantle bluish green, not blackish, with, at most, an oily green wash. The distinctness of the present subspecies from the typical Javan form, *P. calvus*, is open to strong doubt; it only differs in having the head ashy grey in the majority of birds, while in the majority of Javan and Sumatran specimens the head is dark: this, however, as Sharpe points out (Cat. Birds Brit. Mus. xxiii, 1894, p. 201) may be largely due to the effects of wear.

We have examined two birds from the vicinity of Chiengmai in Mr. Williamson's collection, which are certainly *P. poliocephalus*, another from Chainat, C. Siam, which is probably *edwardsi* though there is a wash of greenish on the secondaries and mantles. Another

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**A.** Hume & Davison, Stray Feathers, vi, 1878.
**B.** Müller, Die Ornis der Insel Salanga, 1882.
**C.** Oates, Birds Brit. Burmah, Vols. i & ii, 1883.
**D.** Bonhote, P. Z. S. 1901, Vol. .
**E.** O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
**F.** Robinson and Kloss, Ibis, 1910-11.
**G.** Gairdner, Journ. N. H. Soc. Siam, i, 1915.
**H.** Robinson, Journ. F. M. S. Museums, v, 1915.

specimen from the same locality is certainly *edwardsi*. A male in freshly moulted plumage from Klong Samrong, nr. Bangkok, shot in November, has the mantle, inner secondaries and tail glossy black, with practically no trace of oily green wash. It may be taken as typical *P. e. edwardsi*. There are, however, too many nominal "species" in the genus.

In the Malay Peninsula the bird is rare and local: it is, however, almost certain to be found in Trang and in the vicinity of the Talé Noi and Talé Sap in Patelung and Singora.

The bird of Malacca has been described and named *Porphyrio viridis* by Begbie—a matter hitherto overlooked ("The Malayan Peninsula," 1834, p. 515). We cannot say, for lack of sufficient material, whether the name must be accepted.

## PODICIPEDIDAE.

### GREBES.

### 44. Podicipes fluviatilis philippensis (Bonn.).

*Colymbus philippensis*, Bonnat, Tabl. Encycl. Méth. i, (1790), p. 58, pl. 46, fig 3.
*Podicipes philippensis*, D., p. 80 (Patelung).
*Podicipes albipennis*, Williamson, Journ. Nat Hist Soc. Siam, iii, 1918, p. 42 (Central and S. E. Siam).

3 ♂, 4 ♀ *hyem.* Koh Lak, S. W. Siam, 7 April, 1919. (Nos. 5124–8, 5143, 5145).

"Iris lemon; lower mandible cream, upper mandible black, tomia pale yellow, culmen black, base of bill pale green; feet dark sage green."

Total length ♂, 238, 275, 240; ♀, 233, 238, 243, 252; wing ♂, 107, 101, 109; ♀, 103, 102, 103, 103; tarsus ♂, 34, 32, 34; ♀, 35, 32, 32, 33; bill from gape ♂, 26.5, 30, 30; ♂, 26.5, 28.5, 26, 28 mm.

These birds, which are all in non-breeding plumage, are not typical *P. f. philippensis*; two specimens (Nos. 5125–5126) show an approach to *P. capensis* (of which *P. albipennis* is a synonym)

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I. Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
J. Robinson, Journ. F. M. S. Mus. vii, 1917.
K. Kloss, Ibis, 1918.
L. Robinson and Kloss, Journ. N. H. Soc. Siam, iii, 1919.
M. Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker, Journ. N. H. Soc. Siam, iii, 1919. (second part).
M. I. Baker, Journ. N. H. Soc. Siam, iv, 1920. (third part).

in the greater extent of white on the inner primaries and secondaries. The same is the case in a female in breeding plumage in Mr. Williamson's collection from Chantabun. Grant (Cat. Birds Brit. Mus. xxvi (1898), pp. 512–514) has noted the same tendency in birds from Burma and Luzon.

Our men found this Grebe very common on a shallow pond on the edge of a swamp near the coast, together with two species of Parridae.

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**A.** Hume & Davison, Stray Feathers, vi, 1878.
**B.** Müller, Die Ornis der Insel Salanga, 1882.
**C.** Oates, Birds Brit. Burmah, Vols. i & ii, 1883.
**D.** Bonhote, P. Z. S. 1901, Vol. i.
**E.** O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
**F.** Robinson and Kloss, Ibis, 1910-11.
**G.** Gairdner, Journ. N. H. Soc. Siam, i, 1915.
**H.** Robinson, Journ. F. M. S. Museums, v, 1915.

## LARIDAE

GULLS AND TERNS.

1 { Bill much compressed, knife-like .. *Rhynchops* (extra limital).
  { Bill normal .. .. .. .. .. .. 2

2 { Upper mandible longer than the lower .. .. *Larus bruneicephalus*.
  { Mandibles of equal length .. .. .. .. .. 3

3 { Plumage dark above and below: outermost tail feather not the longest .. .. .. .. *Anous stolidus*.
  { Plumage not dark below: outermost tail feather the longest .. .. 4

4 { Tarsus long, exceeding middle toe and claw .. *Gelochelidon anglica*.
  { Tarsus short, less than middle toe and claw .. .. .. 5

5 { Bill very stout, tail less than 1/3 the wing .. .. *Hydroprogne caspia*.
  { Bill normal, tail 1/2 the wing or more .. .. .. .. 6

6 { Tail almost square, the feathers rounded .. .. .. .. 7
  { Tail forked, the feathers pointed .. .. .. .. 8

7 { Larger, bill blood-red in breeding plumage: tail grey in non-breeding plumage .. .. *Hydrochelidon hybrida*.
  { Smaller, bill dull red in breeding plumage: tail white in non-breeding plumage .. .. .. *H. leucoptera*.

8 { Tail long, exceeding 3/4 the wing .. .. *Seena seena*.
  { Tail shorter, less than 2/3 the wing .. .. .. .. 9

9 { Mantle and back sooty brown .. .. .. *Sterna anaetheta*.
  { Mantle and back grey .. .. .. .. .. 10

10 { Large, wing over 11.5 inches .. .. .. .. .. 12
   { Medium, wing not more than 11 inches .. .. .. .. 15
   { Small, wing less than 8 inches .. .. .. .. 11

11 { Larger, bill greenish .. .. .. *S. bergii pelecanoides*.
   { Smaller, bill orange or yellow .. .. .. .. *S. media*.

12 { Whole crown always white .. .. .. *S. sumatrana*.
   { Crown black or partially black .. .. .. .. .. 13

13 { Feet blackish .. .. .. .. *S. longipennis*.
   { Feet reddish .. .. .. .. .. .. 14

14 { Inner webs of primaries edged with white to the tips: bill red: feet brighter .. .. .. .. *S. dougalli*.
   { Inner webs of primaries not edged with white to the tips: bill black: feet duller .. .. .. *S. fluviatilis tibetana*.

15 { Shafts of all primaries white .. .. .. .. *S. sinensis*.
   { Shafts of two outer primaries brown .. .. .. *S. minuta*.
   { Shafts of three outer primaries brown .. .. *S. saundersi*.

NOTE. *In this Order we have not, as a rule, attempted to attach rigorously correct subspecific names to the various forms. This is almost impossible without comparative material from all parts of the Oriental and Australasian regions, which is not in our possession.*

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**I.** Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
**J.** Robinson, Journ. F. M. S. Mus. vii, 1917
**K.** Kloss, Ibis, 1918.
**L.** Robinson and Kloss, Journ. N. H. Soc. Siam, iii, 1919.
**M.** Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker. Journ N. H. Soc. Siam, iii, 1919. (second part).
**M.I.** Baker, Journ. N. H. Soc. Siam, iv, 1920. (third part).

### 45. Larus brunneicephalus Jerd.

*Larus brunneicephalus*, Jerdon, Madras Journ. L. S. xii, 1840, p. 25 (Madras); A, p. 491 (south to Tongka); I., p. 148 (Inner Gulf of Siam); Williamson, Journ. Nat. Hist. Soc. Siam, iii, 1918, p. 36 (Inner Gulf of Siam).

On the western side of Peninsular Siam only doubtfully recorded as a rare straggler as far south as Junk Seylon in winter. Apparently common in winter on the eastern side in the Inner Gulf of Siam and as far south as Koh Lak. Quite unknown from Malayan waters.

### 46. Hydrochelidon hybrida (Pall.).

*Sterna hybrida*, Pall., Zoogr. Rosso-Asiat. ii, p. 338 (1811, Volga).
*Hydrochelidon hybrida*, Williamson, Journ. Nat. Hist. Soc. Siam, i, 1914, p. 48 (Bangkok); I., p. 147 (1916); Williamson, op. cit. iii, 1918, p. 37 (Bangkok).

The occurrence of the Whiskered Tern in the area rests for the present on Gyldenstolpe's bird from Koh Lak, shot in December, and therefore probably in winter plumage. This bird had a wing of 220 mm., which, though large for *H. leucoptera*, is small for *H. hybrida*, so that the identification yet remains to be fully confirmed. The species is, however, abundant in the vicinity of Bangkok, and in east and central Siam, whence we have examined many specimens, both in breeding and winter plumage, in the collection of Mr. W. J. F. Williamson.

### 47. Hydrochelidon leucoptera (Meisn. & Schinz).

*Sterna leucoptera*, Meisner & Schinz, Vög. Schweiz, 1815, p. 264 (Lake Geneva).
*Hydrochelidon leucoptera*, Williamson, Journ. Nat. Hist. Soc. Siam, iii, 1918, p. 37 (nr. Bangkok).

All specimens of this genus that we possess from the Straits of Malacca, north to Penang and the Siamese boundary, are this species which, in immature and winter plumage, can only be distinguished from the preceding by its smaller size, white tail and tail-coverts, and markedly shorter bill. We have seen two specimens from Bangkok in young and winter plumage, shot in April and

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**A.** Hume & Davison, Stray Feathers, vi, 1878.
**B.** Müller, Die Ornis der Insel Salanga, 1882.
**C.** Oates, Birds Brit. Burmah, Vols. i & ii, 1883.
**D.** Bonhote, P. Z. S. 1901, Vol. i.
**E.** O. Grant, Fasciculi Malayenses, iii (Birds), 1905
**F.** Robinson and Kloss, Ibis, 1910-11.
**G.** Gairdner, Journ. N. H. Soc. Siam, i, 1915.
**H.** Robinson, Journ. F. M. S. Museums, v, 1915.

October, which we believe to be this form, but pending the receipt of adult birds in breeding plumage the identification is doubtful. Immature and winter plumage specimens of *H. hybrida* appear to have the crown more streaked than in this species.

### 48. Hydroprogne caspia (Pall.).

*Sterna caspia*, Pall., Nov. Comm. Petrop. xiv, i, p. 582, tab. xxii, fig. 2 (1770).

*Hydroprogne caspia*, Williamson, Journ. Nat. Hist. Soc. Siam, iii, 1918, p. 37 (Tachin, Inner Gulf of Siam).

The birds obtained by Williamson at Tachin are the only records for this species from Siam. The bird is the largest of all the terns, with a wing exceeding 400 mm. (16 inches), and with an exceptionally heavy bill.

### 49. Gelochelidon anglica (Mont.).

*Sterna anglica*, Mont., Orn. Dict. Suppl. 1813, fig. (Sussex); Williamson, Journ. Nat. Hist. Soc. Siam, ii, 1916, p. 62 (Inner Gulf of Siam).

*Gelochelidon anglica*, A., p. 491 (Mergui); H. Saunders, Cat. Birds Brit. Mus. xxv, 1896, p. 31., spm. *s'* (Pakchan).

Very common in the Straits of Malacca in the winter months: we have not ourselves met with it in Siamese waters.

### 50. Seena seena (Sykes).

*Sterna seena*, Sykes, P. Z. S. 1832, p. 171 (Deccan); I., p. 148 (Koh Lak).

Gyldenstolpe's record of this river tern from Koh Lak is the most southerly one. The species is not found in the Straits of Malacca, and Kelham's records (Ibis, 1882, p. 201) are referable to *Sterna media* Horsf. We have examined his specimens, which are preserved in the Raffles Museum, Singapore.

### 51. Sterna bergii pelecanoides (King).

*Sterna cristata*, Steph. in Shaw's Gen. Zool. xiii, Pt. 1, 1825, p. 146 (China).

*Sterna pelecanoides*, King, Surv. Inter trop. and West Coast Australia, Vol. 2, 1827, p. 422 (Torres Straits).

*Sterna bergii*, A., p. 493 (Bokpyin); C. ii, p. 428; E., p. 11 (Terutau); Williamson, Journ. Nat. Hist. Soc. Siam, iii, 1918, p. 83 (Koh Rin and Koh Chuan, Inner Gulf of Siam).

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**I.** Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
**J.** Robinson, Journ. F. M. S. Mus. vii, 1917.
**K.** Kloss, Ibis, 1918.
**L.** Robinson and Kloss, Journ. N. H. Soc. Siam, iii, 1919.
**M.** Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker, Journ. N. H. Soc. Siam, iii, 1919. (second part).
**M. I.** Baker, Journ. N. H. Soc. Siam, iv, 1920. (third part).

*Thalasseus bergii pelecanoides*, J., p. 143 (Terutau).

The Malayan material in our possession, though larger than that in the hands of Mr. Oberholser, is not sufficient to enable us satisfactorily to discriminate the local races of these sea-terns, our area being apparently the meeting places of three nominal forms, viz, *S. b. cristatus*, *S. b. edwardsi* and *S. b. pelecanoides*, but the balance of probability is that the birds on the eastern side of the Peninsula will prove to be *S. b. cristatus*, while, according to Oberholser, those from the west should be *S. b. edwardsi*. We are unable to separate Terutau and Langkawi birds from Tioman and Rhio Island specimens which, *fide* Oberholser, should be *S. b. pelecanoides* King.

We have examined nine fully adult birds in fresh breeding plumage from various islands in the Inner Gulf of Siam. Eight males have the wing 334–360 mm. and a female 335, the median being 347 mm. On the whole, therefore, we refer all Malayo-Siamese birds to the Australian *S. b. pelecanoides*.

### Sterna media Horsf.

*Sterna media*, Horsfield, Trans. Linn. Soc. xiii, 1821, p. 198 (Java); Howard Saunders, Cat. Birds Brit. Mus. xxv, 1896, p. 86.

This large tern, which is easily recognised by its somewhat slender, yellow-orange bill, is sparingly distributed in the Straits of Malacca. We have obtained it north of Penang, and there is little doubt that it will be found on the coast of west Siam: though it is only doubtfully recorded from the Tenasserim coast. It will not, in all probability, be found on the eastern side.

### 52. Sterna fluviatilis tibetana Saunders.

*Sterna tibetana*, Saunders, P. Z. S. 1876, p. 649 (Thibet); Hume, Stray Feath. viii, 1879, p. 158 (Tongka).

*Sterna longipennis*, Saunders, Cat. Birds Brit. Mus. xxv, 1896, p. 60, spms. u., v.

*Sterna fluviatilis tibetana*, J., p. 142 (Terutau).

Terns of this group are common in the Straits of Malacca, and have been referred indifferently to the common European tern

**A.** Hume & Davison, Stray Feathers, vi, 1878.
**B.** Müller, Die Ornis der Insel Salanga, 1882.
**C.** Oates, Birds Brit. Burmah, Vols. i & ii, 1883.
**D.** Bonhote, P. Z. S. 1901, Vol. i.
**E.** O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
**F.** Robinson and Kloss, Ibis, 1910-11.
**G.** Gairdner, Journ. N. H. Soc. Siam, i, 1915.
**H.** Robinson, Journ. F. M. S. Museums, v, 1915.

and to *S. longipennis* Nordm., a somewhat closely related species breeding in North China, Kamschatka, etc., and wintering in the south. All the birds found in these waters are, however, either immature or in winter plumage, and it is impossible to identify them with any great certainty.

The balance of probability is in favour of their belonging to the Asiatic race, which breeds in Tibet, etc., and winters in the south. The bird has not been found on the East Coast of Siam.

### 53. Sterna dougalli Mont.

*Sterna dougalli*, Mont., Orn. Dict. Suppl. 1813, fig. (no pagination-Scotland); A., p. 492 (Laynah Creek); H., p 142 (Koh Pennan); Williamson, Journ. Nat. Hist. Soc. Siam, ii, 1916, p. 63 (Koh Rin and Koh Phai, Inner Gulf of Siam).

The Roseate Tern has been much divided and many names are available for eastern and southern races, but we do not here attempt precisely to assign the Siamese specimens to any subspecies.

Two birds obtained by ourselves on Koh Pennan on 26th May, 1913, in freshly moulted full breeding plumage, have the tarsi and toes orange-red, the claws blackish, and the bills entirely black with no trace of red whatever. Wing ♂, 228: ♂, 213 mm.

On the other hand, three males from Pulau Jemor, Aroa Ids., Straits of Malacca, shot on 2nd. August, 1906, also in full breeding plumage, have the tarsi, toes and claws orange-red, and the bills also orange-red with no trace whatever of black. Wing ♂, 214, 217, 230 mm.

### 54. Sterna sumatrana sumatrana Raffles.

*Sterna sumatrana*, Raffles, Trans. Linn. Soc. xiii, 1821, p. 329 (immature—Sumatra); A., p. 493 (Tenasserim).

*Sterna melanauchen*, Temminck, Pl. Col. 1827 (Coast of Celebes); H., pp. 18, 142 (Koh Pennan, Bandon Bight); Williamson, Journ. Nat. Hist. Soc. Siam, ii, 1916, p. 63 (Inner Gulf of Siam).

This beaultiful tern, which in life has a delicate rosy flush over the under surface like in *S. dougalli*, is a species frequenting rocky islands and keeping as a rule well out to sea. It is common

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I. Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
J. Robinson, Journ. F. M. S. Mus. vii, 1917.
K. Kloss, Ibis, 1918.
L. Robinson and Kloss, Journ. N. H. Soc. Siam, iii, 1919.
M. Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker, Journ. N. H. Soc. Siam, iii, 1919. (second part).
M. I. Baker, Journ. N. H. Soc. Siam, iv, 1920. (third part).

on both coasts of Peninsular Siam and breeds there in May and June, laying a single egg on ledges of bare rock often only three or four feet above high tide.

There is unfortunately little doubt that *S. sumatrana* Raffles is founded on a half grown bird of this species, and the name will therefore have to replace the widely known *S. melanauchen*.

### Sterna anaetheta anaetheta Scop.

*Sterna anaetheta*, Scop., Del. Flor. et. Faun. Insubr. Pt. 2, 1786, p. 92 (Panay); A., p. 493 (Mergui); Williamson, Journ. Nat. Hist. Soc. Siam, ii, 1916, p. 63; id. op. cit. iii, 1918, p. 85 (Inner Gulf of Siam).

Probably fairly common, well out to sea, along both coasts of Peninsular Siam. It is common in the Straits of Malacca and breeds in the Aroa Ids. In the Tioman Archipelago, off the coast of Pahang, it is also a breeding bird.

*Sterna fuliginosa* (Gm.), which differs from the above in its larger size and broader white frontal band and superciliaries, is recorded from Petchaburi by Parrot (Verhandl. Orn. Ges. Bayern, 8, 1908, p. 127). It is recorded from Pegu and Tounghoo by Saunders (Cat. Birds Brit. Mus. xxv, 1896, p. 110) and may possibly be found in the Gulf of Siam. We have seen no specimens referable to it from our area.

### 55. Sterna sinensis Gm.

*Sterna sinensis*, Gm., Syst. Nat. i, 1788, p. 60 (China); D., p. 80 (Patelung); E., p. 119 (Patani); Williamson, Journ. Nat. Hist. Soc. Siam, iii, 1918, p. 37 (S. W. Siam).

These small terns, except in summer plumage, are extremely difficult to separate, and it is by no means certain that the alleged differences are constant. The present form has the shafts of the outer primaries white, and the size larger, the wing as a rule exceeding 180 mm. In the Malay Peninsula it breeds on the sand-banks on the rivers of the east coast for some distance up from their mouths.

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**A.** Hume & Davison, Stray Feathers, vi, 1878.
**B.** Müller, Die Ornis der Insel Salanga, 1882.
**C.** Oates, Birds Brit. Burmah, Vols. i & ii, 1883.
**D.** Bonhote, P. Z. S. 1901, Vol. i.
**E.** O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
**F.** Robinson and Kloss, Ibis, 1910-11.
**G.** Gairdner, Journ. N. H. Soc. Siam, i, 1915.
**H.** Robinson, Journ. F. M. S. Museums, v, 1915.

We have examined three specimens in breeding plumage from Koh Lak dated end of June, and three from Hua Hin, also in June, in Mr. W. J. F. Williamson's collection. Wing 174–180 mm. The black up the bill is a somewhat variable character, and in one bird from Hua Hin is practically absent.

### Sterna minuta Linn.

*Sterna minuta*, Linn., Syst. Nat. i, 1776, p. 228 (Europe).
*Sterna sinensis*, Hume, Stray Feathers, viii, 1879, p. 160 (Klang).
*Sterna gouldi*, Hume, op. cit. ix, 1880, p. 131.

Though not actually recorded as yet, the European Little Tern is certain to be found in winter on both coasts of Siam; we have it from the coast of Selangor. From *S. sinensis*, in winter plumage, it can be separated by its dark shafts to the two outer primaries and its smaller size.

### Sterna saundersi Hume.

*Sterna saundersi*, Hume, Stray Feathers v, 1877, pp. 324-6 (Karachi).

This eastern form can be recognized by having the shafts of the three outer primaries dark, and the wing about 170 mm. It is met with in fair numbers in the Straits of Malacca during the winter months, and will quite possibly be found on both Siamese coasts, though it has not as yet been recorded from the area.

### Anous stolidus (Linn.).

*Sterna stolida*, Linn., Syst. Nat. i, 1766, p. 227 (American Seas).
*Anous stolidus*, Williamson, Journ. Nat. Hist. Soc. Siam, iii, 1919, p. 88 (Koh Chuan, Inner Gulf of Siam).

The only Siamese locality for this cosmopolitan tern is the above island in the Inner Gulf of Siam, off the S. E. coast, where it was found breeding by Williamson in May 1918. It is extremely rare in the Straits of Malacca, but we have one specimen from Pulau Jarak, off the Dindings, shot by Mr. Seimund on November 16th, 1919, on which date large numbers were seen.

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**I.** Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
**J.** Robinson, Journ. F. M. S. Mus. vii, 1917.
**K.** Kloss, Ibis, 1918.
**L.** Robinson and Kloss, Journ. N. H. Soc. Siam, iii, 1919.
**M.** Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker, Journ. N. H. Soc. Siam, iii, 1919. (second part).
**M. I.** Baker, Journ. N. H. Soc. Siam, iv, 1920. (third part).

## LIMICOLÆ.

PLOVERS, WADERS, SNIPE, ETC.

| | | | |
|---|---|---|---|
| 1 | Nostrils impervious, form swallow-like | *Glareola p. maldivarum.* | |
| | Nostrils pervious | | 2 |
| 2 | Eye very large, bill extremely stout and heavy | | 3 |
| | Eye not specially large, bill not specially heavy | | 5 |
| 3 | Toes three | | 4 |
| | Toes four | *Dromas ardeola.* | |
| 4 | Bill longer than head; plumage not strongly streaked | *Orthorhamphus m. scommophorus.* | |
| | Bill shorter than head; plumage strongly streaked | *Oedicnemus œ. indicus.* | |
| 5 | Toes and claws enormously elongated | | 6 |
| | Toes and claws not specially elongated | | 7 |
| 6 | With frontal lappets; primaries without terminal processes | *Metopidius indicus.* | |
| | With no frontal lappets; primaries with terminal processes | *Hydrophasianus chirurgus.* | |
| 7 | With the nasal groove not extending beyond half the length of the culmen | | 8 |
| | With the nasal groove extending over the greater part of the upper mandible | | 19 |
| 8 | Bill not much longer than head | | 9 |
| | Bill very much longer than head | *Himantopus himantopus.* | |
| 9 | With the bill not markedly swollen at the tips of mandibles | *Arenaria interpres.* | |
| | With the bill markedly swollen at the tips of both mandibles | | 10 |
| 10 | With a spur or knob at the angle of the wing | | 11 |
| | With no spur or knob at the angle of the wing | | 12 |
| 11 | With a wattle in front of the eye | *Sarcogrammus i. atronuchalis.* | |
| | With no wattle in front of the eye | *Hoplopterus ventralis.* | |
| 12 | With a hind toe | *Squatarola helvetica.* | |
| | With no hind toe | | 13 |
| 13 | Plumage above spotted with yellow | *Charadrius pluvialis fulvus.* | |
| | Plumage above not spotted with yellow | | 14 |
| 14 | No complete white ring round the neck | | 15 |
| | A complete white ring round the neck | | 17 |
| 15 | Bill stout; shaft of 3rd primary partly white | | 16 |
| | Bill slender; shaft of 3rd primary dark throughout; wing 6.5 inches | *Aegialitis veredus.* | |
| 16 | Larger; bill from gape 1.0; wing 5.5 inches | *Aegialitis geoffroyi.* | |
| | Smaller; bill from gape 0.75; wing 5.0 inches | *Aegialitis mongolus.* | |
| 17 | A black or fuscus band across the fore-breast | *Aegialitis dubius curonicus.* | |
| | No black or fuscus band across the fore-breast | | 18 |
| 18 | Bill larger | *Aegialitis alexandrinus dealbatus.* | |
| | Bill smaller | *Aegialitis a. peroni.* | |

| | | |
|---|---|---|
| 19 | Toes markedly webbed | 20 |
| | Toes practically free to the base | 34 |
| 20 | Bill long, much exceeding the tail | 21 |
| | Bill moderate, not much if at all exceeding the tail | 25 |
| 21 | Bill strongly curved | 22 |
| | Bill almost straight | 23 |
| 22 | Smaller; top of head with a single median stripe — *Numenius ph. phœopus.* | |
| | Larger; top of head much striped — *Numenius a. lineatus.* | |
| 23 | Bill widened and pitted at the tip — *Macrorhamphus g. taczanowskii.* | |
| | Bill not widened or pitted at the tip | 24 |
| 24 | Tail barred — *Limosa limosa melanuroides.* | |
| | Tail not barred — *Limosa lapponica novae-zelandiae.* | |
| 25 | Bill from gape not less than the tarsus or only slightly less | 26 |
| | Bill from gape less than tarsus | 33 |
| 26 | Bill straight or slightly curved downwards | 27 |
| | Bill curved upwards | 31 |
| 27 | Tarsus much longer than middle toe and claw | 29 |
| | Tarsus equal to, or shorter than, middle toe and claw | 28 |
| 28 | Wing over 5 inches; rump white — *Totanus ochrophus.* | |
| | Wing under 5 inches; rump like the back — *Tringoides hypoleucos.* | |
| 29 | Legs red or reddish | 30 |
| | Legs sage-green — *Totanus stagnatilis.* | |
| 30 | Secondaries pure white — *Totanus calidris.* | |
| | Secondaries barred brown and white — *Totanus fuscus.* | |
| 31 | Bill very slender — *Terekia cinerea.* | |
| | Bill much stouter | 32 |
| 32 | Inner and middle toes united at the base by a membrane; bill stout; tarsus less than 2 inches — *Pseudoglottis guttifer.* | |
| | Inner and middle toes hardly united at the base by a membrane; bill more slender; tarsus more than 2.25 inches — *Glottis nebularius.* | |
| 33 | Wing 6.5 inches and over; sexes markedly different in breeding plumage — *Pavoncella pugnax.* | |
| | Wing less than 5.5 inches; sexes practically alike in breeding plumage — *Rhyacophilus glareola.* | |
| 34 | Eyes not placed far back in head | 35 |
| | Eyes placed far back in head | 40 |
| 35 | Bill from gape not longer than tarsus | 36 |
| | Bill from gape longer than tarsus | 38 |
| 36 | Only first primary with shafts white | 37 |
| | All primaries with shafts partly white — *Limonites minuta.* | |
| 37 | All tail feathers pale brown; middle toe 0.9 inch — *Limonites m. subminuta.* | 9 |
| | Outer tail feathers pure white; middle toe 0.75 inch — *Limonites temmincki.* | 7 |
| 38 | Bill straight; wing about 7 inches — *Tringa tenuirostris.* | |
| | Bill decurved at tip; wing less than 6 inches | 39 |
| 39 | Bill narrow; wing about 5 inches — *Ancylochilus subarquatus.* | |
| | Bill broad; wing about 4 inches — *Limicola platyrhyncha.* | |

| | | | |
|---|---|---|---|
| 40 | Bill decurved, not pitted at tip; sexes dissimilar .. | *Rostratula capensis.* | |
| | Bill almost straight, pitted at tip; sexes similar .. | .. .. | 41 |
| 41 | Black markings on head and neck longitudinal .. | .. .. | 42 |
| | Black markings on head and neck transverse .. | *Scolopax rusticola.* | |
| 42 | Distance between tips of shortest secondries and longest primary less than 2 inches; tail feathers 18 .. | *Gallinago nemoricola.* | |
| | Distance between tips of shortest secondries and longest primary more than 2 inches .. .. | .. .. | 43 |
| 43 | Outer tail feathers not narrowed, and not exceeding 16 | *Gallinago gallinago.* | |
| | Outer tail feathers narrowed, exceeding 18 .. .. | .. .. | 44 |
| 44 | Tail feathers 26; outer 8 on each side very narrow .. | *Gallinago sthenura.* | |
| | Tail feathers 20; outer 6 on each side rather narrow .. | *Gallinago megala.* | |

### 56. Glareola pratincola maldivarum Forst.

*Glareola* (*Pratincola*) *maldivarum*, Forster, Faun. Ind., p. 11, 1795 (Maldives); I., p. 142 (Koh Lak).
*Glareol i orientalis*, A., p. 454.

♂. Koh Lak, S. W. Siam. 6 April, 1919. (No. 5110).

"Iris dark; bill black, crimson at base; feet greyish black."

Total length 228; wing 189; tail 82; tarsus 37; bill from gape 25.5 mm.

### Dromas ardeola Payk.

*Dromas ardeola*, Paykull, Kungl. Vet. Akad. Handl. Stockh. xxvi, 1805, pp. 182, 188, tab. 8 (India); Robinson, Journ. Fed. Malay States Mus. v, 1913, p. 17 (Pulau Pintu Gedong, Selangor).

The Crab-Plover has once been obtained in the Straits of Selangor and may occur on the west coast of Siam. In colour the bird is mainly black and white, and may be recognised by the characters given in the key.

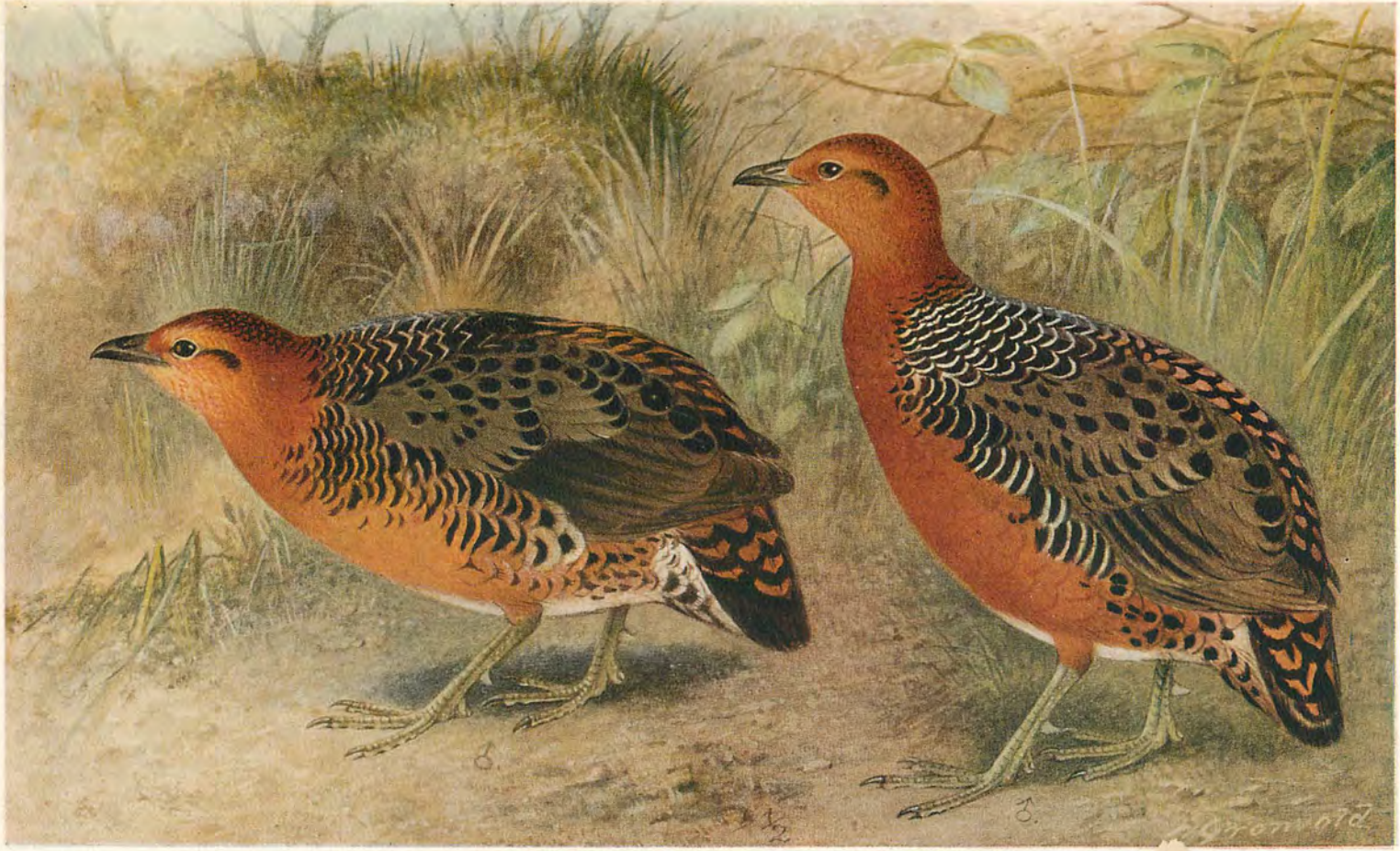
### 57. Orthorhamphus magnirostris scommophorus Oberholser. *

*Esacus magnirostris*, A., p. 459 (Mergui Archipelago).
*Orthorhamphus magnirostris scommophorus*, Oberholser, Proc. U. S. Nat. Mus. 55, 1919, p 133 (Tambelan Ids.).

♂ ad. De Lisle Id. (Koh Piam), W. Siam. 19 February, 1919. (No. 4128).

* We use Oberholser's name, though, as Mathews and Iredale point out (Man. Birds Australia, i, 1921, p. 118), its application is based on a misconception due to an error in labelling.

**A.** Hume, & Davison, Stray Feathers, vi, 1878.
**B.** Müller, Die Ornis der Insel Salanga, 1882.
**C.** Oates, Birds Brit. Burmah, Vols. i. & ii, 1883.
**D.** Bonhote, P. Z. S. 1901, Vol. i
**E.** O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
**F.** Robinson and Kloss, Ibis, 1910-11.
**G.** Gairdner, Journ. N. H. Soc. Siam, i, 1915.
**H.** Robinson, Journ. F. M. S. Museums, v, 1915.



VITTY & SEABORNE, LTD.,
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CALOPERDIX OCULEA SUMATRANA, Ogilvie Grant. CALOPERDIX OCULEA OCULEA (Temm.)

"Iris yellow-brown; bill black, yellowish green at base; tarsi pale wax-yellow, toes more greyish slate."

Total length 532; wing 272; tail 128; tarsus 88; bill from gape 85 mm.

This Stone-Plover has not been recorded previously from Siam. It has been seen or obtained on several occasions in the Mergui Archipelago, of which De Lisle Id. is practically one. The present bird was one of a pair feeding on the edge of a reef at low tide.

This form is stated to differ from the typical Australian race only in its slightly shorter bill. No large series appear to have been examined.

**Oedicnemus oedicnemus indicus** (Salvad.).

*Oedicnemus indicus*, Salvad., Atti Soc. Ital. Sci. Nat. viii, 1866, p. 380 (Himalayas).

*Oedicnemus scolopax*, C. ii, p. 356; Williamson, Journ. Nat. Hist. Soc. Siam, iii, 1918, p. 33 (near Bangkok).

The Indian Stone-Curlew will not improbably be found on dry plains in S. W. and Peninsular Siam. It can be separated from the preceding by its relatively smaller and shorter bill and by its more streaked and variegated plumage.

**58. Metopidius indicus** (Lath.).

*Parra indica*, Latham, Ind. Orn. ii, 1790, p. 765 (India).

*Metopidius indicus*, G., p. 152 (Ratburi and Petchaburi).

♂, ♀. Koh Lak, S. W. Siam. 7 April, 1919. (Nos. 5142, 5144).

"Iris dark; bill yellow, base of upper mandible, from nostrils, and shield dull olive-green; feet pale red-green, tibia more yellowish".

Total length ♂, 270; ♀, 290; wing ♂, 162; ♀, 173; tail ♂, 43; ♀, 43; tarsus ♂, 70; ♀, 74; bill from gape ♂, 32; ♀, 37 mm.

These birds do not appear to be very young—the feathers of the upper surface having no sandy margins—but the under surface is

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I. Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
J. Robinson, Journ. F. M. S. Mus. vii, 1917.
K. Kloss, Ibis, 1918.
L. Robinson and Kloss, Journ. N. H. Soc. Siam, iii, 1919.
M. Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker, Journ. N. H. Soc. Siam, iii, 1919. (second part).
M. I. Baker, Journ. N. H. Soc. Siam, iv, 1920. (third part).

uniform whitish, strongly washed with buff on the breast. The crowns are chestnut, streaked with black, and the frontal wattles are smaller than in dark bellied birds. Possibly they represent a non-breeding, as distinct from a juvenile, plumage. Ten specimens in Mr. Williamson's collection from various parts of Siam, dated November to April, all have the under surface black.

### 59. Hydrophasianus chirurgus (Scop.).

*Tringa chirurgus*, Scop., Del. Flor. et Faun. Insubr. ii, 1786, p. 92 (Philippines).

*Hydrophasianus chirurgus*, G., p. 152 (Ratburi and Petchaburi); M.1., p. 38 (Krabin, C. Siam).

♀. Koh Lak, S. W. Siam. 6 April, 1919. (No 5211).

"Iris dark; bill bluish sea-green, darker at base; feet sea-green".

Total length 213; wing 215; tail 63; tarsus 52.5; bill from gape 32 mm.

This Jacana, with white lower plumage (winter), was shot on a shallow lagoon together with grebes and the preceding species. It has not hitherto been recorded from Siam, with the exception of Gairdner's and Stuart Baker's specimens. Mr. W. J. F. Williamson informs us, however, that he found the bird in considerable numbers at Klong Rangsit, a little to the north of Bangkok, in January 1916, on flooded ground largely covered with reeds and coarse grasses. In the Malay Peninsula it is widely distributed but extremely rare.

### 60. Himantopus himantopus (Linn.).

*Charadrius himantopus*, Linn., Syst. Nat. i, 1766, p. 255 (Europe).

*Himantopus himantopus*, L., p. 145 (between Ratburi and Koh Lak).

*Himantopus candidus*, Williamson, Journ. N. H. Soc. Siam, iii, 1918, p. 35 (Meklong); M. 1., p. 39 (Paklat, nr. Bangkok).

The above records by Gyldenstolpe, Williamson and Stuart Baker are the sole ones from the Kingdom of Siam*. The bird has

*We believe this bird to be fairly common in suitable localities, at all events in the central parts of the country. It is well-known to the Siamese and has a distinctive name, *Nok tin t'hian* (นกตีนเทียน).—Eds.

**A.** Hume & Davison, Stray Feathers, vi, 1878.
**B.** Müller, Die Ornis der Insel Salanga, 1882.
**C.** Oates, Birds Brit. Burmah, Vols. i & ii, 1883.
**D.** Bonhote, P. Z. S. 1901, Vol. i.
**E.** O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
**F.** Robinson and Kloss, Ibis, 1910-11.
**G.** Gairdner, Journ. N. H. Soc. Siam, i, 1915.
**H.** Robinson, Journ. F. M. S. Museums, v. 1915.

been obtained twice in the Peninsula, in Jelebu and in Singapore Island.

### 61. Arenaria interpres (Linn.).

*Tringa interpres*, Linn., Syst. Nat. i, 1766, p. 248 (Europe).
*Streprilas interpres*, E., p. 119 (Patani Coast).
*Arenaria interpres*, J., p. 138 (Koh Muk, Trang).

The above specimens, from the coasts of Patani and Trang, are the only ones recorded from Siam. In the Malay Peninsula it is sparingly distributed along the western coast from August to April.

### 62. Sarcogrammus indicus atronuchalis Blyth.

*Sarcogramma atrogularis*, Blyth, Journ. Asiat. Soc. Bengal, xxxi, 1862, p. 345 (Tounghoo).
*Lobivanellus atronuchalis*, Blyth in Jerdon's Birds India, iii, 1864, p. 648 (Burma); A., p. 457; B., p. 82 (Salanga); C. ii, p. 374.
*Sarcogrammus atronuchalis*, F., p. 11 (Trang); G., p. 152 (Ratburi and Petchaburi).
*Sarcogrammus indica atronuchalis*, I., p. 146 (Koh Lak); J., p. 138 (Terutau); K., p. 85 (Koh Lak); L., p. 91 (Ghirbi and and Pulau Panjang).

♀. Koh Lak, S. W. Siam. 10 April, 1919. (No. 5223).

"Iris dark; tip of bill black, base, lappets and eye-ring coral red; feet pale lemon-yellow."

Total length 315; wing 215; tail 114; tarsus 71; bill from gape 34 mm.

This Wattled Plover is exceedingly common in open spaces over the whole of the area, and also in suitable localities over the rest of the Malay Peninsula down to Johore; met with as a rule in small flocks up to seven or eight individuals.

### 63. Hoplopterus ventralis (Wagl.).

*Charadrius ventralis*, Wagl., Syst. Av. Charadrius, p. 59, sp. ii, (1827).
*Hoplopterus ventralis*, A., p. 457 (Pakchan); C. ii, p. 375; F., p. 11 (Trang); G., p. 152 (Ratburi and Petchaburi).

Probably rare and attaining its southern limit in Trang. Specimens from that locality, collected by Dr. W. L. Abbott, are in

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I. Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
J. Robinson, Journ. F. M. S. Mus. vii, 1917.
K. Kloss, Ibis, 1918.
L. Robinson and Kloss, Journ. N. H. Soc. Siam, iii, 1919.
M. Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker, Journ. N. H. Soc. Siam, iii, 1919. (second part).
M. I. Baker, Journ. N. H. Soc. Siam, iv, 1920. (third part).

the United States Natural History Museum, while the species was seen but not procured by us in the same district in 1909.

### 64. Squatarola helvetica (Linn.).

*Tringa helvetica*, Linn., Syst. Nat. i, 1766, p. 250. (Switzerland).
*Squatarola squatarola*, L., p. 143 (Koh Lak).
*Squatarola helvetica*, J., p. 138 (Koh Muk, Trang).

The Grey Plover is probably not uncommon during the winter months in the west coast of Siam, as it is fairly abundant further south: on the east coast it may be expected to be rarer.

### 65. Charadrius pluvialis fulvus Gm.

*Charadrius fulvus*, Gm., Syst. Nat. i, 1788, p. 687 (Tahiti); A., p. 455 (Pakchan); C. ii, p. 364; G., p. 152 (Ratburi and Petchaburi.)
*Charadrius dominicus*, D., p. 79 (Patelung); E., p. 116 (Patani); K., p. 85 (Koh Lak).
*Charadrius longipes*, B., p. 82 (Junk Seylon).
*Charadrius dominicus fulvus*, L., p. 143 (Koh Lak).

♂. Tapli, Pakchan, Peninsular Siam. 8 March, 1919. (No. 4493).

"Iris dark; bill greenish black, paler at base; feet pale greyish green."

Total length 244; wing 101; tail 65; tarsus 40; bill from gape 28 mm.

Common in the winter months.

### Aegialitis veredus (Gould).

*Charadrius veredus*, Gould, P. Z. S., 1848, p. 38 (Northern Australia).
*Charadius asiaticus*, Finsch, Ibis, 1872, p. 144 (Saigon).

Though there are no actual records of the occurrence of the Eastern Dotterel in Siam, we have inserted the species in the key, as it has been recorded from several places in the Malay Peninsula and from Cochin-China and is certain to be met with in Siam in the winter months.

### 66. Aegialitis geoffroyi (Wagl.).

*Charadrius geoffroyi*, Wagl., Syst. Av., Charadrius, p. 61, No. 19, 1827 (Java); K., p. 85 (Koh Lak).
*Cirrhipidesmus geoffroyi*, B., p. 83.
*Ochthodromus geoffroyi*, L., p. 143 (Koh Lak).

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A. Hume & Davison, Stray Feathers, vi, 1878.
B. Müller, Die Ornis der Insel Salanga, 1882.
C. Oates, Birds Brit. Burmah, Vols. i & ii, 1883.
D. Bonhote, P. Z. S. 1901, Vol. i.
E. O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
F. Robinson and Kloss, Ibis, 1910-11.
G. Gairdner, Journ. N. H. Soc. Siam, i, 1915.
H. Robinson, Journ. F. M. S. Museums, v, 1915.

♀. Koh Lak, S. W. Siam. 7 April, 1919. (No. 5139).

"Iris dark; bill black; feet pale bluish slate, tinged green."

The Sand-Plover occurs sparingly throughout the Malay Peninsula, and probably Siam, though not nearly as common as the following.

### 67. Aegialitis mongolus (Pall.).

*Charadrius mongolus*, Pall., Reis. Russ. Reichs, iii, 1776, p. 700 (Russia).
*Aegialitis mongolus*, B., p. 455; C. ii, p. 368; E., p. 118 (Patani); I., p. 143 (Koh Lak).
*Ochthodromus pyrrhothorax*, F., p. 12 (Terutau); H., p. 142 (Koh Pennan); J., p. 139 (Koh Muk).
*Cirrepidesmus geoffroyi*, B., p. 83 (Junk Seylon).

2 ♀. Koh Lak, S. W. Siam. 7 April, 1919.

"Iris black; bill black; feet pale greenish grey with a tinge of blue."

Total lengh 182, 182; wing 128, 120; tail 48, 45; tarsus 33.5, 32.5; bill from gape 22, 20.5 mm.

Two races of this Sand-Plover—a western one, *Ae. pyrrhothorax*, and the present one—are supposed to occur in our area: the majority of specimens should perhaps be referred to the former, which is stated to have a slightly longer tarsus. It is, however, practically impossible to discriminate with any certainty individual birds in winter plumage, and we have therefore retained all the local birds under the older name.

### 68. Aegialitis dubius curonicus (Gm.).

*Charadrius curonicus*, Gm., Syst. Nat. i, pt. 2, 1788, p. 692 (Curonia).
*Aegialitis curonicus*, A., p. 456 (Pakchan).
*Aegialitis minutus*, A., p. 456 (Assoon).
*Aegialitis fluviatilis*, B., p. 83 (Junk Seylon).
*Aegialitis dubia*, C. ii, p. 370; E., p. 118 (Patani); G., p. 152 (Ratburi and Petchaburi).
*Aegialitis jerdoni*, C. ii, p. 371.
*Aegialitis dubius curonicus*, Hartert and Jackson, Ibis, 1915, p. 533.

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I. Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
J. Robinson, Journ. F. M. S. Mus. vii, 1917
K. Kloss, Ibis, 1918.
L. Robinson and Kloss, Journ. N. H. Soc. Siam, iii, 1919.
M. Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker. Journ N.H. Soc. Siam, iii, 1919. (second part).
M.I. Baker, Journ. N.H. Soc. Siam, iv, 1920. (third part).

2♂. Koh Lak, S. W. Siam. 3, 4 April, 1919. (Nos. 5007, 5044).

"Iris dark hazel; eye lappet chrome or pale chrome; bill black, base of lower mandible yellow; feet dirty flesh, joints greyish, toes black."

Total length 170, 172; wing 108, 148; tail 64, 63; tarsus 23.5, 25; bill from gape 13, 16 mm.

These specimens are in full breeding plumage, and on that consideration, and from the date on which they were obtained, should probably be referred to the tropical resident race, *Ae. d. jerdoni*, Legge, Proc. Zool. Soc. 1880, p. 39 (Ceylon and Central India), if that race is to be kept distinct, as it probably should be. The northern race should also occur in winter on migration, but is difficult to distinguish in the series before us.

### 69. Aegialitis alexandrinus dealbatus Swinh.

*Aegialitis dealbatus*, Swinh., P. Z. S. 1870, p. 138 (South Coast, China).
*Aegialitis alexandrina*, I., p. 145 (Koh Lak).
*Charadrius alexandrinus dealbatus*, Hartert and Jackson, Ibis, 1915, p. 528; K., p. 85 (Koh Lak).
*Aegialitis cantianus*, A., p. 456 (Mergui).

All specimens of this Plover that we have seen from Siam and from the Malay Peninsula in winter have large bills, from 15—19 mm. measured on the bare part of the culmen, and therefore must be considered to belong to the Chinese and Hainan race in winter quarters. We have no evidence that the typical *Ae. a. alexandrinus* (i. e., the bird with a small bill) comes as far south as the Malay Peninsula, though our series is not large. On the other hand, we think it probable that many specimens which are really females or young examples of the following race have been confused with the present form or with *Ae. a. alexandrinus*.

Kloss notes the soft parts as, "Iris dark; bill black; legs stone-grey or yellowish grey; feet grey-black."

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A. Hume & Davison, Stray Feathers, vi, 1878.
B. Müller, Die Ornis der Insel Salanga, 1882.
C. Oates, Birds Brit. Burmah, Vols. i & ii, 1883.
D. Bonhote. P. Z. S. 1901, Vol. i.
E. O. Grant, Fasciculi Malayenses, iii (Birds), 1905
F. Robinson and Kloss, Ibis, 1910-11.
G. Gairdner, Journ. N. H. Soc. Siam, i, 1915.
H. Robinson, Journ. F. M. S. Museums, v, 1915.

### 70. Aegialitis alexandrinus peroni (Bp.).

*Charadrius peroni*, Bp., Compt. Rend. xlii, 1856, p. 417 (Java).
*Aegialitis alexandrinus*, H., p. 142 (Koh Pennan and Koh Samui).
*Aegialitis peroni*, Vaughan and Jones, Ibis, 1913, p. 362 (South East China); I., p. 144 (Koh Lak).
*Aegialitis alexandrinus peroni*, J., p. 139 (Pulau Telibun, Trang).

We have from the Malay Peninsula and various islands off the coast a considerable series of a small plover, with the wing always below 100 mm., and which therefore cannot, apart from other considerations, be referred to any of the usually recognized races of *Ae. alexandrinus*. Our series has been compared with a large number of specimens of true *Ae. peroni* from Borneo, with which they agree. We have little doubt that many specimens, especially females or immature birds, have been recorded as *Ae. alexandrinus*, although really this form which, in any event, can only be regarded as a resident tropical race diminished in size and intensified in colour precisely analogous with *Ae. c. jerdoni*. Lieut. R. E. Vaughan and Staff Surgeon K. H. Jones record this form from S. E. China, stating that it arrives from the north from August to November and is resident during the winter months.

### 71. Numenius arquatus lineatus Cuv.

*Numenius lineatus*, Cuv., Regne. Anim. i, 1829, p. 521; A., p. 450 (Pakchan); Hume, Stray Feath. ix, 1880 (Tongka).
*Numenius arquatus*, C. ii, p. 412 (Tenasserim Coast); F., p. 12 (Peninsular Siam); I., p. 145 (Koh Lak).

The Curlew is apparently rare and always hard to secure.

### 72. { Numenius phaeopus phaeopus (Linn.). / Numenius phaeopus variegatus (Scop.).

*Scolopax phaeopus*, Linn., Syst. Nat. i, 1766, p. 243 (Europe).
*Tantalus variegatus*, Scopoli, Del. Flor. et Faun. Ins. Ubi. ii, 1786, p. 92 (Luzon).
*Numenius phaeopus*, A., p. 460 (Pakchan); C. ii, p. 411 (Tenasserim coast); F., p. 12 (Peninsular Siam).

Common in large flocks on the western coast in winter: a few specimens found single as late as June. Birds from Siam may be-

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I. Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
J. Robinson, Journ. F.M.S. Mus. vii, 1917.
K. Kloss, Ibis, 1918.
L. Robinson and Kloss, Journ. N.H. Soc. Siam, iii, 1919.
M. Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker, Journ. N.H. Soc. Siam, iii, 1919. (second part).
M. I. Baker, Journ. N.H. Soc. Siam, iv, 1920. (third part).

long to either of these forms, which are not very easily distinguished from each other.

### 73. Macrorhamphus griseus taczanowskii (Verr.).

*Micropalama taczanowskia*, Verreaux, Rev. et Mag. Zool. 1860, p. 206, pl. 14 (Dauria).

*Macrorhamphus taczanowskii*, Williamson, Journ. N. H. Soc. Siam, ii, 1916, p. 62 (Lakon, Peninsular Siam).

We have a specimen obtained in the Dindings by Mr. R. J. Wilkinson's collectors.

### Limosa limosa melanuroides Gould.

*Limosa melanuroides*, Gould, P. Z. S. 1846, p. 84 (Port Essington); Williamson, Journ. N. H. Soc. Siam, ii, 1916, p. 62 (Inner Gulf of Siam).

No Godwits are common anywhere in our area, but this species is less rare than *L. l. novae-zelandiae.*

### 74 Limosa lapponica novae-zelandiae Gray.

*Limosa lapponica* var. *novae-zelandiae*, Gray, Voy. Erebus and Terror, Birds, 1846, p. 13.

*Limosa novae-zelandiae*, Williamson, Journ. N. H. Soc. Siam, ii, 1916, p. 62 (Bandon).

We have only seen one specimen of this species, a male in incipient breeding plumage, from Temerloh, Klang Straits.

### 75. Tringoides hypoleucos (Linn.).

*Tringa hypoleucos*, Linn., Syst. Nat. i, 1766, p. 250 (Europe).

*Tringoides hypoleucos*, A., p. 463 (Mergui); B., p. 83 (Salanga Id.); F., p. 13 (Malay Peninsula); I., p. 146 (Gulf of Siam); J., p. 140 (Telibon Id); L., p. 91 (Ghirbi and Pulau Panjang).

1 ♂, 1 ♀. Koh Lak, S. W. Siam. 3—6 April, 1919. [Nos. 5009, 5103].

Total length ♂, 200; ♀, 200; wing, ♂, 108; ♀, 112; tail ♂, 60; ♀, 62; tarsus ♂, 24.5; ♀, 23; bill from gape ♂, 25; ♀, 28 mm.

"Iris dark; bill greenish black, paler at base; feet greenish grey, yellower at knees."

Of universal distribution, practically throughout the year.

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A. Hume, & Davison, Stray Feathers, vi, 1878.
B. Müller, Die Ornis der Insel Salanga, 1882.
C. Oates, Birds Brit. Burmah, Vols. i. & ii, 1883.
D. Bonhote, P. Z. S. 1901, Vol. i
E. O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
F. Robinson and Kloss, Ibis, 1910-11.
G. Gairdner, Journ. N. H. Soc. Siam, i, 1915.
H. Robinson, Journ. F. M. S. Museums, v, 1915.

### Totanus ochrophus (Linn.).

*Tringa ochrophus*, Linn., Syst. Nat. i, 1766, p. 250 (Europe).
*Totanus ochropus*, Williamson, Journ. Nat. Hist. Soc. Siam, i, 1914, p. 48 (Bangkok); I., p. 145 ("Every part of Siam").

We doubt if this species is anything like as common as stated by Gyldenstolpe, who, it may be observed, did not obtain specimens. We have neither obtained nor seen it from any part of Siam.

We have not sufficient material to express an opinion as to whether the Eastern form, described by Mathews (Austral. Av. Record, i, 1913, p. 188) from Assam as *Tringa ochropus assami*, is really valid.

### 76. Totanus stagnatilis Bechst.

*Totanus stagnatilis*, Bechstein, Orn. Taschenb., pt. 2, 1803, p. 292, pl.; A., p. 463 (Yea-boo, Moulmein); Williamson, Journ. Nat. Hist. Soc. Siam, ii, 1916, p. 62 (Tachin and Bangplasoi, Inner Gulf of Siam).

1 ♀. Koh Lak, S. W. Siam. 4 April, 1919. [No. 5036].

Total length 252; wing 147; tail 70; tarsus 52; bill from gape 43 mm.

"Iris dark; bill black, paler at base; feet yellowish sage:

The above bird is in breeding plumage, with black patches in the feathers of the upper surface. It is a very rare bird throughout our area.

The Eastern birds have been separated under the name *Totanus stagnatilis horsfieldi* [1] (Sykes).

### 77. Totanus calidris (Linn.).

*Scolopax calidris*, Linn., Syst. Nat. i, 1766, p. 245 (Europe).
*Totanus calidris*, A., p. 464 (Pakchan); I., p. 145 (Gulf of Siam); J., p. 140 (Koh Muk, Trang).

Extremely common everywhere on mud-flats, in a few instances arriving as early as August and staying as late as May.

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1 *Limosa horsfieldi*, Sykes, P. Z. S. 1833, p. 163 (Dukhun, India).

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**I.** Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
**J.** Robinson, Journ. F.M.S. Mus. vii, 1917
**K.** Kloss, Ibis, 1918.
**L.** Robinson and Kloss, Journ. N.H. Soc. Siam, iii, 1919.
**M.** Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker, Journ N.H. Soc. Siam, iii, 1919. (second part).
**M.I.** Baker, Journ. N.H. Soc. Siam, iv, 1920. (third part).

### 78. Totanus fuscus (Linn.).

*Scolopax fusca*, Linn., Syst. Nat. i, 1766, p. 243 (Europe).
*Totanus fuscus*, Williamson, Journ. Nat. Hist. Soc. Siam, iii, 1918, p. 35 (Chainat, Central Siam, and mouth of Chao Phya river, near Bangkok).

Williamson's birds above noted are the sole recorded specimens from Siam.

### 79. Terekia cinerea (Güldenst.).

*Scolopax cinerea*, Güldenstadt, Nov. Comm. Petrop., xix, 1774, p. 473, pl. 19 (S. E. Russia).
*Terekia cinerea*, A., p. 460 (Tavoy); C. ii, p. 407 (Tenasserim); E., p. 118 (Jalor); F., p. 13 (Peninsular Siam); Williamson, Journ. Nat. Hist. Soc. Siam, iii, 1918, p. 35 (Mouth of Chao Phya river, near Bangkok.

Probably common everywhere in winter at river mouths and on mud-flats.

### Pseudoglottis guttifer (Nordm.).

*Totanus guttifer*, Nordman in Erman's Reise u. d. Erde, 1835, p. 17.
*Totanus haughtoni*, C. ii, p. 406 (Amherst, Tenasserim).
*Pseudoglottis guttifer*, F., p. 13 (Kedah and Perak).

This species is rare in collections, probably on account of its close resemblance to the true Greenshank. It is certain to be met with on the coasts of Trang and Setul, and probably in other localities also.

### 80. Glottis nebularius (Gunner).

*Scolopax nebularius*, Gunner, Leem. Lap. Beschr., 1767, p. 251 (Lapland).
*Totanus glottis*, A., p. 463 (Tenasserim town).
*Totanus canescens*, C. ii, p. 402.
*Glottis nebularius*, F., p. 13 (Terutau Id.); I., p. 146 (Koh Lak); J., p 140 (Koh Muk, Trang).

The Greenshank is very common on the western coast; it is probably a good deal rarer on the eastern side of the Peninsula.

### Pavoncella pugnax (Linn.).

*Tringa pugnax*, Linn., Syst. Nat. i, 1766, p. 247 (Europe).
*Machetes pugnax*, C. ii, p. 396 (Lower Pegu: mouth of Sittang river).

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**A.** Hume & Davison, Stray Feathers, vi, 1878.
**B.** Müller, Die Ornis der Insel Salanga, 1882.
**C.** Oates, Birds Brit. Burmah, Vols. i & ii, 1883.
**D.** Bonhote, P. Z. S. 1901, Vol. i.
**E.** O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
**F.** Robinson and Kloss, Ibis, 1910-11.
**G.** Gairdner, Journ. N. H. Soc. Siam, i, 1915.
**H.** Robinson, Journ. F. M. S. Museums, v, 1915.

The Ruff is almost certain to be eventually found in Lower Siam: there are somewhat doubtful records from the Malay Peninsula.

### 81. Rhyacophilus glareola (Linn.).

*Tringa glareola*, Linn., Syst. Nat. i, 1766, p. 250 (Sweden).
*Rhyacophilus glareola*, A., p. 462 (Pakchan); B., p. 83 (Salanga Id.); D., p. 80 (Patelung); F., p. 13 (Trang); I., p. 146 (Koh Lak).
*Totanus glareola*, C. ii, p. 401.

1 ♀ ad. Mamoh, Pakchan. 27 February, 1919. [No. 4294].

5 ♂, 8 ♀. Koh Lak, S. W. Siam. 3—9 April, 1919. [Nos. 5008, 5334–5, 5084, 5104–7, 5130–1, 5159, 5181, 5210].

"Iris dark; bill black, greenish at base; feet sage-green or greenish grey."

Total length ♂, 225, 215, 216, 220; ♀, 220, —, 210, 212, 211, 223, 208, 223, 223.

Wing ♂, 125, 117 (m.), 129, 122, 126; ♀, 128, 125, 124, 127, 126, 128, 121, 127, 127.

Tail ♂, 54, 48, 57, 58; ♀, 53, 60, 45, 54, 53, 56, 50, 55, 60.

Tarsus ♂, 38.5, 38, 36, 35, 33.5; ♀, 38, 34, 37.5, 39, 37, 38, 34, 36, 38.

Bill from gape ♂, 31, 31, 33, 30, 31; ♀, 34, —, 32, 33, 30, 33.5, 32, 33, 34 mm.

Very common everywhere.

### 82. Limonites minuta minuta (Leisl.).
### 83. Limonites minuta ruficollis (Pall.).

*Tringa minuta*, Leisler in Bechst. Naturg. Deutschl. Nachtr. i, 1912, p. 74; A., p. 461 (Mergui); C. ii, p 389 (Mergui, Tongka); E., p. 118 (Patani).
*Tringa ruficollis*, Pallas, Reis. Russ. Reich. iii, 1766, p. 700 (Siberia).
*Limonites ruficollis*, Sharpe, Cat. Birds Brit. Mus. xxiv, 1896, p. 547 (Mergui, Tongkah Id.); F., p 14 (Kedah).

We are unable to disentangle the records relating to the Eastern and Western series of this Stint, viz., *L. m. minuta* and *L. m. ruficollis*, which are almost impossible to discriminate in

I. Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
J. Robinson, Journ. F. M. S. Mus. vii, 1917.
K. Kloss, Ibis, 1918.
L. Robinson and Kloss, Journ. N. H. Soc. Siam, iii, 1919.
M. Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker, Journ. N. H. Soc. Siam, iii, 1919. (second part).
M. I. Baker, Journ, N. H. Soc. Siam, iv, 1920. (third part).

winter plumage. Both occur, the latter in very much larger numbers than the former.

### 84. Limonites minutilla subminuta (Middend.).

*Tringa subminuta*, Middendorf, Reise in Nord. und Ost. Sibir. ii. 1851, p. 222, pl. xix, fig. 6 (Siberia); Williamson, Journ. N. H. Soc. Siam, i, 1915, p. 199 (Bangkok).

*Tringa ruficollis*, A., p. 461 (near Tavoy).

*Limonites damacensis*, Sharpe, Cat. Birds Brit. Mus. xxiv, 1896, p. 555 (Tavoy and Salanga Id.).

*Erobia subminuta*, M. 1, p. 39 (Klong Wang Hip, Peninsular Siam).

1 ♂. Koh Lak, S. W. Siam. 7 April, 1919. [No. 5134].

Total length 155; wing 90; tail 48; tarsus 23; bill from gape 18.5 mm.

"Iris dark; bill black, dull greenish yellow at base of lower mandible; feet dull greyish sage-green, darker on joints."

Very common.

### Limonites temmincki (Leisl.).

*Tringa temmincki*, Leisl. in Bechst. Naturg. Deutsch. Nachtr. ii, 1812, p. 78 (Germany); A., p. 461 (Tavoy); C. ii, p. 392 (Tenasserim); Williamson, Journ. Nat. Hist. Soc. Siam, i, 1915, p. 199 (Bangkok).

This Stint has not been recorded as yet from the Malay Peninsula: it is however almost certain to occur in the northern parts.

### 85. Tringa tenuirostris (Horsf.).

*Totanus tenuirostris*, Horsf., Trans. Linn. Soc. xiii, 1821, p. 192 (Java).

*Tringa crassirostris*, Faun. Jap. 1847, p. 107, pl. 64; Williamson, Journ. N. H. Soc. Siam, iii, 1918, p. 35 (near Meklong, Central Siam).

Williamson found the Eastern Knot common in the above locality. In the Malay Peninsula, whence we have only four specimens, it is a very rare bird.

### 86. Ancylochilus subarquatus (Güldenst.).

*Scolopax subarquata*, Güldenstadt, Nov. Comm. Petrop. xix, 1774, p. 471.

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A. Hume & Davison, Stray Feathers, vi, 1878.
B. Müller, Die Ornis der Insel Salanga, 1882.
C. Oates, Birds Brit. Burmah, Vols. i & ii, 1883.
D. Bonhote, P. Z. S. 1901, Vol. i.
E. O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
F. Robinson and Kloss, Ibis, 1910-11.
G. Gairdner, Journ. N. H. Soc. Siam, i, 1915.
H. Robinson, Journ. F. M. S. Museums, v, 1915.

*Tringa subarquata* A., p. 460 ( Mergui ); E., p. 118 ( Patani ); Williamson, Journ. N. H. Soc. Siam, ii, 1916, p. 62 (Lakon and Bandon, Peninsular Siam).
*Pelidna subarquata*, C. ii, p. 395 (Tenasserim).

Probably fairly common. Gyldenstolpe (Ibis, 1920, p. 761) records this bird under the name *Tringa ferruginea chinensis* J. E. Gray.

### 87. Limicola platyrhyncha (Temm.).

*Tringa platyrhyncha*, Temminck, Man. d'Orn. 1815, p. 398; E , p. 118 (Patani); Williamson, Journ N. H. S. Siam, iii, 1918, p. 36 (Mouth of Chao Phya river, near Bangkok).

Not common, though large flocks usually occur. Recorded by Gyldenstolpe (Ibis, 1921, p. 761) as *Limicola falcinellus* (Brünnich).

### 88. Rostratula capensis ( Linn.).

*Scolopax capensis*, Linn., Syst. Nat. i, 1776, p. 246 (Cape of Good Hope).
*Rostratula capensis*, Herbert, Journ. Nat. Hist. Soc. Siam, i, 1914, p. 54 (Bangkok).

In the Malay Peninsula the Painted Snipe is a fairly common species; the same will be true of it in most parts of Siam.

### Scolopax rusticola Linn.

*Scolopax rusticola*, Linn., Syst. Nat. i, 1766, p. 243 (Europe); A., p. 459 (near Tavoy).

The Woodcock has once been obtained in the Malay Peninsula and there are one or two visual records of fair credibility; it is therefore likely to occur in Peninsular Siam. Mr. W. J. F. Williamson informs us that the bird is fairly common in Northern Siam in the winter months, and that it is regularly obtained by sportsmen, from near Chiengmai down to Raheng, between October and March.

### Gallinago nemoricola Hodgs.

*Gallinago nemoricola*, Hodgson, P. Z. S. 1836, p. 8 (Nepal); A., p. 459 (Observed near Malewun).

We include this species on Davison's very emphatic statement. It should be noted, however, that the species bears a strong

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**I.** Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
**J.** Robinson, Journ. F. M. S. Mus. vii, 1917.
**K.** Kloss, Ibis, 1918.
**L.** Robinson and Kloss, Journ. N. H. Soc. Siam, iii, 1919.
**M.** Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker, Journ. N. H. Soc. Siam, iii, 1919. (second part).
**M. I.** Baker, Journ. N. H. Soc. Siam, iv, 1920. (third part).

resemblance to *G. megala*, with which presumably Davison was not acquainted, but which has, of late years, been proved to occur in considerable numbers both in the Malay Peninsula and in the Madras Presidency. No specimens of *G. nemoricola* shot by Davison are included in the Hume collection now in the British Museum.

### 89. Gallinago gallinago (Linn.).

*Scolopax gallinago*, Linn., Syst. Nat. i, 1766, p. 244 (Europe).
*Gallinago coelestis*, G., p. 152 (Ratburi and Petchaburi).
*Gallinago gallinago*, Sharpe, Cat. Birds Brit. Mus. xxiv, 1896, p. 641 (Salanga Id.).

The Fantail will be found in every large bag of snipe obtained in Siam, especially in the middle of the season. It is very common at Bangkok, where *(fide* Williamson, in *litt.)* it usually arrives in the latter half of September, i. e., a month or so later than the Pintail, and also leaves earlier. The latest recorded date for the Fantail in Bangkok is 30th March, by which date it is getting scarce, although the Pintails are still numerous.

### 90. Gallinago sthenura (Kuhl).

*Scolopax sthenura*, Kuhl, Bonap. Ann. Stor. Nat. Bologna, iv, 1830, fasc. xiv, p. 335 (Sunda Islands).
*Gallinago stenura*, A., p. 459 (Pakchan); Sharpe, Cat. Birds Brit. Mus. xxiv, 1896, p. 622 (Salanga Ids.); E., p. 117 (Patani); F., p. 14 (Trang); G., p. 152 (Ratburi and Petchaburi); L., p. 91 (Pualu Panjang).

1 ♂. Koh Lak, S. W. Siam. 7 April, 1919. [No. 5141].

Total length 255; wing 126; tail 50; tarsus 32; bill from gape 61 mm.

"Iris dark; bill yellowish brown, apical third black; feet grey, toes darker."

According to Williamson *(in litt.)*, the Pintail arrives in Bangkok during the first half of August: the earliest recorded date is the 10th.

### Gallinago megala Swinh.

*Gollinago megala*, Swinhoe, Ibis, 1867, p. 343 (Pekin).

There are no actual records of this Chinese Snipe from Siam,

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**A.** Hume & Davison, Stray Feathers, vi, 1878.
**B.** Müller, Die Ornis der Insel Salanga, 1882.
**C.** Oates, Birds Brit. Burmah, Vols. i & ii, 1883.
**D.** Bonhote, P. Z. S. 1901, Vol. i.
**E.** O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
**F.** Robinson and Kloss, Ibis, 1910-11.
**G.** Gairdner, Journ. N. H. Soc. Siam, i, 1915.
**H.** Robinson, Journ. F. M. S. Museums, v, 1915.

but it is almost certain to occur in small numbers throughout the country. It is a larger, more solidly built, bird than either of its local congeners, and can be at once recognized by the characters of the outer tail-feathers as defined in our key.

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**I.** Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
**J.** Robinson, Journ. F. M. S. Mus. vii, 1917.
**K.** Kloss, Ibis, 1918.
**L.** Robinson and Kloss, Journ. N. H. Soc. Siam, iii, 1919.
**M.** Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker, Journ. N. H. Soc. Siam, iii, 1919. (second part).
**M. 1.** Baker, Journ. N. H. Soc. Siam, iv, 1920. (third part).

## GRUIDAE
### CRANES.

**91. Antigone antigone sharpii** (Blanford).

*Grus* (*Antigone*) *sharpii*, Blanford, Bull. Brit. Orn. Club, v, 1895, p. vii (Burmese provinces).
*Grus antigone*, G., p. 30 (Ratburi).
*Grus sharpii*, G., p. 152 (Ratburi and Petchaburi).

We saw this species in the rice fields near Sawi Bay, S. of Chumpon, in April 1919. It is occasionally met with in the north of the Peninsula, but we know of no authentic instances of its occurrence south of Kuala Kangsar.

Penang specimens in the British Museum are almost certainly from Trang or Perlis.

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**A.** Hume, & Davison, Stray Feathers, vi, 1878.
**B.** Müller, Die Ornis der Insel Salanga, 1882.
**C.** Oates, Birds Brit. Burmah, Vols. i. & ii, 1883.
**D.** Bonhote, P. Z. S. 1901, Vol. i
**E.** O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
**F.** Robinson and Kloss, Ibis, 1910-11.
**G.** Gairdner, Journ. N. H. Soc. Siam, i, 1915.
**H.** Robinson, Journ. F. M. S. Museums, v, 1915.

## IBIDIDAE
IBISES.

| | | | |
|---|---|---|---|
| 1 | Smaller, plumage white, dissected .. .. | *Ibis melanocephala.* | |
| | Larger: plumage dark .. .. .. .. .. | | 2 |
| 2 | Neck feathered to nape, smaller.. .. | *Inocotis davisoni.* | |
| | Neck naked to nape, larger .. .. | *Thaumatibis gigantea.* | |

### 92. Ibis melanocephala (Lath.).

*Tantalus melanocephalus*, Lath., Ind. Orn. ii, 1790, p. 709 (India).
*Ibis melanocephala*, C. ii, p. 268 (Tenasserim); G., p. 152 (Ratburi and Petchaburi); H., p. 89 (Bandon river).

The white Ibis is fairly abundant on both coasts in suitable localities, but is usually almost impossible to approach.

### 93. Inocotis davisoni (Hume).

*Geronticus davisoni*, Hume, Stray Feath. iii, 1875, p. 300 (Pakchan).
*Graptocephalus davisoni*, Elliot, P. Z. S. 1877, p. 490; A., p. 485 (Pakchan); C. ii. p. 269 (South Tenasserim); F., p. 17 (Trang); H., p. 89 (Bandon); J., p. 141 (Pulau Lontar); L., p. 92 (Ghirbi and Koh Naka Yai).
*Pseudibis papillosa*, B., p. 85 (Junk Seylon).

This dark Ibis, though it appears to us but little more than a strongly marked race of the Indian *I. papillosa*, has been elevated to generic rank, partly on the shape of its cranium, and partly on account of the alleged absence of rugose papillæ in the occiput and, therefore, different colour. As a matter of fact our series shows that these papillæ are definitely present, at any rate at certain seasons, and we do not think that the bird can profitably be kept generically distinct. As regards bare parts, our birds are consistently coloured and show no trace of red on the head, as is reported in the case of birds from E. Siam, Cambodia and Yunnan, which have been named *G. harmandi* Oustalet. These birds are either distinct from the present species or, more probably, are to be referred to the true *I. papillosa*.

### 94. Thaumatibis gigantea (Oust.).

*Ibis gigantea*, Oustalet, Bull. Soc. Philomath. (7), i, 1877, p. 25 (Cochin-China).

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I. Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
J. Robinson, Journ. F. M. S. Mus. vii, 1917
K. Kloss, Ibis, 1918.
L. Robinson and Kloss, Journ. N.H. Soc. Siam, iii, 1919.
M. Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker. Journ N.H. Soc. Siam, iii, 1919. (second part).
M.I. Baker, Journ. N.H. Soc. Siam, iv, 1920. (third part).

*Thaumatibis gigantea*, Elliot, P. Z. S. 1877, p. 489 ; F., p. 17, Pl. I. text figs. 5, 7 (Trang) ; G., p. 152 (Ratburi and Petchaburi) ; Williamson, Journ. Nat. Hist. Soc. Siam. ii, 1916, p. 71, Pl. (Ratburi) ; id. op. cit. iv, 1921, p. 196 (Coast of Cambodia).

We saw one specimen of this rare Ibis (which is, however, apparently still fairly common on the Cambodian coast) from the train in a marshy patch of ground, just south of Koh Lak.

Elsewhere in Peninsular Siam it has been obtained on Pulau Terutau by Dr. W. L. Abbott.

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**A.** Hume & Davison, Stray Feathers, vi, 1878.
**B.** Müller, Die Ornis der Insel Salanga, 1882.
**C.** Oates, Birds Brit. Burmah, Vols. i & ii, 1883.
**D.** Bonhote, P. Z. S. 1901, Vol. i.
**E.** O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
**F.** Robinson and Kloss, Ibis, 1910-11.
**G.** Gairdner, Journ. N. H. Soc. Siam, i, 1915.
**H.** Robinson, Journ. F. M. S. Museums, v, 1915.

## CICONIIDAE.

STORKS.

| | | | |
|---|---|---|---|
| 1 | Mandibles separated in middle .. .. .. | *Anastomus oscitans.* | |
| | Mandibles normal .. .. .. .. | ... .. | 2 |
| 2 | Top of head with a bony cap, unfeathered .. | .. .. .. | 3 |
| | Top of head without a bony cap, variably feathered .. | .. .. | 4 |
| 3 | Larger, with a gular pouch; wing 30 inches or over .. | *Leptoptilus dubia.* | |
| | Smaller, without a gular pouch; wing 27 inches or under .. .. .. .. | *Leptoptilus javanica.* | |
| 4 | Bill straight, crown feathered .. .. .. | .. .. | 5 |
| | Bill decurved, crown naked .. .. .. | .. .. | 6 |
| 5 | Feathers of the neck white, silky .. | *Dissoura episcopus neglecta.* | |
| | Feathers of the neck black, normal .. | *Xenorhynchus asiaticus.* | |
| 6 | Larger, secondaries rosy in adults, wing-coverts black and white .. .. | *Pseudotantalus leucocephalus.* | |
| | Smaller, secondaries with no rosy flush, wing-coverts white .. .. | *Pseudotantalus lacteus.** | |

### 95. Leptoptilus dubia (Gm.).

*Ardea dubia*, Gmelin, Syst. Nat. i, 1788, p. 624 (India and Africa).
*Leptoptilus argala*, C. ii, p. 262 (Tenasserim).
*Leptoptilus dubia*, G., p. 152 (Ratburi and Petchaburi); I., p. 141 (Ratburi).

We have seen no specimens of the larger Adjutant Bird from the Malayan area or from Peninsular Siam, and doubt if it occurs south of Ratburi. In life it can be distinguished by the possession of a gular pouch, by its much larger size, and by having a grey band across the secondary coverts in breeding birds, not a coppery red one as in *L. javanica*. The species is said to occur in Java, but the identification appears to rest on skeletons and skulls.

### 96. Leptoptilus javanica (Horsf.).

*Ciconia javanica*, Horsfield, Trans. Linn. Soc., xiii, 1821, p. 188 (Java).
*Leptoptilus javanicus*, A., p. 469 (Pakchan); I., p. 141 (Koh Lak); L., p. 92 (Junk Seylon).
*Leptoptilus dubius* F., p. 16 (Trang).

Common throughout the area, generally in rice fields, in mangrove swamps and on the coastal flats.

*Included in the key in the possible event of its occurrence in the area.

**I.** Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
**J.** Robinson, Journ. F. M. S. Mus. vii, 1917.
**K.** Kloss, Ibis, 1918.
**L.** Robinson and Kloss, Journ. N. H. Soc. Siam, iii, 1919.
**M.** Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker, Journ. N. H. Soc. Siam, iii, 1919. (second part).
**M. I.** Baker, Journ. N. H. Soc. Siam, iv, 1920. (third part).

### 97. Xenorhynchus asiaticus (Lath.).

*Mycteria asiatica*, Latham, Ind. Orn. ii, 1790, p. 670 (India).
*Xenorhynchus asiaticus*, G., p. 152 (Ratburi and Petchaburi); J., p. 141 (Telibun Straits, Trang).

Not uncommon, but hard to obtain; specimens in the British Museum attributed to Penang are probably from the southern parts of Peninsular Siam.

### 98. Dissoura episcopus neglecta Finsch.

*Dissoura neglecta*, Finsch., Ornith. Monatsber., 1904, p. 94 (Java).
*Melanopelargus episcopus*, A., p. 469 (Pakchan).
*Dissoura episcopus*, B., p. 85 (Junk Seylon); E., p. 115 (Jalor); F., p. 16 (Trang); G., p. 152 (Ratburi and Petchaburi); H., pp. 88, 142 (Bandon and Koh Samui); L., p. 91 (Ghirbi).
*Dissoura episcopus neglecta*, I., p. 140 (Hat Sanuk, nr. Koh Lak).

Very common in rice fields, etc., throughout the northern part of the Malay Peninsula, but practically unknown south of Kedah. The Malaysian form has been separated from the typical Indian race on account of a narrowing bare stripe down the sides of the neck. In some of our series, possibly younger birds, this region is covered with soft down.

### 99. Pseudotantalus leucocephalus (Penn.).

*Tantalus leucocephalus*, Pennant, Ind. Zool., 1769, p. 11, Pl. x (Ceylon); A., p. 484 (Tavoy and Pakchan).
*Pseudotantalus leucocephalus*, G., p. 152 (Ratburi and Petchaburi); H., p. 88 (Bandon); L., p. 91 (Ghirbi).

The Pelican Ibis, or Painted Stork, is fairly common in our area and extends south as far as Langkawi, south of which it is replaced by *P. lacteus*. It is common in rice fields, and roosts at night on their margins on the tops of very high trees.

### 100. Anastomus oscitans (Bodd.).

*Ardia oscitans*, Boddaert, Tabl. Pl. Enl., 1783, p. 55 (Pondicherry).
*Anastomus oscitans*, G., p. 30 (Ratburi); Williamson, Journ. N. H. Soc. Siam, iii, 1918, pp. 39, 40 (between Tachin and Bangkok, and Ta Rua, C. Siam).

The above records are the southernmost noted for the Shell-Ibis, or Open-bill as it is perhaps more correctly called.

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A. Hume & Davison, Stray Feathers, vi, 1878.
B. Müller, Die Ornis der Insel Salanga, 1882.
C. Oates, Birds Brit. Burmah, Vols. i & ii, 1883.
D. Bonhote, P. Z. S. 1901, Vol. i.
E. O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
F. Robinson and Kloss, Ibis, 1910-11.
G. Gairdner, Journ. N. H. Soc. Siam, i, 1915.
H. Robinson, Journ. F. M. S. Museums, v, 1915.

## ARDEIDAE.

HERONS AND BITTERNS.

| | | |
|---|---|---|
| 1 | Tail feathers 12 | 2 |
| | Tail feathers 10 | 12 |
| 2 | Feathering on tibio-tarsus not extensive | 3 |
| | Feathering extending nearly to heel | 8 |
| 3 | Middle toe and claw longer than tarsus | *Pyrrherodias purpurea manillensis.* |
| | Middle toe and claw shorter than tarsus | 4 |
| 4 | Edge of mandibles serrated | 5 |
| | Edge of mandibles not serrated | 7 |
| 5 | With ornamental plumes to head, no dorsal train | 6 |
| | With no ornamental plumes, a dorsal train | *Mesophoyx intermedia.* |
| 6 | Crown of head slate colour | *Ardea sumatrana.* |
| | Crown of head white | *Ardea cinerea jouyi.* |
| 7 | Bill (culmen) not, or only slightly, exceeding middle toe and claw; tarsus more than 5 inches | *Herodias alba.* |
| | Bill (culmen) much exceeding middle toe and claw; tarsus less than 4 inches | *Garzetta garzetta.* |
| 8 | Bill without serrations | 9 |
| | Bill with serrations | 10 |
| 9 | Culmen longer than tarsus | *Demiegretta sacra.* |
| | Culmen about equal to tarsus | *Nycticorax nycticorax.* |
| | Culmen shorter than tarsus | *Gorsachius melanolophus.* |
| 10 | Bill longer than middle toe and claw; plumage with no white | *Butorides javanica.* |
| | Bill equal to middle toe and claw; plumage mainly white | 11 |
| | Bill shorter than middle toe and claw | *Bubulcus coromandus.* |
| 11 | Smaller, head and neck brownish | *Ardeola grayi.* |
| | Larger, head and neck blackish | *Ardeola bacchus.* |
| 12 | Middle toe and claw equal to tarsus | 13 |
| | Middle toe and claw exceeding tarsus | *Botaurus stellaris.* |
| 13 | Size larger, wing over 6 inches | *Dupetor flavicollis.* |
| | Size smaller, wing under 6 inches | 14 |
| 14 | Tarsus feathered to heel; primaries blackish | *Ardetta sinensis.* |
| | Tarsus not feathered to heel; primaries chestnut | *Ardetta cinnamomea.* |

### 101. Pyrrherodias purpurea manillensis Meyen.

*Ardea purpurea*, var. *manillensis*, Acta Acad. Leop-Carol. xvi, Suppl., p. 102.
*Ardea purpurea*, A., p. 472 (Tavoy).
*Phoyx manillensis*, D., p. 80 (Patelung).
*Ardea manillensis*, G., p. 152 (Ratburi and Petchaburi).

♂ ad. Mamoh, Pakchan, Peninsular Siam. 27 February, 1919. (No. 4295).

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I. Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
J. Robinson, Journ. F. M. S. Mus. vii, 1917.
K. Kloss, Ibis, 1918.
L. Robinson and Kloss, Journ. N. H. Soc. Siam, iii, 1919.
M. Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker, Journ. N. H. Soc. Siam, iii, 1919. (second part).
M. I. Baker, Journ. N. H. Soc. Siam, iv, 1920. (third part).

"Iris chrome; orbits lemon yellow tinged with green; upper mandible brown edged with ochre yellow, lower ochraceous yellow, base greenish; thighs and tarsi yellow, tarsi and toes black in front."

Total length, 925; wing, 375; tail, 160; tarsus, 124; bill from gape, 145 mm.

Personally we have found the Purple Heron rarer in the Peninsula than it is in Sumatra: in the south, indeed, it is extremely uncommon.

### 102. Ardea sumatrana Raffles.

*Ardea sumatrana*, Raffles, Trans. Linn. Soc. xiii, 1822, p. 325 (Sumatra); A., p. 469 (Mergui to Pakchan); F., p. 14 (Terutau Id.); H., p. 142 (Koh Pennan).

Common in most places along the coast on mud-flats and in mangrove swamps, but very wary and hard to approach.

### 103. Ardea cinerea jouyi Clark.

*Ardea cinerea jouyi*, Clark, Proc. U. S. Nat. Mus., 32, 1907, p. 468 (Korea); I., p. 136 (Koh Lak).
*Ardea cinerea*, A., p. 472 (Pakchan); G., p. 152 (Ratburi and Petchaburi).

Probably fairly common in winter.

### 104. Herodias alba (Linn.).

*Ardea alba*, Linn., Syst. Nat. i, 1766, p. 239 (Europe).
*Herodias torra*, A., p. 472 (Crab Island, Tavoy Estuary).
*Herodias alba*, H., p. 89 (Bandon).
Local and rare.

### 105. Mesophoyx intermedia (Wagl.).

*Ardea intermedia*, Wagler, Ibis, 1829, p. 659.
*Mesophoyx intermedia*, I., p. 136 (Koh Lak).

Distinctly uncommon.

### 106. Garzetta garzetta (Linn.).

*Ardea garzetta*, Linn., Syst. Nat. i, 1766, p. 237 (Oriental Region).
*Herodias garzetta*, B., p. 84 (Junk Seylon); Williamson, Journ. Nat. Hist. Soc. Siam, iii, pp. 40, 41 (Tachin and Bangkok, C. Siam, and Anghin and Bang Phra, Inner Gulf of Siam).
*Garzetta garzetta*, E., p. 117 (Patani).

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**A.** Hume, & Davison, Stray Feathers, vi, 1878.
**B.** Müller, Die Ornis der Insel Salanga, 1882.
**C.** Oates, Birds Brit. Burmah, Vols. i. & ii, 1883.
**D.** Bonhote, P. Z. S. 1901, Vol. i
**E.** O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
**F.** Robinson and Kloss, Ibis, 1910-11.
**G.** Gairdner, Journ. N. H. Soc. Siam, i, 1915.
**H.** Robinson, Journ. F. M. S. Museums, v, 1915.

Probaby not uncommon in suitable localities, but, as remarked by Williamson, apt to be overlooked owing to its close resemblance to the ubiquitous *Bubulcus coromandus*.

### 107. Demiegretta sacra (Gm.).

*Ardea sacra*, Gmelin, Syst. Nat. i, 1788, p. 640.
*Demiegretta sacra*, I., p. 481 (Mergui); Sharpe, Cat. Birds Brit. Mus., xxvi, 1898, p. 143; E., p. 117 (Patani); F., p. 15, Malay Peninsula); H., p. 143 (Koh Samui and Koh Pennan); I., p., 137 (Koh Lak); L., p. 92 (Pulau Panjang).

♀. Koh Pipidon, Ghirbi Bay, W. Coast Siam. 5 February, 1919 (No. 3944).

"Iris chrome; tarsi black, toes mottled with yellow; bill blackish."

Total length, 630; wing, 278; tail, 104; tarsus 79; bill from gape 90 mm.

Common throughout the coasts of Malaya in suitable localities. Within our area a very large proportion of the birds are in the grey plumage, with a more or less extensive white streak on the throat.

### Nycticorax nycticorax (Linn.).

*Ardea nycticorax*, Linn., Syst. Nat. i, 1788, p. 235.
*Nycticorax griseus*, Williamson, Journ. Nat. Hist. Soc. Siam, i, 1914, p. 48 (Bangkok).
*Nycticorax nycticorax*, Stuart Baker, Journ. Nat. Hist. Soc. Siam, iv, 1920, p. 42 (Hua Takhae, C. Siam).

The Night Heron will probably be found in Lower Siam, though it is not yet on record from our area.

### 108. Gorsachius melanolophus (Raffles).

*Ardea melanolophus*, A., p. 484 (neighbourhood of Pakchan); F., p. 15 (Trang); I., p. 137 (Koh Lak).

Not really uncommon within its area of distribution, but easily escaping notice owing to its nocturnal habits. Mr. W. J. F. Williamson informs us that he has found it breeding in heavy forest at Pak Jong, Eastern Siam, in June and August.

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**I.** Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
**J.** Robinson, Journ. F. M. S. Mus. vii, 1917.
**K.** Kloss, Ibis, 1918.
**L.** Robinson and Kloss, Journ. N. H. Soc. Siam, iii, 1919.
**M.** Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker, Journ. N. H. Soc. Siam, iii, 1919. (second part),
**M. I.** Baker, Journ. N. H. Soc. Siam, iv, 1920. (third part),

### 109. Butorides javanica (Horsf.).

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

*Butorides javanica*, A., p. 483 (Tavoy to Bankasoon); B., p. 84 (Junk Seylon); E., p. 116 (Patani); F., p. 15 (Malay Peninsula) K., p. 86 (Tachin); L., p. 92 (Pulau Panjang).

♀. Tung Pran, Takuatung, W. Coast Siam. 15 February, 1919. (No. 4023).

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

Total length, 432; wing, 164; tail, 65; tarsus, 47; bill from gape, 75 mm.

### 110. Ardeola grayi (Sykes.)

*Ardea grayii*, Sykes, P. Z. S. 1832, p. 158 (Dekkan, India).

*Ardeola grayi*, A. p. 481 (Mergui to Pakchan); E., p. 116 (Patani); G., p. 152 (Ratburi and Petchaburi); I., p. 138 (Koh Iak); K., p. 86 (Tachin); L., p. 92 (Pulau Panjang).

♀. Renong river, Peninsular Siam. 21 February, 1919. (No. 4149).

"Iris orange; upper mandible black, lower yellow, tip black; orbits, etc., apple-green; feet pale apple-green."

Total length, 450; wing, 201; tail, 80; tarsus, 53; bill from gape, 76 mm.

Very common right up the Pakchan, in large flocks of forty or fifty individuals.

### 111. Ardeola bacchus (Bp.).

*Buphus bacchus*, Bonaparte, Consp. Av. ii, 1857, p. 127 (Malay Peninsula).

*Ardeola prasinocelis*, A., p. 481 (Choung-thanoung, S. Tenasserim); C. ii, p. 253 (S. Tenasserim); F., p. 15 (Trang); H., p. 143 (Koh Samui).

Rarer than the preceding, but the two forms are rather difficult to distinguish except in breeding plumage.

### 112. Bubulcus coromandus (Bodd.).

*Caneroma coromanda*, Boddaert, Tabl. Pl. Enl., 1783, p. 54.

*Buphus coromandus*, A., p. 481 (Tavoy, Pakchan).

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A. Hume & Davison, Stray Feathers, vi, 1878.
B. Müller, Die Ornis der Insel Salanga, 1882.
C. Oates, Birds Brit. Burmah, Vols. i & ii, 1883.
D. Bonhote, P. Z. S. 1901, Vol. i.
E. O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
F. Robinson and Kloss, Ibis, 1910-11.
G. Gairdner, Journ. N. H. Soc. Siam, i, 1915.
H. Robinson, Journ. F. M. S. Museums, v, 1915.

*Bubulcus coromandus*, B., p. 84 (Junk Seylon) ; D., p. 80 (Patelung) ; E., p. 116 (Patani) ; F., p. 16 (Trang) ; G., p. 152 (Ratburi and Petchaburi) ; I., p. 139 (Koh Lak) ; K., p. 87 (Koh Lak).

Common everywhere in rice fields and in attendance on cattle.

### 113. Ardetta sinensis (Gm.).

*Ardea sinensis*, Gmelin, Syst. Nat. i, 1788, p. 642 (China).
*Ardetta sinensis*, A., p. 484 (Tavoy, Pakchan) ; B., p. 84 (Junk Seylon) ; H., p. 143 (Koh Penman) ; I., p. 139 (Koh Lak).

Probably partially migrating and commonest in winter.

### 114. Ardetta cinnamomea (Gm.).

*Ardea cinnamomea*, Gmelin, Syst. Nat., i, 1788, p. 643 (China).
*Ardetta cinnamomea*, A., p. 483 (Tavoy to Pakchan) ; B., p. 84 (Junk Seylon) ; E., p. 116 (Patani) ; G., p. 152 (Ratburi and Petchaburi).

♀, imm. Tasan, Chumpon, Peninsular Siam. 24 March, 1919. (No. 4845).

"Iris yellow ; bill pale yellow, tomia and base brown ; feet greenish, soles yellow."

Total length, 370 ; wing, 143 ; tail, 45 ; tarsus, 52 ; bill from gape, 63 mm.

### 115. Dupetor flavicollis (Lath.).

*Ardea flavicollis*, Latham, Ind. Orn. ii, 1790, p. 701 (India).
*Ardetta flavicollis*, A., p. 483 (Bankasoon) ; B., p. 84 (Junk Seylon).

Rare wherever it occurs. It has been found breeding at Bangkok by Williamson.

### Botaurus stellaris (Linn.).

*Ardea stellaris*, Linn., Syst. Nat. i, 1766, p. 239 (Europe).

In Siam only recorded from Raheng, in the north of C. Siam, *vide* Herbert, Journ. Nat. Hist. Soc. Siam, ii, 1916, p. 58. Two specimens are known from the Malay Peninsula, from Malacca and Singapore.

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I. Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
J. Robinson, Journ. F. M. S. Mus. vii, 1917.
K. Kloss, Ibis, 1918.
L. Robinson and Kloss, Journ. N. H. Soc. Siam, iii, 1919.
M. Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker, Journ. N. H. Soc. Siam, iii, 1919. (second part).
M. I. Baker, Journ. N. H. Soc. Siam, iv, 1920. (third part).

## ANSERIFORMES.

DUCKS AND GEESE.

| | | |
|---|---|---|
| 1 | Wing over 7 inches .. .. .. .. .. .. | 2 |
| | Wing under 7 inches; bill short and high .. | *Nettopus coromandelianus.* |
| 2 | Wing under 9 inches .. .. .. .. .. | 3 |
| | Wing over 10 inches .. .. .. .. .. | 4 |
| 3 | With a speculum on the wing .. .. | *Querquedula querquedula.* |
| | With no speculum on the wing .. .. | .. *Dendrocycna javanica.* |
| 4 | Head buff or whitish, speckled with black .. | .. *Casarca casarca.* |
| | Head white, strongly speckled with black .. | .. .. .. 5 |
| 5 | Belly white .. .. .. | *Sarcidiornis melanonotus.* |
| | Belly brown or black .. .. | *Asarcornis scutulata leucoptera.* |

### 116. Sarcidiornis melanonotus (Penn.).

*Anser melanonotus*, Pennant, Faunula Indica, 1769, p. 12, pl. xi (Ceylon).

*Sarcidiornis melanonotus*, Williamson, Journ. Nat. Hist. Soc. Siam, iii, 1918, p. 42 (Klong Luang Peng, nr. Bangkok.).

The only reference to the Comb Duck is that given above: elsewhere the nearest localities are the Attaran river, N. Tenasserim, and the vicinity of Chiengmai.

### 117. Asarcornis scutulata leucoptera (Blyth).

*Sarcidiornis leucopterus*, Blyth, Journ. Asiat. Soc. Bengal, xviii, 1849, p. 820 (Burma).

*Anas leucoptera*, C. ii, p. 281 (Tavoy and Mergui).

*Asarcornis scutulata*, D., p. 80 (Patelung).

*Asarcornis leucoptera*, F., p. 19 (Trang); H., p. 89 (Bandon); I., p. 134 (Hat Sanuk and Hue Sai near Koh Lak).

*Asarcornis scutulata leucoptera*, L., p. 92 (Ghirbi).

This heavy Wood-Duck is common in Peninsular Siam, where it feeds in the rice fields largely on species of snail *(Ampullaria)*, and lies up for the night in the adjacent jungle. Our men met with it on a small stream near Hat Sanuk, but did not secure specimens.

### 118. Nettopus coromandelianus (Gm.).

*Anas coromandeliana*, Gmelin, Syst. Nat. i, 1788, p. 522 (Coromandel, India).

*Nettopus coromandelianus*, A., p. 486 (Tavoy); D., p. 81 (Patelung); G., p. 153 (Ratburi and Petchaburi).

Said to be common at the north end of the Talé Sap and in the Talé Noi in Patelung, but rare everywhere else in the Peninsula.

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**A.** Hume & Davison, Stray Feathers, vi, 1878.
**B.** Müller, Die Ornis der Insel Salanga, 1882.
**C.** Oates, Birds Brit. Burmah, Vols. i & ii, 1883.
**D.** Bonhote, P. Z. S. 1901, Vol. i.
**E.** O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
**F.** Robinson and Kloss, Ibis, 1910-11.
**G.** Gairdner, Journ. N. H. Soc. Siam, i, 1915.
**H.** Robinson, Journ. F. M. S. Museums, v, 1915.

### 119. Dendrocycna javanica (Horsf.).

*Anas javanica*, Horsfield, Trans. Linn, Soc. xiii, 1821, p. 199 (Java).

*Dendrocycna javanica*, A., p. 486 (Tavoy) ; D., p. 81 (Patelung); F., p. 21 (Trang) ; G., 153 (Ratburi and Petchaburi) ; H., pp. 89, 143 (Bandon and Koh Samui) ; L., p. 93 (Ghirbi).

Common everywhere in the northern parts of the Peninsula.

### Casarca casarca (Linn.).

*Anas casarca*, Linn., Syst. Nat. iii, 1768, App., p. 224.
*Casarca rutila*, A., p. 489 (Kolan Id., south of Mergui).
*Tadorna casarca*, C. ii, p. 227.

This sheldrake may possibly occur in Lower Siam. It has been seen by Davison in the Mergui Archipelago, though there are no other records from Tenasserim.

### 120. Querquedula querquedula (Linn.).

*Anas querquedula*, Linn., Syst. Nat, i, 1766, p. 203 (Europe).
*Querquedula querquedula*, G., p. 153 (Ratburi and Petchaburi) ; I., p. 135 (Inner Gulf of Siam).

Met with at times in the marshes on the Perak river, but, like all ducks except the Wood-Duck and Tree-Teal, very rare in the Peninsula.

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I. Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
J. Robinson, Journ. F. M. S. Mus. vii, 1917
K. Kloss, Ibis, 1918.
L. Robinson and Kloss, Journ. N. H. Soc. Siam, iii, 1919.
M. Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker. Journ N. H. Soc. Siam, iii, 1919. (second part).
M. I. Baker, Journ. N. H. Soc. Siam, iv, 1920. (third part).

## STEGANOPODES.

DARTERS, CORMORANTS, PELICANS, ETC.

| | | |
|---|---|---|
| 1 | Tail deeply forked .. .. .. .. .. .. | 2 |
| | Tail rounded .. .. .. .. .. .. | 3 |
| 2 | Bill from gape 4.5 inches or over .. .. | *Fregata aquila.* |
| | Bill from gape 3.75 inches or under .. .. | *Fregata ariel.* |
| 3 | Middle tail-feathers not greatly elongate: nostrils not pervious .. .. | 4 |
| | Middle tail-feathers greatly elongate; nostrils pervious | *Phaethon indicus.* |
| 4 | Size very large; bill flattened .. .. .. .. .. | 9 |
| | Size smaller; bill compressed .. .. .. .. .. | 5 |
| 5 | With nostrils visible .. .. .. .. .. | 6 |
| | No external nostrils .. .. .. .. | *Sula sula* |
| 6 | Bill hooked .. .. .. .. .. .. | 7 |
| | Bill pointed .. .. .. .. | *Plotus melanogaster.* |
| 7 | Tail of 14 feathers .. .. .. | *Phalacrocorax carbo albiventer.* |
| | Tail of 12 feathers .. .. .. .. .. | 8 |
| 8 | Bill (culmen) less than 1.5 inches .. | *Phalacrocorax javanicus.* |
| | Bill (culmen) more than 2.2 inches .. | *Phalacrocorax fuscicollis.* |
| 9 | Feathering on forehead pointed .. .. | *Pelecanus roseus.* |
| | Feathering on forehead ending in a concave line | *Pelecanus philippenensis.* |

### 121. Fregata ? aquila (Linn.).

*Pelecanus aquilus*, Linn., Syst. Nat. i, 1766, p. 216 (Ascension Id.).
*Fregata minor*, Hume, Stray Feathers, ix, 1880, p. 119 (Tongka; Takuapah; (Langkawi Ids.).
*Fregata aquila*, B., p. 86 (Junk Seylon).
? *Fregata andrewsi*, Mathews, Austral. Av. Rec. ii, 1914, p. 120, Christmas Id.); Gyldenstolpe, Ibis, 1920, p. 775.

We have frequently seen Frigate birds on both coasts of Siam, notably in Bandon Bight, but have not obtained specimens; the smaller species has been obtained in the vicinity of Pulau Tinggi, off the coast of Johore.

### Fregata ariel (Gould).

*Attagen ariel*, Gould in Gray's Gen. Birds, iii, 1869, p. 669 (Australia).
*Fregata ariel ariel*, Rothschild, Nov. Zool., xxii, 1915, p. 145.

It is not profitable to discuss the names for Siamese birds in the absence of specimens, and we have therefore not attempted to assign to the exact races the two forms that almost certainly occur. Reference may be made to Lord Rothschild's article on the Genus,

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A. Hume, & Davison, Stray Feathers, vi, 1878.
B. Müller, Die Ornis der Insel Salanga, 1882.
C. Oates, Birds Brit. Burmah, Vols. i. & ii, 1883.
D. Bonhote, P. Z. S. 1901, Vol. i
E. O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
F. Robinson and Kloss, Ibis, 1910-11.
G. Gairdner, Journ. N. H. Soc. Siam, i, 1915.
H. Robinson, Journ. F. M. S. Museums, v, 1915.

above quoted, but it may here be noted that the ♂ from Malacca (Davison coll.) in the British Museum, which he assigns to *F. aquila*, with a query as to the correctness of its provenance, is obviously the bird from Pulau Nongsa in Singapore Straits, described by Hume (Stray Feathers, ix, p. 119), under the name *Fregata minor* (Gm.).

### 122. Phaethon indicus Hume.

*Phaethon indicus*, Hume, Stray Feathers, iv, 1876 p. 481 (Mekran Coast); A., p. 493 (Victoria Point).

The only record for our area is the one noted by Davison from south of Victoria Point. There is a skin labelled "Straits of Malacca (Cantor)" in the British Museum, but we have never seen the bird in local waters.

### 123. Sula sula (Linn.).

*Pelecanus sula*, Linn., Syst. Nat. i, 1766, p. 218 (Indian Seas)
*Sula australis*, A., p. 493 (Coast of Peninsular Siam and Tenasserim).
*Dysporus sula*, C. ii, p. 229 (Coast of Tenasserim).
*Sula sula*, Williamson, Journ. Nat. Hist. Soc. Siam, ii, 191, p. 63 (Koh Rin); id. op. cit. iii, 1918, p. 38 (Koh Chuan).

Common on the western coast of Siam: we have not seen it on the east side, though we have been assured that it is found breeding in a small island off the coast of Nakon Sritamarat

### Plotus melanogaster (Penn.).

*Anhinga melanogaster*, Pennant, Indian Zool., 1760, p. 53, pl. XV (Ceylon and Java); F., p. 19 (Langkawi Ids.).

This bird also must certainly occur in Lower Siam: two or three specimens used to live in the lake in Dayang Bunting, Langkawi Ids.

### 124. Phalacrocorax carbo albiventer (Tickell).

*Carbo albiventer*, Tickell, Journ. Asiat. Soc. Bengal, xi, 1842, p. 463 (Chaibassa, South Behar).
*Phalacrocorax carbo*, A., p. 496 (Tavoy); E., p. 115 (Patani); G., p. 153 (Ratburi and Petchaburi); H., p. 143 (Koh Pennan).
*Phalacrocorax carbo indicus*, Mathews, Birds of Australia, iv, 1915, p. 171 (India).

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**I.** Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
**J.** Robinson, Journ. F. M. S. Mus. vii, 1917.
**K.** Kloss, Ibis, 1918.
**L.** Robinson and Kloss, Journ. N. H. Soc. Siam, iii, 1919.
**M.** Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker, Journ. N. H. Soc. Siam, iii, 1919. (second part).
**M. I.** Baker, Journ. N. H. Soc. Siam, iv, 1920. (third part).

Quite common on the east coast of Siam but rare on the west. Tropical races are much smaller than European birds and the name *P. carbo albiventer* Tickell, probably applies.

### 125. Phalacrocorax javanicus (Horsf.).

*Carbo javanicus*, Horsf., Trans. Linn. Soc., xiii, 1822, p. 197 (Java).
*Phalacrocorax pygmaeus*, A., pp. 496, 521 (Tavoy); C. ii. p. 234 (Tenasserim).
*Phalacrocorax javanicus*, G., p. 153 (Ratburi and Petchaburi).
*Phalacrocorax pygmaeus javanicus*, I., p. 133 (Ratburi).

The Lesser Cormorant is not a marine species, but appears to occur on the upper reaches of many rivers in Siam and the Malay Peninsula. We have seen it in mountain streams in Bandon.

### Phalacrocorax fuscicollis Steph.

*Phalacrocorax fuscicollis*, Steph. in Shaw's Gen. Zool. xiii, 1826, pt. I, p. 91 (Bengal); A., p. 496 (Salween and Sittang); C. ii, p. 233: Williamson, Journ. Nat. Hist. Soc. Siam, iii, 1918, p. 39 (Klong Samrong, S. E. of Bangkok).

Though the Brown-necked Shag has not as yet been actually recorded from our area, it is almost certain to occur; it is therefore inserted in the key.

### 126. Pelecanus philippensis Gm.

*Pelecanus philippensis*, Gmelin, Syst. Nat., i, 1788, p. 571 (Philippine Ids.); A., p. 495 (Thatone). G., p. 152 (Ratburi and Petchaburi); Williamson, Journ. Nat. Hist. Soc. Siam, i, 1915, p. 219 (Singora).

### Pelecanus roseus Gm.

*Pelecanus roseus*, Gmelin, Syst. Nat. i, 1788, p. 570 (Luzon).

Pelicans are common in the Trang swamps, in the vicinity of the Talé Sap and Talé Noi in Patelung, and on the coast in Patani Bay, and on the Bandon Bight, but few specimens have, as far as we are aware, been obtained. This species, however, is certain to occur.

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**A.** Hume & Davison, Stray Feathers, vi, 1878.
**B.** Müller, Die Ornis der Insel Salanga, 1882.
**C.** Oates, Birds Brit. Burmah, Vols. i & ii, 1883.
**D.** Bonhote, P. Z. S. 1901, Vol. .
**E.** O. Grant, Fasciculi Malayenses, iii (Birds), 1905.
**F.** Robinson and Kloss, Ibis, 1910-11.
**G.** Gairdner, Journ. N. H. Soc. Siam, i, 1915.
**H.** Robinson, Journ. F. M. S. Museums, v, 1915.

## TUBINARES.

PETRELS AND PUFFINS.

| | |
|---|---|
| Tarsi covered in front with hexagonal scales; claws sharp; rump not white .. .. | *Oceanodroma monorhis* |
| Tarsi covered in front with transverse scutes; claws flat; rump white .. .. .. .. | *Oceanites oceanicus* |

### Oceanodroma monorhis (Swinh.).

*Thalassidroma monorhis*, Swinhoe, Ibis, 1867, p. 386 (Amoy); Van Oort, Notes Leyd. Mus., xxxiii, 1911, p. 111 (Semarang, Java).

There are three known specimens of this rare Petrel from Indo-Malayan waters; that from Java recorded above, a female obtained at Keppel Harbour, Singapore, by Mr. Koh Ah Wing, now in the Raffles Museum, and a male obtained in the One Fathom Bank Lighthouse, off the coast of Selangor, in the F. M. S. Museum. The species will probably be found on the Siamese coast also.

### Oceanites oceanicus (Kuhl).

*Procellaria oceanica*, Kuhl, Beitr., p. 136, pl. x, fig. i. (1820).
*Oceanites oceanicus*, A., p. 490.

Davison records this species as seen off the Moscows, a group of islets north of Tavoy, and we have on several occasions in stormy weather seen small black petrels with white rumps, in various parts of the Straits Settlements, so the species probably occurs off the Siamese coast.

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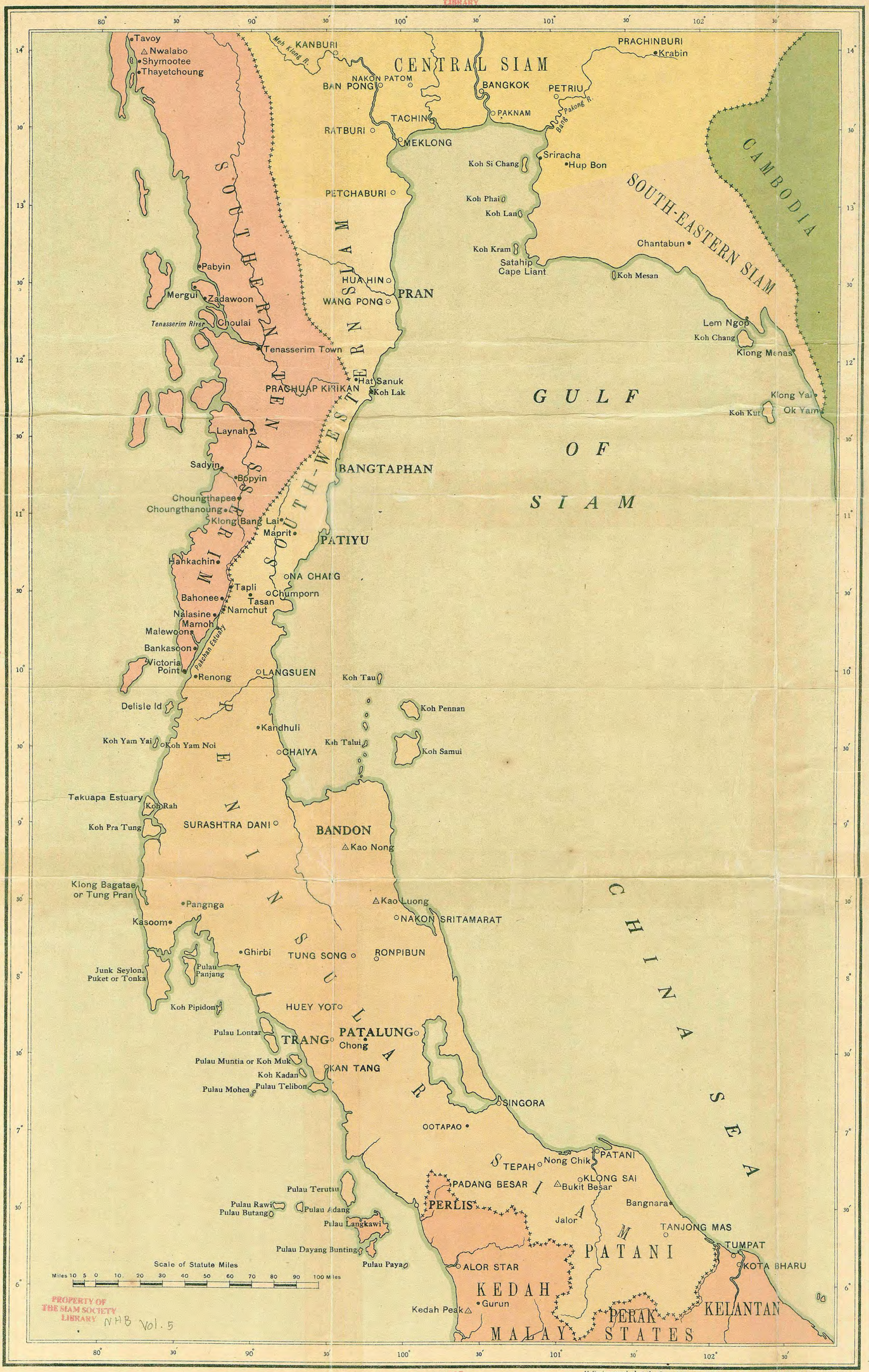
I. Gyldenstolpe, Kungl. Sv. Vet. Akad. Handl. 56, No. 2, 1916.
J. Robinson, Journ. F. M. S. Mus. vii, 1917.
K. Kloss, Ibis, 1918.
L. Robinson and Kloss, Journ. N. H. Soc. Siam, iii, 1919.
M. Baker, Journ. N. H. Soc. Siam, iii, 1919. (first part).
Baker, Journ. N. H. Soc. Siam, iii, 1919. (second part).
M. I. Baker, Journ. N. H. Soc. Siam, iv, 1920. (third part).








Heliozincographed at the Central Survey Office, Kuala Lumpur, F.M.S., Reg. No. 146 '19, 550.