

Vol. II.

Part I.

MUSEUM OF ZOOLOGY  
PRODROMUS 1927-492

FAUNÆ ZEYLANICÆ;

BEING

CONTRIBUTIONS TO THE ZOOLOGY

OF

CEYLON.

BY E. F. KELAART, M.D., F. L. S., &c., &c.

STAFF SURGEON TO THE FORCES.

VOL. II.—PART I.

CONTENTS:

	Page.
Synopsis of Ceylon Reptiles...	5—10
Description of New or little known Reptiles ...	11—22
Description of Diurnal and Nocturnal Birds of Prey ( <i>Eagles, Falcons, Hawks, Kites and Owls.</i> ) ...	3—31

APPENDIX.

Notice of two VIVERIDÆ from Ceylon. By J. E. GRAY, Esq. ...	v.—vi.
Characters of new Land Shells, collected by E. L. LAYARD, Esq., By W. H. BENSON, Esq. ...	vii.—xiii.
Catalogue of Ceylon Mammalia...	xv.—xvi.

COLOMBO:

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M.DCCC.LIV.

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**PRODROMUS FAUNÆ ZEYLANICÆ, VOL. I.**

**CONTENTS:**

**Natural History of Newera Ellia.**

**Description of Ceylon Mammalia.**

**Catalogue of Ceylon Birds.**

**Description of New Species of Ceylon Birds.**

**Description of Ceylon Reptiles.**

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**APPENDIX.**

**Dr. Gardner on the Flora of Ceylon.**

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*Sold in Ceylon by*

**Messrs. Clarke Romer and Co., Colombo; Messrs. Milne Cargill and Co., Galle;**

*And in London by J. Van Voorst, 1, Paternoster Row.*

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"The zeal and industry of Staff-Surgeon Kelaart has, in this "Prodromus," opened to us almost a new field in Natural History, and the Ceylon press, the best missionary that has ever gone to the East, has given it form and shape. It is, indeed a gratifying task for us to welcome such a work from the pen of an Army Surgeon, composed amidst the excitements and temptations of Indian life; and we could wish that other Officers would follow so good an example. The work contains a descriptive account of Ceylon Mammalia, of the Saurian, Chelonian, and Emydosaurian reptiles; of the Amphibia, and the Ornithology, besides a catalogue of the Birds of the Island, and a sketch of the Natural History of Newera Ellia. The Appendix is enriched with observations on the Flora of Ceylon, and additional remarks on its animals, which form altogether a most valuable contribution to the lore of the Naturalist."

*United Service Mag., November, 1853.*

PRODRROMUS  
FAUNÆ ZEYLANICÆ;

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*“Nihil est aliud magnum quam multa minuta.”*

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[*From the Journal of the Asiatic Society of Ceylon, 1853.*]

## NOTICE.

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IN presenting to Naturalists a more complete Synopsis of Ceylon Reptiles, which the continued kindness of friends in various parts of the Island has enabled me to form, I have much pleasure in expressing my best thanks to the Members of the Asiatic Society of Ceylon, and to Sir George Anderson, Dr. Fergusson, P.M.O., and the Hon'ble C. J. MacCarthy, Esq., Colonial Secretary, for the facilities they have afforded me in my further researches in the Natural productions of the Island.

The joint labours of Mr. Edgar Layard and myself have nearly completed the examination of the Mammals, Birds, Shells, Reptiles and Insects of this Island. The fresh water Fishes are now engaging my attention, and any specimens of this Class will be thankfully received. Dr. Schmarda, Professor of Zoology of the University of Prague, is now on a visit to the Island for the chief purpose of examining the Infusoriæ, and Professor Harvey of Trinity College, Dublin, is also, I believe, at present engaged in examining into the Echinodermata and Crustacea of the Island, so that it may be hoped, it will not be very long before the neglected Fauna of Ceylon is completely worked out.



SYNOPSIS  
OF  
CEYLON REPTILES.

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ORDER. SAURA. *Lizards.*

SUB-ORDER. I. LEPTOGLOSSÆ.

*Slender-tongued Lizards.*

FAM: MONITORIDÆ. *Monitors.*

- 1 Monitor Dracæna, *Gray.* Guana. Talla Goya, *Sing.*  
2 Hydrosaurus Salvator, *Wagler.* Water Guana. Cabara Goya, *Sing.*

FAM: SCINCIDÆ. *The Scincs.*

- 3 Riopa punctata, *Gray.* Puchee Bramin, *Port.*  
4 Riopa Hardwicki, *Gray.* do.  
5 Mabouia elegans. (?) *Gray.* do.  
6 Taliqua rufescens, *Gray.* Large do.

FAM: ACONTIADÆ.

- 7 Nessia Burtoni. (?) *Gray.* Ground Bramin.  
8 Acontias (?) Layardi, *n. s., nobis.* Layard's do.

FAM: TYPHLOPSIDÆ. *Typhlops.*

- 9 Argropyphis Bramicus, *Daud.* Silver snake.

———— 2 varieties.

FAM: UROPELTIDÆ. *Rough tails, or False snakes.*Dapatnaya, *Sing.*

- 10 Uropeltis grandis, *n. s., nobis.*
- 11 Uropeltis Pardalis, *n. s., nobis.*
- 12 Uropeltis Saffragamus, *n. s., nobis.*
- 13 Rhinophis Blythii, *n. s., nobis.*
- 14 Dapatnaya Lankadivana, *n. s., nobis.*
- 15 Dapatnaya Trevelyana, *n. s., nobis.*
- 16 Siluboura Ceylonicus, *Gray.*

## SUB-ORDER II. PACHYGLOSSÆ.

*Thick-tongued Lizards.*FAM: GECKOTIDÆ. *The Geckoes.*Cheechas, *Port.* Hoona, *Sing.*

- 17 Hemidactylus trihedrus, *Lesson.* The triangular tubercled Gecko.
- 18 Hemidactylus maculatus, *Dum.* The spotted do.  
*et Bib.*
- 19 Hemidactylus Pieresii, *n. s., nobis.* Pieres' Gecko.
- 20 Hemidactylus Coctei, *Dum. et Bib.* Cocto's do.
- 21 Hemidactylus frenatus, *Schlegel.* The streaked Gecko.
- 22 Hemidactylus Leschenaultii, (?) Leschenault's do.  
*Dum. et Bib.*
- 23 Boltalia sublævis, *Gray.* The Boltalia.
- 24 Peripia Peronii, *Dum. et Bib.* Peron's Gecko.
- 25 Gymnodactylus (?) Kandianus, *The diurnal Gecko.*  
*n. s., nobis.*



FAM: AGAMIDÆ. *The Agamas.*Blood-suckers, *Vulg.* KattooSah, *Sing.*

- 26 *Sitana Ponticereana*, *Cuvier.* The Sitana.  
 27 *Lyriocephalus scutatus*, *Wagler.* Lyre-headed Lizard.  
 28 *Ceratophora Stoddartii*, *Gray.* The needle-nosed Lizard  
 29 *Salea Jerdonii*, *Gray.* Dr. Jerdon's Salea.  
 30 *Calotes Ophiomachus*, *Gray.* Red headed Green Lizard.  
 31 *Calotes Rouxi*, *Gray. Blyth.* } Green Lizard.  
     *vel C. Viridis, Gray. apud nos.* }  
 32 *Calotes mystaceus*, *Dum. et Bib.* Red spotted Green Lizard.  
 33 *Calotes versicolor*, *Dum. et Bib.* The common Blood-sucker.

FAM: CHAMELEONIDÆ. *Chameleons.*

- 34 *Chameleo vulgaris*, *Daud.* The true Chameleon.

ORDER. OPHIDIA. *Serpents.*Cobras, *Port.* Saroopeya, Satta, *Sing.**Innocuous Serpents.*

## FAM: BOIDÆ.

BURROWING.

- 35 *Cylindrophis maculata*, *Wagler.* The red and black netted Snake.

TERRESTRIAL.

- 36 *Python molurus*, *Gray.* The Rock Snake.

FAM: COLUBERIDÆ. *Bonaparte.*

TERRESTRIAL.

- 37 *Calamaria Scytale* ?  
 38 *Lycodon*, 2 or more species.  
 39 *Xenodon purpurascens*, *Schlegel.* var.  
 40 *Coluber Korros*, *Reinwardt.*

## ARBORIAL.

- 41 *Dipsas multimaculata* (?) *Schlegel*.  
 42 *Dryinus Prasinus*, *Reinwardt*. The Whip Snake.  
     *D. nasutus* 2 or more varieties.  
 43 *Leptophis pictus*, *Gmelin*.  
 44 *Leptophis ornatus*, *Shaw*.  
 45 *Leptopthis* sp.

AQUATIC. Deye Naya, *Sing*.

- 46 *Tropidonotus umbratus*, *Daudin*. (var.) Large blackish water Snake.  
 47 *Tropidonotus stollatus*, *Linn*. The speckled do.  
 48 *Tropidonotus schistosus*, *Daud*. The olive brown do.  
 49 *Cerberus cinereus*, *Cuvier*. The black do.

*Venomous Serpents.*FAM: VIPERIDÆ. *Vipers.*

## TERRESTRIAL.

- 50 *Bungarus candidus*, *Linn*.  
 51 *Naya lutescens*, *Daudin*. var. Cobra de Capello.  
     ———var. *Nigra*.

## ARBORIAL.

- 52 *Trigonocephalus Hynnale*, *Wagler*. Caravilla.  
 53 *Trimesurus gramineus*, *Shaw*. The green Caravilla.  
 54 *Trimesurus Ceylonensis* (?) *Gray*. *apud Gray*.  
 55 *Megaera trigonecephala*, *Wagler*. Palagolla.  
 56 *Daboia elegans*, *Gray*.  
 57 *Daboia Russellii*, *Gray*. } Polanga.

N. B.—There are about six or eight more Ceylon Snakes, which have not yet been identified.

ORDER. CHELONIA. *Tortoises.*Cowdoo, *Port*. *Ibba*, *Sing*.

## FAM: TESTUDINIDÆ.

- 58 *Testuda Indica*, *Gmelin*. The large land Tortoise.  
 59 *Testuda stellata*, *Schweig*. The yellow starred do.

## FAM: EMYDIDÆ.

- 60 *Emys trijuga*, var. *Schweig.* Marsh Tortoise. Gal Ibba. *Sing.*  
 61 *Emys Seba*, *Gray*, *apud Blyth.* do.  
 62 *Emyda punctata*. *Gray.* River Tortoise. Keerec Ibba. *Sing.*

## FAM: CHELONIDÆ.

- 63 *Caretta imbricata*, *Gray.* Sea Turtle. Kokoeloo koosoomba, *Sing.*  
 64 *Chelonia virgata*, *Schweig.* Edible do. Gal koosoomba, *Sing.*

ORDER. EMYDOSAURI. *Crocodiles.*

Lagartoo, *Port.* Kimboola, *Sing.*

- 65 *Crocodylus porosus*, *Schweig.* { The Indian river Crocodile.  
 Allie Kimboola, *Sing.*  
 66 *Crocodylus palustris*, *Lesson, male.* { Marsh Crocodile.  
 Halle Kimboola. *Sing.*

*Crocodylus Bombifrons*, *female.* *apud Blyth.*

## AMPHIBIA.

ORDER. BATRACHIA, *Frogs.*

Madookoo, *Port.* Attykitta, *Sing.*

FAM: RANIDÆ, *Water Frogs.*

- 67 *Rana cutipora*, *Dum. et Bib.* Large green bull Frog.  
 68 *Rana Malabarica*, *Dum. et Bib.* The green spotted bull Frog.  
 69 *Rana Bengalensis*, *Gray.* The small green do.  
 70 *Rana Tigrina*, *Daudin.* The golden Frog.  
 71 *Rana Newera Elliana*, *nobis.* The blackish Frog.  
 72 *Rana Kandiana*, *nobis.* The red bellied Frog.  
 73 *Rana Leschenaultii* (?) *Dum. et Bib.* Leschenault's Frog.  
*Bib. apud Blyth.*

FAM: HYLIDÆ. *Tree Frogs.*Ghas Gemba. Attykitta, *Sing.*

- |                                                    |   |                                    |
|----------------------------------------------------|---|------------------------------------|
| 74 Polypedates leucomystax,<br><i>Gravenhorst.</i> | } | The common tree Frog.              |
| 75 Polypedates cruciger, <i>Blyth.</i>             |   | The cross-backed do.               |
| 76 Polypedates stellata, <i>nobis.</i>             |   | The white spotted green tree Frog. |
| 77 Limnodytes mutabilis, <i>nobis.</i>             |   | The changeable tree Frog.          |
| 78 Limnodytes maculata, <i>nobis.</i>              |   | The brown spotted do.              |

FAM: BUFONIDÆ. *Toads.*Gemmadea, *Sing.*

- |                                          |                        |
|------------------------------------------|------------------------|
| 79 Bufo melanostictus, <i>Schneider.</i> | The common house Toad. |
| 80 Engystoma marmorata, <i>Gray.</i>     | The green spotted do.  |
| 81 Engystoma cinnamomea, <i>nobis.</i>   | The red do.            |

## ORDER. PSEUDOPHIDIA.

## FAM: CÆCILIIDÆ.

- |                                         |                          |
|-----------------------------------------|--------------------------|
| 82 Ichthyophis glutinosus, <i>Gray.</i> | The glutinous Slow worm. |
|-----------------------------------------|--------------------------|

N. B.—Mr. Blyth in his last Report, J.A.S.B. No. 4 of 1853, enumerates among the Reptiles I sent him, the following new species, *Limnodytes lividus*, *L. macularis*, *Engystoma rubrum*, Jerdon. *Pyxicephalus Fodiens*, Jerdon, and *Rana robusta*.

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DESCRIPTION  
OF  
NEW OR LITTLE KNOWN SPECIES  
OF  
REPTILES.

---

ORDER. SAURA.

TRIBE. GEISSOSAURA.

FAM. ACONTIAS, (ACONTIADÆ.)

Head small, shielded. Muzzle conical. Rostral rather large, cup-shaped, internasal short, frontal large, frontoparietal none, interparietal triangular, moderate. Eyes distinct. Eyelids, lower well developed, upper small or wanting. Nostrils in the middle of the side of the rostral shield, with a slit to its hinder edge. Tongue scaly, imbricate, nicked at the point. Ears very small or hidden. Femoral pores none. Body cylindrical. Limbs 4, very short, or none. Scales smooth.—*Gray*.

GENUS. NESSIA. *Gray*.

Muzzle conical. Ears very small, dotlike. Body cylindrical, elongate, sides rounded. Scales smooth. Legs 4, very short, far apart. Toes 3-3, subequal, clawed.

NESSIA BURTONI? *Gray*.

Dark rufous-brown above, and spotted longitudinally with darker brown spots. Dark grey beneath, clouded and indis-

tinctly spotted. Tail cylindrical, rounded at the end, and coloured and spotted like the body. Limbs 4, very small, each with 3 subequal toes.

Length  $5\frac{1}{2}$  inches.

*Habitat.* Allagalla (3000 feet.)

The only specimen which I have examined is one obtained from vegetable soil in a Coffee Estate under the superintendence of Dr. Marshall.\* I am informed that this reptile is common at Ambegammao.

If my identification is correct, it would appear probable that the only specimen in Europe, found in the Army Medical Officers' Museum at Fort Pitt, was sent from Ceylon. The specimen was named after Staff Surgeon Burton, who was the Curator of the Museum when Dr. Gray visited that establishment.

#### GENUS. ACONTIAS. *Cuvier.*

Head conical. Nostrils lateral. Internasal broad, 6 sides, frontal large, 6 sided, frontonasals and frontoparietals none; interparietals small, triangular, parietal moderate. Tongue flat, scaly, nicked at the tip. Teeth conical, blunt. Palate not toothed, with a longitudinal groove. Eyes very small. Upper eyelid wanting, lower short, scaly, opaque. Ears hidden under the skin. Body cylindrical, elongate. Scales smooth. Limbs none, exserted. Tail cylindrical, short rounded at the end.—*Gray.*

#### ACONTIAS (?) *LAYARDI. n. s., nobis.*

Light olive, and spotted longitudinally with brown spots, paler beneath.

Length of young 4 inches.

*Habitat.* Soil of the Cinnamon Gardens of Colombo.

---

\* I have since received several smaller specimens from Kaduganava.

The form of this reptile is distinguished from that of *Nessia*, above described, by the absence of limbs; in other respects it is very like the outline characters of *Nessia*. Mr. Layard procured me the specimens (apparently young) of this curious lizard.

The only other species described in Gray's Catalogue, is one from the Cape of Good Hope.

Mr. Blyth writes that he has described an allied Genus, from Rangoon, by the name of *OPHISEPS*.

#### FAM. UROPELTIDÆ.

##### ROUGH TAILS. *DAPAT-NAYA*, *Sing.*

Head conical, compressed, shelving and acute in front, flat above, behind. Crown covered with regular shields. Rostral produced, moderate, convex, horny, subtriangular, erect, produced, and acute behind. Nostrils roundish, lateral, simple, in the middle of the front of an erect subtriangular band-like nasal. Internasal none, frontonasal subtriangular, truncated below, contiguous above, frontal and frontoparietal distinct. Nape scaly. Labial shields ‡ distinct. Eyes distinct, lateral, in the middle of the front of an erect eye-shield, and covered by the shield without any eyelids. Eyebrow shield none. Tongue elongate, flat, forked at the tip. Body cylindrical. Scales 6 sided, smooth, those of the hinder part and above the tail sometimes 2-keeled. Vent with three scales in front. Tail cylindrical, obliquely truncated above.

This family is intermediate between the Lizards and the Snakes; following Cuvier and others, I was induced to refer it to the latter order, and therefore did not insert it in the Synopsis of the Families: but on re-examination and comparison with the various modifications presented by the genera of *Typhlopsidæ*, I have been induced to place it in the order of Lizards. Cuvier seems to have been in doubt, for though he placed the

genus with the Snakes, he also regarded the species as a section of the Typhlopes. Schlegel names the group Pseudo Typhlops.—(*Gray's Synopsis.*)

This curiously formed family of Reptiles is known in the Island as *Dapat Nayas*, or double headed snakes. The natives consider them poisonous, but my experience of their habits makes me believe that they are perfectly harmless, and that they are timid creatures, seldom making their appearance aboveground; living chiefly in ant-hills or dunghills, sometimes also several feet deep in rich loamy soil. They feed on ants, small earth-worms and larvæ of insects.

It appears from Dr. Gray's Catalogue, that in the Museums of Europe there are only three species, and of these three only one is from Ceylon, viz., *Siluboura Ceylonicus*,\* many specimens of which I have found in the Kandyan Hills since my work on the Fauna of Ceylon was published. I have also, since the publication of that work, collected four other species, making in all six distinct undescribed or new species of Rough Tails (*Uropeltidæ*) in the Island of Ceylon, which I shall now describe in a connected form.

Dr. Gray subdivides the family into three groups, and I have added a fourth, to admit of two species, only one of which I have described in the Prodomus.

#### GENUS. RHINOPHIS. *Hempr.*

Tail obliquely truncated, upper part rather convex, covered with a small oblong shield, lower edge rounded, simple, rather produced. Head acute, tapering in front. Vent shields in one marginal row.

#### RHINOPHIS BLYTHII. *n. s., nobis.*

Dark yellowish brown above, with darker brown spots on the anterior third of scales. Paler beneath. Rostrum

---

\* *Vide Prodomus Faunæ Zeylanicæ.*



yellow. Sides of nape and neck waved with angular marks of a yellowish hue; yellow spots on each side of vent. Tail thick, slightly truncated, conical, upper part near termination has a small subtriangular nearly smooth shield, lower surface covered with broad scales. Vent shields 1-2.

Length 16 inches, circumference of the middle of body 1. 3-10 inches. Tail and neck rather thicker.

*Habitat.* Mountains of Ceylon.—Three specimens found 3 or 4 feet below the surface soil of Coffee plantations.

GENUS. UROPELTIS, (part). *Cuvier.*

Tail obliquely truncated, flattish, and covered with a flat roundish radiating granular shield, lower edge rounded, the under side of tail with 6 series of small scales.

UROPELTIS SAFFRAGAMUS. *n. s., nobis.*

Head dark olive brown, the rest of the upper surface of a blackish brown colour, with bluish bronze reflections. Beneath white. A pale white spot on each side of neck near the head. Tail deeply truncated and nearly covered with a large flat circular blackish granular shield, white and rounded beneath, and lower part covered with five series of small scales, the central series broader than the lateral ones. Vent shields 1-2. The neck and forepart of the body much thicker.

Length 9 inches.

*Habitat.* District of Saffragam, near Adam's Peak.

The only specimen of this species, which I have as yet seen, is one sent by Mr. Barnes De Zilva from Ratnapoora.

UROPELTIS GRANDIS. *n. s., nobis.*

Above dark brown with a bluish metallic lustre, anterior part of each scale with a blackish spot. Beneath of a pale yellow colour, spotted brown on the anterior part of scale.

Head of a light olive brown colour. Tail short, abruptly truncated; the truncated surface entirely covered with a large circular, granular shield. Vent scales 1-2.

Total length superiorly, 1 foot 7 inches. Inferiorly, 1 foot 8 inches. Tail shield nearly the size of a shilling piece. Head 8-10 inch in length.—Greatest circumference  $2\frac{3}{4}$  inches, near the neck.

*Habitat.* Southern Province.

The only specimen I have seen of this very large Rough Tail, is one procured by Mr. Balkhuysen of the Colonial Medical Service, from Kerinday near Matura.

UROPELTIS PARDALIS. *n. s., nobis.*

Head small, dark olive. Upper parts black with beautiful bluish bronze reflections, irregularly spotted white. Beneath yellowish white, marked with large and small black spots, variously shaped; some pale eyed. Tail very short, obliquely truncated, and with a large flat orbicular granular shield. Length,  $6\frac{1}{2}$  inches; circumference  $\frac{3}{4}$  inch.

*Habitat.* Matura. I am indebted to the Rev. Mr. Ondaatje for the only specimen I have examined of this species. The black spots on the lower parts occupy more than one scale, generally two or three contiguous scales; and they are placed without any order in various directions. The chin and throat immaculate.

GENUS. DAPATNAYA. *n. g.*

Tail obliquely truncated, upper part and tip covered with a large semiconical granular shield. Vent shields 1-2.

DAPATNAYA LANKADIVANA. *n. s., nobis.*

Above dark brown, beneath paler. Scales with pale margins. Head yellowish in some. Rostrum yellow. Shield

of tail sloping down to the lower surface. Vent scales yellow; in some the yellow spot extends beyond the vent.

Length, from 1 to 2 feet.

Thickness nearly the same throughout, about 1 inch.

*Habitat.* Common at Trincomalie, and in the Kandyan Province. Found 2 or 3 feet under ground, and in ant-hills. The young is of a dark olive brown colour.

DAPATNAYA TREVELYANA. n. s., nobis.

Black above, margin of scales pale. White beneath, with longitudinal series of black spots, formed of central spots on each scale. A line of triangular white spots, with their apices directed upwards, along each side. Vent white. A white line rising from this spot runs over the tail, and another whitish line extends forwards from the vent for about  $\frac{3}{4}$  inch. Tail short, and nearly covered with a white semi-conical granular shield, tip ridged, a little produced.

Length from 12 to 18 inches; nearly of the same thickness throughout, about 1 inch.

*Habitat.* Kandyan Hills, 3 or 4 feet under ground, and in the soil near the roots of Coffee trees and Cane.

Some of the young are of a bluish colour, others are spotted on the back.

## TRIBE. NYCTISAURA.

### FAM. GECKOTIDÆ.

#### BOLTALIA.

Toes free, ovate and dilated towards the end, with two series of straight narrow nearly transverse closely adpressed plates beneath, divided by a deep narrow groove, last joint compressed, free, rather exserted, clawed. Thumb dilated, and with a compressed last joint, like the toes, but clawless. Back with granular scales and a few scattered larger granules.

Sides simple. Tail rather depressed, tapering, ringed, with a central series of broad scales beneath.

*BOLTALIA SUBLEVIS. Gray.*

Above dark rufous brown; beneath sulphureous yellow, sometimes clouded with black. Back granular, with two or more longitudinal lines of larger granules on each side. Scales of chin large. Tail armed with adpressed spines in rings. Femoral pores in males only, from 16 to 20.

Length  $5\frac{1}{2}$  inches.

*Habitat.* The Central and Southern Provinces.

This Gecko I obtained in great abundance in Galle; I have also seen a few at Kaduganava, after the publication of the Prodomus. It is rarely seen on the walls of houses, generally on trees, and on the roofs of houses. The rufous brown colour changes at times into a dark grey, mottled with black. When immersed in spirits the rufous brown colour is entirely lost.

This Gecko has been mistaken for *Hemidactylus Leschenaultii*, and also, for a large variety of *H. frenatus*, but the clawless compressed last joint of the thumb will distinguish this Lizard from others. From *Peripia Peronii* it is sufficiently removed by its granular back and armed tail. This Lizard cannot be confounded with *Hemidactylus Coctæi*. It has very little resemblance to it, and the thumb of *H. Coctæi* is clawed. (*Vide* Prodomus Faunæ Zeylanicæ, vol. I.)

ORDER. BATRACHIA.

SUB-ORDER I. SALIENTIA.

FAM. RANIDÆ. *Frogs.* ATTY KITTA. *Sing.*

GENUS. RANA. *Linn.*

Skin smooth, hinder extremities very long, formed for leaping; toes palmated, teeth in the upper jaw, and in the palate.

RANA KANDIANA. *n. s., nobis.*

Beautiful grass green above, beneath orange red; inside of limbs slightly vermiculated with yellow. Skin of upper parts rather rough, coriaceous; a white granular ridge on each side. Length  $3\frac{1}{2}$  inches.

*Habitat.* Kaduganava, Kandyan Province.

I have only seen two specimens of this rare frog.

FAM. HYLIDÆ. *Tree Frogs.* GRAS ATTY KITTA. *Sing.*

GENUS. LIMNODYTES. *Dum. et Bib.*

Tongue long, narrowed in front, widened, forked, free behind; the teeth on the vomer forming two groups, between the internal openings of the nostrils; tympanum distinct; Eustachian tubes middling, fore fingers free; toes completely or partly webbed; subdigital disks slightly dilated; process of the first os cuneiforme blunt, very minute; males with vocal sacs; sacral transversal processes not dilated.

LIMNODYTES MUTABILIS. *n. s., nobis.*

Upper parts very changeable; generally, of a bright green above and yellow beneath; a red line on the outer edge of limbs; sometimes of a dark chesnut on the upper parts, and variegated with yellow and green on the sides and limbs.—Of a more slender form than the common tree Frogs *Polypedates cruciger*, and *P. Leucomystax*. About 2 inches long.

*Habitat.* Cinnamon gardens; Cotta near Colombo. If not mistaken, we have also seen this elegant frog at Nuwera Ellia. In spirits the colours fade into a pale leaden hue; the red streak on the limbs disappears last.

LIMNODYTES MACULATA. *n. s., nobis.\**

Brown, spotted and streaked with black or dark brown; beneath pale, seldom spotted. About  $1\frac{1}{2}$  inch long.

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\* I have received from Dr. Webb a Tree frog,  $2\frac{1}{2}$  inches long, having the diagonal black marks of *Polypedates cruciger* of Blyth; but, unlike it,

*Habitat.* Galle, Southern Province.

I believe this species to be generally distributed, but have before mistaken it for the young of *Polypedates Leucomystax*.

FAM. BUFONIDÆ. *Toads.* GAMEDEA, Sing.

GENUS. ENGYSTOMA. *Gray.*

No tympanum nor parotid visible externally; an oval body; the head and mouth very small, and feet but slightly palmated.

ENGYSTOMA RUBRUM. *n. s., Jerdon.*

*Synon.* Engystoma cinnamomea. *m. s. n. b.*

Cinnamon red, spotted black; limbs also spotted; belly whitish. Length (young)  $1\frac{1}{2}$  inch.

*Habitat.* Southern India (?) Ceylon.—

this frog is maculated above and beneath, and the posterior sides of thighs are also spotted. White granular spots around the anus. Sides of body yellowish, spotted. Throat white, dotted with black. If Dr. Webb's specimen is of a distinct species, the two other (young) specimens of a very dark brown colour, spotted, with a pale back, are perhaps of the same species. In another (also young) the space, marked like an hour glass, on the back, is of a jet black colour. I am more inclined to believe that all these are different phases of the new species, named by Mr. Blyth, *Polypedates cruciger*.

## ADDENDA.

## ORDER. SAURA.

## TRIBE. GEISSOSAURA.

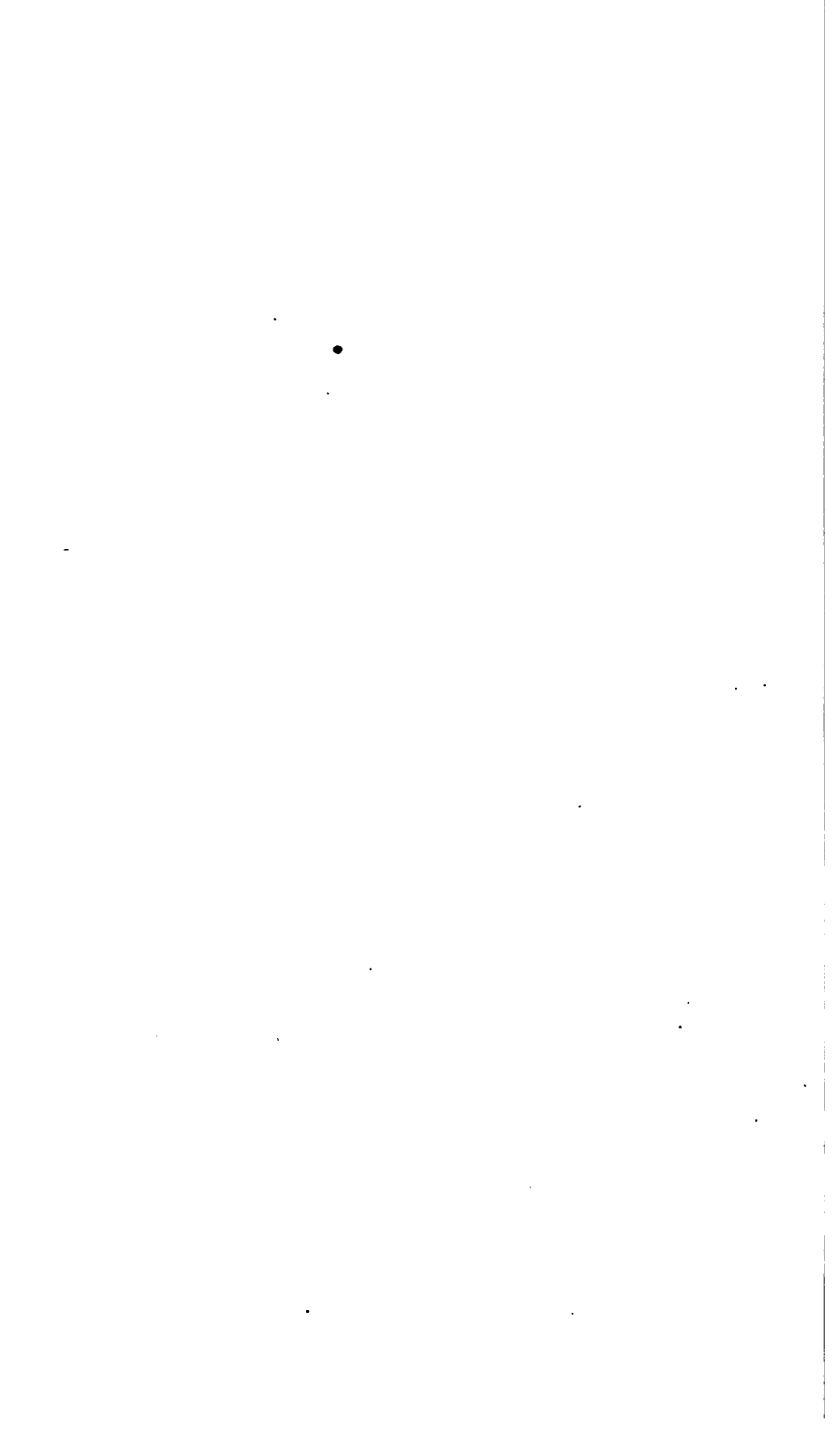
FAM: SCINCIDÆ, *Scinc.*EUMECES TAPROBANENSIS, *nobis.*

Above dark brown, with 6 lines of black dots on the back. Sides of neck and body of a darker brown, minutely dotted white; a few white dots also on the limbs. Beneath whitish. Upper surface of tail of the same colour as the body; under surface dark grey, each scale with a large blackish spot. Head short, subtriangular; muzzle narrow, rounded. Nostril pierced on the upper edge of nasal plate. Eyes large, eyelids scaly, edges lightly granular; lower lid with a series of larger scales. Ears small, circular, dentated anteriorly by two or three scales. Body rather short, subcylindrical. Tail elongated, rounded, tapering, pointed. Limbs 4, small, not wide apart. Toes 5-5, short, unequal, tubercular beneath, clawed. Palms and soles granular.

Head and body, 1. 7-10 inches.

Tail, 2. 6-10 inches.

Found at Newera Ellia by Dr. Webb, Staff Assistant Surgeon. This Scinc resembles in colour and in its elongated form the Lizard which I have identified with *Nessia Burtonii*.





## ORDER BATRACHIA.

## FAM: HYLIDÆ.

POLYPEDATES (?) SCHMARDANA, *n. s., nobis.*

Above brownish grey; beneath white, posterior half of abdomen marbled with black. Eye-brows armed with spines. Back and sides tuberculated. Limbs studded with tubercular sharp pointed spines. About  $1\frac{1}{2}$  inch long.

*Hab.* Adam's Peak.

This novel form of Tree Frog was first found on Adam's Peak by Dr. Schmarda, Professor of Zoology in the University of Prague, to whom I have dedicated this species. It has no resemblance to any other found in Ceylon or Southern India.

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Mr. Blyth has recently described three new species of Frogs from my Ceylon collection. J. A. S. B., vol. 1854.

RANA ROBUSTA, *n. s., nobis.*

A moderately large Frog from Ceylon. Limbs exceedingly thick and massive; the third-digits fully webbed. Skin sub-granulose, especially on the lower parts. A slight transverse fold on the breast. Colour dusky above, with a large black patch on the back, another on the croup, and smaller lateral patches. Lower parts yellowish-white, with a V-like mark on the lower surface of the thigh in one of two specimens, both males. The same individual has dusky spots or imperfect streaks on the lower surface of the thigh, and its posterior surface is marked with longitudinal streaks of alternating black and yellowish white. Digital membrane speckled with black. Length from snout to vent 3 in., and of hind limb 4 in., of which the foot is half. Presented by Dr. E. F. Kelaart.

LYMNODYTES MACULARIUS, *n. s., nobis.*

Differs from *L. ERYTHRÆUS* by the slightly but distinctly papillose skin of the back, and non-verrucose posterior surface of thighs; by its shorter and stouter limbs, and short anterior digits, the two outermost of which have their terminal disks smaller than in *L. ERYTHRÆUS*. There is a broad black band from nostril to loin, bordered above and below by narrow pale yellow streaks. Entire lower parts spotless light yellow, as also the upper lip. A black spot at the shoulder, and line along the posterior surface of the fore limb. One or more similar lines on the hind limbs; the thighs beautifully mottled with black; and a black medial line along the back, which becomes double over the loins. Length of male from muzzle to vent  $2\frac{3}{8}$  in.; of hind limb  $3\frac{1}{4}$  in.; of which the foot measures  $1\frac{1}{4}$  in. Hab. Ceylon. Dr. E. F. Kelaart.

LYMNODYTES LIVIDUS, *n. s. nobis.*

A large species with short and remarkably fleshy thighs. Colour dusky above, paler and tinged with ruddy on the sides which are spotted with black. Chin, throat, and breast, minutely variegated pale and dusky. Belly and thighs underneath, sullied whitish. Above, the thighs and shanks are paler than the back and tinged with ruddy, having several dusky cross-bands. Posterior surface of thigh smooth or non-verrucose. Length from muzzle to vent  $3\frac{1}{2}$  in., and of hind leg  $4\frac{1}{2}$  in., of which the foot is  $2\frac{1}{2}$  in. From Colombo. Dr. E. F. Kelaart.

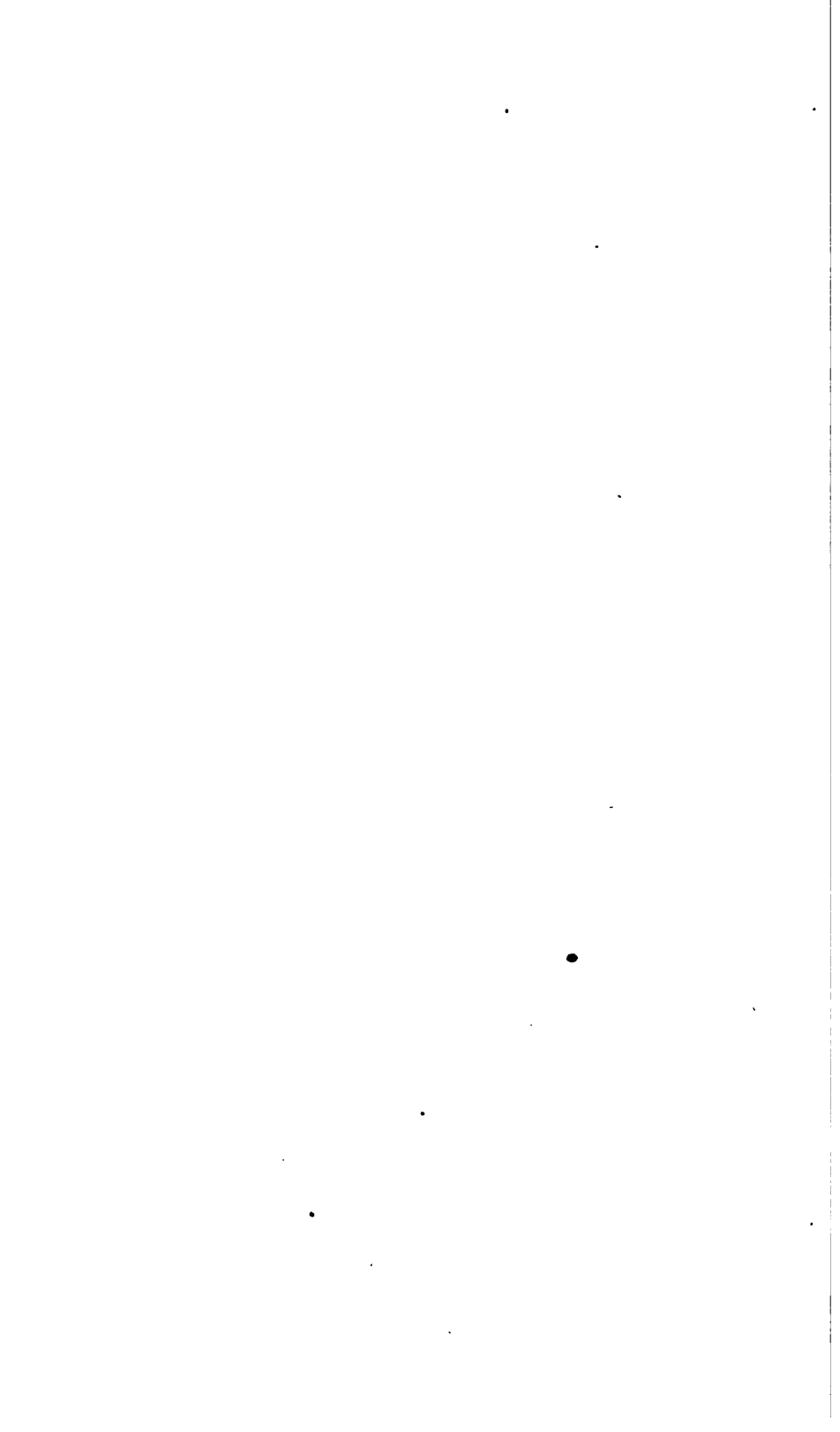
# CEYLON ORNITHOLOGY

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IN order to place before the Ceylon student of Natural History a systematic account of the Genera of Birds, I have extracted for their use descriptions of the Genera of Ceylon Birds from the celebrated work of GRAY and MITCHELL, which from its costly character is beyond the reach of many.

My descriptions of Ceylon Birds formed originally part of a work contemplated by Mr. Layard and myself: the former undertaking to write an account of the habits of the birds. But owing to Mr. Layard's unexpected departure from Ceylon in search of health, we are not able to work together. Therefore, I can only promise to bring before the public, descriptions of birds which I have either seen or examined. And with a view of making the paper more complete, I shall add from authentic sources descriptions of other birds, of which I have not at present any specimens to describe from.

It will also be my endeavour to describe the habits of some of the birds which have come within the limited field of my own observation, trusting that at no distant time some Field Naturalist will finish the work now begun.



*Gray's Genera of Birds adapted to Ceylon Ornithology.*

## ORDER. I. ACCIPITRES.

This order embraces the Birds of Prey; they have the *bill* of various length and form, more or less compressed, with the *culmen* suddenly hooked at the tip, and acute: the base more or less covered with a *cere*, in which are pierced the variously formed nostrils; the *wings* lengthened and pointed; the *feet* strong, with *tarsi* moderate, generally rounded and covered with scales of different shapes; the *toes* three before and one behind, all armed with strong *claws*, and their soles invariably rough.

The first Sub-Order

### ACCIPITRES DIURNI, or *Diurnal Birds of Prey*,

are distinguished from those that pursue their food in the twilight or at night, by the lateral position of their *eyes*: the base of the upper mandible covered for nearly half its length with a prominent *cere*, in which the nostrils are placed: the *tarsi* moderate, scaled, and rarely covered with plumes.

FAM: FALCONIDÆ.

SUB-FAM: AQUILINÆ, or EAGLES.

GENUS. AQUILA. *Mæhr*.

*Bill* strong at the base, and with the apical portion of the *culmen* much curved to the tip, which is greatly hooked and acute: the sides much compressed, and the lateral margins festooned; the *nostrils* placed at the *cere*, large, and rather oblique. *Wings* lengthened and acute, with the fourth and fifth quills equal and longest. *Tail* long and wedge-shaped, or rounded at the end. *Tarsi* rather longer than the middle toe, robust, and entirely clothed to the base of the toes with feathers. *Toes* moderate, strong, lateral ones unequal, and all armed with strong, curved, acute *claws*: the inner the strongest.

## GENUS. SPIZAËTUS. Vieill.

*Bill* moderate, the *culmen* straight at the base, and much arched to the tip, which is acute and compressed, and the lateral margins festooned; the *nostrils* large and rather rounded. *Wings* moderate, reaching to half the length of the tail, with the fourth and fifth quills equal and longest. *Tail* long and slightly rounded at the end. *Tarsi* slender, much longer than the middle toe, and plumed to the base of the toes. *Toes* long, strong, the inner one much longer than the outer, which is united to the middle one by a membrane: all covered above with small scales except at the apex, where there are a few transverse ones, and each toe armed with a long, strong, curved and acute claw.

## GENUS. CIRCAËTUS. Vieill.

*Bill* moderate, *culmen* at the base straight, and much curved to the tip, which is hooked and acute, the lateral margins festooned; the *nostrils* large, oblique, and suboval. *Wings* lengthened and acute, with the third and fourth quills equal and longest. *Tail* long and even. *Tarsi* much longer than the middle toe, feathered below the knee, and entirely reticulated. *Toes* short, strong, and covered with small scales, except at the tips; the outer united to the middle by a membrane; the *claws* long, curved, and acute.

## GENUS. HALIAËTUS. Sav.

*Bill* large, *culmen* straight at the base, and curved to the tip, which is hooked and acute, the sides compressed, the lateral margins slightly festooned, and the lores naked; the *nostrils* moderate, linear, and oblique. *Wings* lengthened and acute, with the third, fourth, and fifth quills nearly equal and longest. *Tail* moderate and rounded, *Tarsi* short, strong,

covered in front with transverse narrow scales, and with small irregular ones posteriorly, and on the sides. *Toes* long, mostly covered above with transverse scales; the claws long, curved, and acute.

GENUS. PONTAËTUS. *Kaup.*

The characters of *Haliaëtus*, except that the *tarsi* are covered in front with transverse scales, posteriorly with large irregularly placed scales, and on the inner side with small ones. *Toes* almost entirely covered above with transverse scales.

GENUS. HALIASTUR. *Selby.*

Most of the characters are similar to those of *Haliaëtus*; but the *tarsi* are covered in front with large obliquely placed scales, posteriorly with large irregular scales, and the sides with small ones.

SUB-FAM: FALCONINÆ, TRUE FALCONS.

GENUS. FALCO. *Linn.*

*Bill* short, strong, with the *culmen* much arched from the base to the tip, which is acute: the sides compressed, the lateral margins strongly toothed near the tip; the *nostrils* placed in a short cere, naked and rounded, with a central tubercle. *Wings* lengthened and acute, with the second and third quills the longest, and the first and second notched near the tip. *Tail* long and rounded. *Tarsi* short and strong, covered with small irregular scales, and the tibial feathers covering the knee. *Toes* lengthened and strong, the lateral ones unequal; the hind toe long, armed as well as the inner with a strong, hooked, acute claw.

GENUS. HYPOTRIORCHIS. *Boie.*

The characters in common with *Falco*; but the *tarsi* more or less lengthened, somewhat slender, and covered in front with large hexagonal scales. *Toes* very long and slender.

GENUS. TINNUNCULUS. *Vieill.*

The forms agree with those of *Falco*. But the *tarsi* are more or less lengthened, strong, and covered in front with large transverse hexagonal scales. *Toes* moderate and strong.

## SUB-FAM: MILVINÆ, or KITES.

GENUS. BAZA. *Hodgson.*

*Bill* moderate, elevated at the base, which is broad, the sides compressed, the *culmen* much arched, and the lateral margins furnished with two small teeth near the tip, the lower mandible also furnished with small teeth near the tip; *lores* clothed with small feathers; the *nostrils* placed in the *cere*, in the form of an oblique slit. *Wings* lengthened, nearly reaching to the end of the tail, with the third and fourth quills the longest. *Tail* long and broad. *Tarsi* thick and very short, longer than the middle toe; basal half plumed, and the other part covered with small scales. *Toes* thick, free at their base, the inner longer than the outer; the claws small and acute,

GENUS. MILVUS. *Cuv.*

*Bill* laterally compressed, the *culmen* straight at the base, and then much curved to the tip, which is acute, the lateral margins somewhat straight; the *nostrils* oval, and placed rather obliquely in the *cere*. *Wings* very long, with the third and fourth quills the longest. *Tail* very long, broad, rounded, or more or less forked at the end. *Tarsi* very short, partly



plumed from the base, and the rest covered with scales. *Toes* rather short, with the outer united at its base to the middle one, the *claws* long and curved.

GENUS. ELANUS. *Sav.*

*Bill* short, very broad at the base, and compressed towards the tip, which is hooked and acute; the *nostrils* large and suboval. *Wings* very long, pointed, and reaching beyond the tail, with the second quill the longest. *Tail* long, and slightly emarginated. *Tarsi* short, nearly the length of the middle toe, with the basal part plumed, and the other covered with reticulated scales. *Toes* moderate, broad, and free at the base, with the outer much shorter than the inner toe; the *claws* strong and curved.

SUB-FAM: ACCIPITRINÆ, or SPARROW HAWKS.

GENUS. ASTUR. *Lacep.*

*Bill* short, broad at the base, and with the sides gradually compressed to the tip; the *culmen* elevated, and much arched to the tip, which is acute, and the lateral margins festooned in the middle; the *nostrils* large and suboval, and placed in the basal cere. *Wings* long, reaching to the middle of the tail, with the third, fourth, and fifth quills nearly equal, and longest. *Tail* long and broad. *Tarsi* rather longer than the middle toe; the anterior and posterior sides covered with broad transverse scales. *Toes* more or less lengthened, strong, and padded beneath each joint; the lateral toes unequal; the inner and hinder ones equally long and strong, and armed with long, strong, and curved claws.

GENUS. ACCIPITER. *Kriss.*

*Bill* very short with the *culmen* much arched to the tip, which is acute; the sides much compressed, and the lateral

margins festooned; the *nostrils* placed anteriorly in the cere, large and suboval, partly concealed by the projecting hairs of the lores. *Wings* moderate, with the fourth and fifth quills nearly equal, and longest. *Tail* long, ample, and nearly square at the end. *Tarsi* longer than the middle toe, covered in front with nearly obsolete scales. *Toes* more or less lengthened, and padded beneath the joints; the lateral ones unequal, and the inner and hind toes equal in length, and both with a strong curved claw.

*SUB-FAM: CIRCINÆ, or HARRIERS.*

GENUS. *CIRCUS. Lacep.*

*Bill* moderate, elevated at the base of the culmen and arched to the tip, which is hooked; the sides compressed, and the lateral margins festooned; the *nostrils* large, oval, and partly concealed by the curved hairs of the bases. *Wings* long, with the third and fourth quills nearly equal and longest. *Tail* long and rounded on the sides. *Tarsi* long, slender, and compressed, the outer side covered with transverse scales, and the inner with small scales. *Toes* moderate, with the outer one longer than the inner; the *claws* long, slender and acute.

SUB-ORDER. ACCIPITRES NOCTURNI.

*Nocturnal Birds of Prey.*

FAM: STRIGIDÆ, or OWLS.

*SUB-FAM: SURNINÆ, or HAWK OWLS.*

GENUS. *ATHENE. Boie.*

*Bill* short, partly concealed by the projecting plumes, the sides compressed, the *culmen* much arched to the tip,

which is hooked and acute; the *nostrils* basal, lateral and hidden by the frontal plumes. *Wings* rather long and rounded, with the third and fourth quills the longest. *Tail* moderate and nearly even. *Tarsi* longer than the middle toe, and covered with plumes. *Toes* short, and covered with scattered hairs; the *claws* long, arched and acute.

SUB-FAM: BUBONINÆ, or HORNED OWLS.

GENUS. EPHIALTES, *Keys, and Bl.*

*Bill* moderate, the base concealed and broad, the sides compressed, with the *culmen* flattened at the base, and curved to the tip, which is hooked; the lateral margins curved; the *nostrils* rounded, placed in the forepart of the cere, and covered by the basal plumes. *Wings* long, with the second, third and fourth quills nearly equal and longest. *Tail* short, and more or less even. *Tarsi* rather long, and covered with short plumes to the base of the toes. *Toes* long, covered with small scales at the base, and with three or four transverse scales at the tip; the *claws* moderate, strong and curved.

GENUS. KETUPA. *Less.*

*Bill* large, broad at the base, compressed towards the tip, which is hooked, the lateral margins slightly arched: the *nostrils* lateral, placed in the anterior part of the cere, and hidden by the projecting plumes. *Wings* moderate, with the third and fourth quills equal and longest. *Tail* short, and nearly even at the end. *Tarsi* rather long, covered at the base with down, and towards the tips with minute scales. *Toes* moderate, strong, covered with small scales, except at the tips which are furnished with three or four transverse scales, the lateral toes unequal, the *claws* long, strong and curved.

*SUB-FAM: SYRNIINÆ, or OWLETS.*

GENUS. SYRNIUM. *Sav.*

*Bill* moderate, strong, with the base broad, and concealed by the frontal plumes; the sides compressed, and the culmen arched to the tip, which is hooked; the *nostrils* basal, lateral, and medial, with the opening large and oval. *Wings* long and rounded, with the fourth and fifth quills equal and longest. *Tail* long, broad, and more or less rounded. *Tarsi* short, strong, thick, and densely clothed with plumes. *Toes* moderate, densely plumed to the end of each toe, the *claws* long, acute, and slightly curved.

*SUB-FAM: STRIGINÆ, or OWLS.*

GENUS. STRIX. *Linn.*

*Bill* long, mostly concealed at the base by the projecting plumes; the sides much compressed, and the culmen arched to the tip, which is acute and hooked; the *nostrils* large, partly covered by a membrane, with the opening oval, and slightly hidden by the hairs. *Wings* very long, with the second quill the longest. *Tail* short and generally even. *Tarsi* much longer than the middle toe, slender and covered with short soft plumes. *Toes* long, and covered with scattered hairs; the lateral ones unequal, the outer much shorter than the inner; the hind toe short and thick; the *claws* long, curved and acute.

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## DESCRIPTION

OF

## BIRDS OF CEYLON.

## ORDER. ACCIPITRES.

## SUB-ORDER. ACCIPITRES DIURNI.

*Diurnal Birds of Prey.*

## FAM: FALCONIDÆ.

## s. AQUILINÆ.

AQUILA BONELLII, *Temm.* The Genoese Eagle.*Syn.* *Aquila intermedia, Bonelli.**Aquila fasciata, Vieill.**Nisaëtus grandis, Hodgson.*

Uniform dark brown above, white beneath with dark brown longitudinal streaks on the chin, throat and breast; upper part of inner web of primaries streaked and spotted with white. Tail slaty blue with darker transversal bands, tip palish; under tail coverts white, irregularly barred with rufous brown. Thighs barred with rufous brown. Bill horn colour, cere yellow, tarsi yellow, claws black.

The only specimen of this Eagle examined is one found by Dr. Templeton, it measured 2 feet 3 inches; closed winged, 1 foot 6 inches. *Habitat* not known.

AQUILA PENNATA, *Gmel.* The Pennated Eagle.

*Syn.* *Aquila minuta*, *Brehm.*

*Spizaëtus milvoides*, *Jerdon.*

Head and neck light rufous brown with dark medial streaks. Back, wings, and upper surface of tail dark brown. Under parts white, breast and lower part of neck streaked with rufous brown; shafts of feathers of a darker shade. Under wing coverts white, shafts brown, a few brown spots on the outer ones. Upper tail coverts rufous with whitish tips and margins. Extreme tip of tail pale. Thighs and legs white, indistinctly spotted light rufous. Bill slaty blue; toes yellow; claws black. Length 1 foot 6 inches. Wing 1 foot 3 inches.

Shot at Point Pedro by Mr. Edgar Layard. This is one of our rarest indigenous birds of prey.

AQUILA MALAYENSIS, *Reinw.* The Black Eagle.

*Syn.* *Aquila pernigra*, *Hodgson.*

*Neopus perniger*, *Hodgson.*

*Nisaëtus? ovivorous*, *Jerdon.*

*Ictinaëtus Malaiensis*, *Blyth.*

Uniform black above, rather dusky below (a few white spots scattered on the body and tail of the specimen examined). Tail barred with broad brownish bands. Bill blue with black tip, cere yellow. Toes yellow, claws black. Irides brown. Occipital crest black. About 2 feet 6 inches long.

This is also a rare bird of prey in the Island. One or two only are occasionally seen on the Kandyan Hills. The specimen we have examined was procured by Mr. Charles Kelaart, at Kaduganava.

**SPIZAËTUS NIPALENSIS, Hodgson, Gray. The Beautiful Crested Eagle.**

*Syn.* Nisaëtus Nipalensis, crested var. young. *Hodg.*  
 Nis. pulcher, adult, *Hodg.*  
 Falco orientalis? } *Temm. et Schlegel.*  
 Falco lanceolatus? }

Head and neck brown; the cheeks and chin have a triple longitudinal marking of brown. Thighs, tarsi and inferior tails coverts transversely barred with dark fawn. A graceful pendant crest, composed of plumes of a brown colour. Bill blue at the base, black at the tip; the cere greenish yellow, the iris golden; the toes yellow, and the nails black. *Hodgson.\**

The above description is evidently of a young bird. An adult specimen which I sent to Mr. Blyth has been identified by that Naturalist with *Sp. Nipalensis*. This beautiful Eagle is rarely seen, and that, too, only on the Alpine parts of the Island. The only specimen I was so fortunate as to secure is now in the Museum of the Asiatic Society of Bengal. It is 30 inches long.

**SPIZAËTUS LYMNAËTUS, var. Horsf. The Common Crested Eagle.**

*Syn.* Falco cirrhatius, *Gmel.*  
 Falco cristatellus, *Temm.*  
 Falco caligatus, var. *Raffles.*  
 Falco niveus, var. *Temm.*  
 Nizaëtus Nepalensis, crestless var. *Hodgson,*

This Eagle is seen of several shades of colour and markings. Two most distinct varieties are seen in Ceylon, one much darker than the other and with a more developed crest. The darker variety may be thus described.

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\* The whole of the under parts, from the head downwards, were beautifully barred rufous in the Ceylon specimen.

Hair brown above, white beneath. Head and neck of a rufous brown with narrow blackish mesial streaks. Chin, throat, and under part of body marked with broad dark rufous brown longitudinal streaks. Tail barred broadly. Under surface of alar and tail quills white and barred with dark brown. Under tail coverts rufous. Under wing coverts white and spotted dark brown. Thighs rufous and barred with pale white. Tarsi white and freckled with brown. Occipital crest black with white tips, 4 inches long. Length 1 foot 10 inches. Wing 13 inches.

The above characters correspond closely with Mr. Blyth's description of a specimen of this Eagle received from Midnapore. (J. A. S. B. vol. 1845, page 175).

The paler and more numerous variety, is not unlike *Falco niveus*, *Temm.*

White predominating. Head and neck pale white or rufous with narrow mesial streaks of a more or less dark rufous colour. Base of dorsal feathers white and the tips of some of the longer ones also white. The cheeks, chin and throat immaculate. Breast and abdomen with a few rufous spots and mesial streaks. Thighs indistinctly spotted with light rufous. Tarsi white, immaculate. Occipital crest composed of white and black plumes, some of the latter also white tipped. Rather smaller than the dark variety.

There is also a crestless variety of this species, in colour resembling the last described bird.

The crested variety is rather abundant at certain seasons of the year in all the Maritime provinces and lower Kandyan Hills. It is a bold and powerful bird, attacking full grown fowls in the native villages. In the Northern provinces they are frequently seen on the topmost branches of the Banyan tree, where the nests of crows furnish them with dainty food. At Kaduganava this Eagle is often seen soaring above Dawson's monument, sometimes alighting on its summit to devour its prey; it is not however a very common bird on the Kandyan Hills. I procured only a few specimens from



Kandy and Trincomalie, whereas, as many as seven were shot by Mr. Layard on one tree in the Court yard at Point Pedro.

**PONTOAËTUS LEUCOGASTER, Gmel.** The White Bellied  
Sea Eagle.

*Syn.* *Falco leucogaster, Gmel.*

*Falco Blagrus, Daudin.*

*Falco dimidiatus, Raffles.*

*Falco albicilla, var. Latham.*

*Ichthyaëtus cultrungis, Blyth.*

*Haliaëtus sphenurus, Gould.*

Head, neck, and abdomen white. Back and wings ashy brown, primaries nearly black; most part of the inner web of secondaries white. Anterior two-thirds of tail dark brown, the rest white. Upper tail coverts brown, slightly tipped with white; lower white throughout; shorter lower wing coverts white, with a few ashy splashes; longer ones ashy brown. Thighs white. Tarsi and toes yellow, claws black. Bill bluish. Length 3 feet 5 inches. Wing 1 foot 9 inches.

This is the largest of our Ceylon Birds of prey, common on the Northern Coasts, rarely seen on the South-Western parts of the Island; very abundant at the Salt lakes of Hambantotte, and the Bay of Calpentyne. Mr Layard writes, "In fact, wherever there is much shallow salt water, particularly if the receding tide leaves bare a large extent of mud, there will this Sea Eagle be found fishing in company with *Haliastur Indicus* and *Milvus Govinda*. Unlike them, however, the Fish Eagle prefers living prey to garbage, and is particularly destructive among the sea snakes, which are very abundant in the sea between Point Pedro and Point Calamanar on the opposite coast. We have frequently seen this bird capturing its prey. It keeps soaring very high, and then descends very rapidly,

with its wings half closed and upraised, its legs pendant, and its body swaying to and fro, like the weight attached to a parachute. When close to the object of its pursuit, the legs are suddenly darted out, the prey seized near the head, the fall arrested, and without touching the mud or water, the noble bird soars upwards with its victim writhing in its claws. If it fails to kill the eel or snake when on high, the booty is dropped, and we have often secured a good specimen of marine snake from this mishap of the bird."

"The Sea Eagle constructs a large nest (to which it adds yearly) among the branches of some large tree, generally an aged Bo-tree (*Ficus religiosa*) is selected, and owes its security to the superstitious fears of the ignorant natives, who, in spite of all our promised reward, have invariably refused to ascend the trees, alleging that the guardian demons of the sacred tree would hurl them headlong down if they attempted to climb the tree for such profane purpose as robbing a bird's nest. We have, therefore, as our own climbing days are over, never been able to procure the eggs of this species." [Mr. Layard in MS.]

PONTOAËTUS ICHTHYAËTUS, *Horsf.* Brown Tank Eagle.

*Syn.* Falco Ichthyaëtus, *Horsf.*

Plumage in general brownish; quills deep brown; head grey; chin whitish; neck brownish grey; breast and belly pale ferruginous brown; lower part of the latter, the vent and thighs white; tail dusky at the tip. Length 2 feet 4 inches. *Latham,*

The only specimen secured by Mr. Layard is now with Mr. Blyth.

Found in the large tanks in the Northern parts of the Island.

CIRCAËTUS CHEELA, *Latham*. The Undulated Bacha.

- Syn.* Falco cheela, *Latham* and *Gmelin*.  
 Hæmatornis undulatus, *Vig.*  
 Circaëtus Nepalensis, *Hodg.*  
 Falco albidus, *Temm.*  
 Falco Bacha, *Daudin*. (African Race.)  
 Falco Bido, *Horsf.* (Malabar Race).

Head black, occipital crest tipped white or fulvous. Back fuscus brown. Small wing coverts spotted white. Upper tail coverts tipped white. Neck and breast dark rufous brown with palish tips. Abdomen, lower wing and tail coverts rufescent and spotted with small round white spots, (a blackish ring round some of the white spots). Wings and tail barred broadly with black and cream colour. Tip of tail feathers whitish. Thighs rufescent and spotted with white ocelli. Length 1 foot 10 inches. Wing 1 foot 2 inches.

Very common in the Northern parts of the Island. Rarely seen on the Kandyan Hills. There is a lighter coloured allied species, found at Trincomalie, which Mr. Blyth has named

HÆMATORNIS SPILOGASTER, *Blyth*.

In this species the tips of all the feathers of the head and neck are more broadly tipped with fulvescent white. The breast and abdomen of a lighter rufous colour, and more thickly spotted with white. Mr. Blyth in describing this new species, which I considered only a local variety of *C. Cheela*, observes, that "it is rather smaller than *H. Cheela*, (*Latham*, *vel H. undulatus*, *Vigors*) and remarkable for having the under parts as in the adult of that species, while the upper parts, throat and tail retain in the adult the same colouring as that of the young of *H. Cheela*, a phase of plumage which we have never seen among the multitude of Bengal specimens of *H. Cheela* examined, but which is exhibited in the two now received from different parts of Ceylon." Irides yellow.

There is another specimen in my possession which cannot be referred to either *H. Cheela* or *H. Spilogaster*, and which I shall now describe.

CIRCAËTUS, (?) *Sp.*; probably new.

Upper parts like *H. Spilogaster*. Breast with broad dark rufous brown drops, and rufous mesial lines on the outer abdominal feathers. Ventral, lower tail coverts and thigh feathers barred with rufous. Lower wing coverts brown, and ocellated with white. Tail and wing quills as in *H. Cheela*. Bill yellow, with blackish tip. Feet yellow. Irides golden. Length 2 feet 1 inch. Wing 1 foot. Found at Trincomalie in company with *H. Spilogaster*.

HALIASTUR INDUS. *Bodd.* Shiva's Fishing Eagle.

*Syn.* Falco Indus, *Boddaert*.

Falco Ponticerianus, *Gmelin*.

Haliaëtus girrenara, *Veillot*.

Haliaëtus garruda, *Lesson*.

Milvus rotundicaudatus, *Hodg.* (young.)

Head, neck, and breast white with narrow brown mesial streaks. Back, tail, legs, and under tail and wing coverts bright rufous chesnut. Shafts of dorsal feathers, and upper wing coverts black. Wing rufous, with the exception of the outer quills, which are blackish. Bill pale yellow at the tip. Irides pale yellow. Tarsi and toes pale yellow. Claws black. Length 1 foot 5 inches. Wing 1 foot.

This handsome Eagle is found with the common Fishing Kite (*Milvus Govinda*) in all the Maritime provinces, and very abundant at Trincomalie and Jaffna; as many as twenty or thirty are sometimes seen together. Although fish is their favourite food, they are not unfrequently seen to eat carrion, or even to carry away poultry.

## SUB-FAM: FALCONIDÆ.

FALCO PEREGRINUS, *Linn.* The Peregrine Falcon.

*Syn.* Falco barbarus, *Linn.*  
 Falco communis, *Brisson.*  
 Falco calidus, *Latham.*  
 Falco lunulatus, *Daudin.*

Upper parts ashy. Head and neck shaded with white; a black patch under the eye. Beneath white with brown or blackish streaks. Wings ashy, inner web of quills barred with white, or rufescent white, upper wing coverts and scapularies, white or rufescent. Under wing coverts white, and barred with brown. Tail and upper tail coverts, ashy brown with white transverse bars; tip white. Bill bluish. Tarsi and toes yellow; claws black. *Female.*

Males are darker throughout and blackish on the head. Dorsal feathers spotted and barred with black.

Length 1 foot  $4\frac{1}{2}$  inches. Wing 1 foot.

This widely distributed Falcon is found in the Northern and North-Eastern Provinces. Seldom more than a pair seen at a time. They are generally found on open plains in search of birds and small reptiles.

FALCO PEREGRINATOR, *Sundeval.* The Shaheen Falcon.

*Syn.* Falco shaheen, *Jerdon.*  
 Falco sultaneus, *Hodgson.*

My indefatigable friend Mr. Edgar Layard obtained a specimen of this elegant Falcon in Saffragam near the foot of Adam's Peak, but which I have not had the pleasure of inspecting.

The young male of this bird is thus described by Dr. Jerdon.

*Young male.* Plumage above generally of a dark cinereous or dusky blackish hue, darkest on the head, hind neck and cheek striped; most of the feathers are narrowly edged with rufous, those on the lower part of the back and rump more broadly so. There is some rufous on the forehead, and on the back of the head where it forms a sort of crucial mark. Tail paler than the rest of the body, faintly barred with rufous, and tipped the same. Chin and throat pale rufous yellow, unspotted; cheeks of the same tint, with narrow dark stripes. The rest of the plumage beneath bright rufous or chestnut, with longitudinal dark brown markings on the centre of the body, oblong spots on the sides, and arrow-shaped markings on the lower part of the abdomen. Under wing coverts, rufous, barred with brown; quills barred with rufous on their inner webs. Bill bluish, darker on the tip; cere and orbital skin pale yellow; irides dark brown; legs and feet yellow. Length 15 inches. Wing 11 inches. Tail  $5\frac{1}{2}$  inches. Tarsus nearly 2 inches. Centre toe and claw  $2\frac{1}{2}$  inches. - Weight 1lb.

The young female "differed from the male in having the chin, throat and cheeks white, in the rufous edgings to the feathers being very indistinct, and the plumage generally being of a darker hue."

"After the first moult, the markings of the lower surface disappear, except a few on the lower part of the abdomen and leg feathers, the plumage above becomes more of a bluish tinge, and the edgings and barrings disappear; with further moultings, the shade of the plumage above becomes still lighter, and of a slaty blue, the markings beneath vanish entirely, and the rufous tint of the breast becomes paler."

This handsome Falcon "is found throughout the whole of India, from the Himalayas to the extreme south of the Peninsula. It is well known to native Falconers." In Ceylon we presume it is a rare bird, as Mr. Layard only met with one specimen during his eight years' residence in the Island.

TINNUNCULUS ALAUDARIUS, *Brisson*. The Kestrel Falcon.

- Syn.* Falco alaudarius, *Brisson*.  
 Falco Tinnunculus, *Linn*.  
 Falco fasciatus, *Reszius*.  
 Falco bruneus, *Bechotim*.  
 Falco rufescens, *Swainson*.  
 Falco interstinctus, *McClelland*.

Head and neck pale ash with blackish shafts. Cheek paler, a darker streak from the mouth downwards. Back and upper wing coverts cinnamon brown with triangular black spots at the terminal edge of feathers. Wing quills brown, inner web dentilated with white. Under parts of body pale rufous, with black streaks and spots. Under wing coverts white with brown spots. Tail ashy grey with black subterminal band and white tip. Bill bluish, tip black. Irides yellow. Tarsi and toes yellow. Claws black. Length 1 foot 2 inches. Wing,  $9\frac{1}{2}$  inches. - The female is a more elegant bird and differently maculated.

Upper parts rufescent with dark brown streaks on the head, and blackish bars on dorsal feathers and upper wing coverts. Breast and abdomen rufescent white with brown mesial streaks. Wings dark brown or blackish above and whitish beneath; inner web of quills barred, zigzag white or rufous; lower wing coverts white with small brown spots. Tail rufous, with blackish bars, and a broad black subterminal band; tip whitish. Rather smaller than the male.

The Kestrel, a well known bird of Europe and America, is also very common in India and Ceylon. I have found it in all the Maritime provinces, and also at Kandy and Newera Ellia. They are frequently seen in pairs on open plains in search of field rats, toads, and the young of *Monitor Dracæna*. I have found the Kestrel's nest on the rocks of Trincomalie, and also on the sea-girt batteries of that old Fort.

HYPOTRIORCHIS CHICQUERA, *Shaw*. The Small Red-Headed Falcon.

*Syn.* *Falco ruficollis*, *et* } *Swainson*.  
*Falco macrodactylus*. }  
*Falco cirrhatus*, *var.* } *Latham*.  
 Fasciated Falcon. }

Head and upper parts of neck dark rufous, under parts of neck white. Back ashy grey. Breast, abdomen, lower tail coverts and thighs white, with dark ashy bars. Wing dark ashy brown; inner web of quills white with ashy bars. Upper wing coverts ashy and minutely barred brown; lower wing coverts white and barred with brown. Tail ashy above with narrow transverse streaks, paler beneath. Tip whitish and a broad subterminal band. Bill yellow, with black tip. Tarsi and toes yellow; claws black.

Length  $11\frac{1}{2}$  inches. Wing  $7\frac{1}{2}$  inches. A pair of this beautiful Falcon were seen by Mr. Layard at Point Pedro, where even it is a very rare bird.

SUB-FAM: MILVINÆ.

ELANUS MELANOPTERUS, *Daudin*. Black-Winged White Kite.

*Syn.* *Falco clamorus*, *Shaw*.  
*Falco melanopterus*, *Daudin*.  
*Falco vociferus*, *Latham*.  
*Elanus cærius*, *Savigny*.

Above ashy white. Beneath white. Upper wing coverts and ridge black. Tail white, middle feathers greyish. Bill black. Tarsi and toes yellow. Claws black. Irides orange, a black superciliary streak.

Length 1 foot. Wing 10 inches.

This dove-like Falcon is very rare in the Island. I have only one specimen of it from Kandy, and Mr. Layard shot only one near Jaffna.



MILVUS GOVINDA, *Sykes*. The Cheela or Govinda Kite.

*Syn.* *Milvus cheele*, *Jerdon*.

*Milvus melanotus*, *Temm*.

*Hiliaëtus lineatus*, *Gray*.

*Falco ater?* *Gmelin*.

*Falco niger?* *Brisson*.

Dark brown, with a rufescent shade, edge of feathers pale. Beneath with darker mesial streaks. Tail slightly forked, indistinctly barred blackish. Bill black. Tarsi and toes yellow. Claws black.

Length 1 foot 10 inches. Wing 1 foot 4 inches.

This Kite is very common in all the Maritime provinces. I have not seen it on the hills. It feeds chiefly on fish, and the fishermen with difficulty keep these rapacious birds from stealing fish from their nets. As the fishing boats draw near the shore, hundreds of these Kites are sometimes seen to hover around and manage to get a good feed, with very little exertion on their part, in spite of all the resistance the industrious fishermen can offer.

BAZA LOPHOTES, *Temm*. The Cohy Falcon.

*Syn.* *Baza syama*, *Hodgson*.

*Falco lophotes*, *Temm*.

*Lophotes Indicus*, *Lesson*.

Head black with a crest composed of a few long black feathers. Chin and neck black. Breast rufous, white barred. Abdomen and vent black. The whole of the upper parts black. Wing black with a greenish shade; scapularies rufous and partly white and black. Bill greenish yellow. Tarsi and toes greenish.

Length 12½ inches. Wing 9 inches.

The only specimen I have seen of this small black crested Falcon was a preserved one in Mr. Layard's collection, which he shot, I believe, in the Wanny district.

## SUB-FAM: ACCIPITRINÆ.

ASTUR TRIVIRGATUS, *Temm.* The Indian Goshawk.

*Syn.* *Astur cristatus*, *G. R. Gray.*

*Astur Indicus*, *Hodgson.*

*Astur palumbarius*, *Jerdon.*

*Spizaëtus rufistinctus*, *McClell.*

I do not remember seeing a specimen of this bird in Ceylon. Mr. Layard says he saw a live one at Anarajapoorā, and I believe, Mr. Blyth received a preserved specimen of this Hawk from Ceylon.

The following is the original description of McClelland's bird. (*Spizaëtus rufistinctus*), which Mr. Gray makes a synonym of *Astur trivirgatus* of *Temm.*

Upper part of the body dark brown, with slight undulations of a deeper tint, breast and throat longitudinally striped with brown; belly and under surface of the wings white, transversely barred with brown; tarsi feathered to the lower third, each feather marked with five transverse bars, the rest shielded; the beak short, much hooked and sharp; claws and toes strong and formidable.

ACCIPITER BADIUS, *Gmel.* Brown's Sparrow Hawk.

*Syn.* *Falco badius*, *Gmelin.*

*Falco Brownii*, *Shaw.*

*Falco Dussumieri*, *Temm.*

*Accipiter Dukkenensis*, *Sykes.*

Dark rufous brown above, with pale edges to the feathers. Beneath white with brown drops. Wings darker brown on the upper surface; primaries white beneath and barred. Tail ashy and barred with black; lower tail coverts white. Thighs white and spotted slightly. (Young). In the adult, the breast is rufous and barred with white. Bill blue, tip black; irides yellow. Legs yellow. Length 14 inches.

This hawk is known in Ceylon as the "Sparrow Hawk." It is not an uncommon bird in the Kandyan hills and in the Northern Provinces.

ACCIPITER NISUS, *Linn.*

I had once a small live hawk sent from the Kandyan country, but which flew away before I had positively determined the species; it had a close resemblance to the European Sparrow Hawk. Mr. Layard says he has not seen this hawk in the Island. To enable others to identify this bird in Ceylon the following description from Stark's Elements of Natural History is here added:

"Bluish, cinereous above; a white spot on the neck; white beneath, with brown undulations; tail ashy grey, with five bars of blackish cinereous; cere yellowish green; feet and iris yellow. About 12 inches long."

SUB-FAM: CIRCINÆ.

CIRCUS SWAINSONII, *A. Smith.* Swainson's Hen-Harrier.

*Syn.* Circus pallidus, *Sykes.*

Circus albescens, *Lesson.*

Circus Dalmaticus, *Ruppel.*

Falco æquipar, *Cuv., M.S.*

Falco cyaneus, *var. A. Lesson.*

Pale ashy above; white beneath. Inner web of some of the primaries dark brown. Upper tail coverts white, with transverse ashy bars. Tail ashy, indistinctly barred; outer rectrices whitish speckled and barred with ash. Bill blackish. Tarsi and toes yellow; claws black. Length 1 foot 1 inch. Wing 1 foot 2 inches.

Generally found on the plains of the low country, and rarely in the Kandyan provinces. It feeds on small birds, frogs and lizards.

**CIRCUS CINERASCENS, Gould.** The Ashy Brown Harrier.*Syn.* *Falco cinerascens, Mont.**Circus Montagui, Vieil.*

Ashy brown above. Under part of the neck and breast ashy, with rufous mesial streaks to the feathers of the latter. Abdomen, under surface of tail, lower wing and tail coverts white. Upper surface of tail rufous brown and broadly barred; tip white. Thighs white, streaked. Bill blackish; irides light yellow. Tarsi and toes yellow, claws black.

Length 1 foot 6 inches. Wing 13 inches.

Females are more or less of a rufous brown on the back; they have also a nuchal ring and broader black bars on the tail, and the whole of the abdomen of a light rufous colour. Head rufescent. In young birds the upper tail coverts are white. Probably the latter characters are also present when the bird is moulting. This species in its ashy plumage is not unlike the darker varieties of *Circus Swainsonii*.

The species is common in Kandy and Trincomalie. Reptiles and birds are its chief food.

**CIRCUS MELANOLEUCOS, Pennant.** The White and Black Indian Harrier.

I obtained several specimens of this bird from the open plains in Minery, none of which, however, I now have for description, and therefore give its characters from Latham's work.

"Length 16 inches; bill black; irides yellow; head, throat, hind part of neck, and back black; breast, belly, thighs, and rump white; lesser wing coverts white, the middle ones black; the greater and secondary quills silvery ash colour; prime quills black. Tail pale silvery grey; legs rufous.

The female is somewhat bigger; general colour silvery grey; on the wing coverts three round black spots, and three others on the outer webs of the second quills; primaries black; sides of the belly, thighs and vent white, transversely striated with rufous red."

Like the other species of Ceylon Harriers, it is reported to feed on birds, reptiles, and small rats and squirrels.

## ORDER. ACCIPITRES.

### SUB-ORDER. ACCIPITRES NOCTURNI.

#### *Nocturnal Birds of Prey.*

FAM: STRIGIDÆ.

SUB-FAM: SURNINÆ.

**ATHENE CASTANOTUS**, *Blyth*. Ceylon Chestnut-winged Hawk Owl.

*Syn.* *Athene Castanopterus*, *apud Blyth*.

Head, neck and breast barred with brown and rufescent white. A white spot under the ears. Back and wings bright chestnut and faintly barred with brown. Abdomen white, maculated with brown spots and streaks. Under wing coverts white, with a few brown spots. Vent and lower tail coverts white. Tail and upper tail coverts dark brown and streaked with narrow whitish bars. Thighs whitish and freckled with brown. Bill yellow. Tarsi yellow. Length  $7\frac{1}{2}$  inches. Wing 5 inches.

This Hawk-Owl was added to the Ceylon Fauna by Dr. Templeton. It feeds on small lizards and insects. Not uncommon at Colombo. I have also seen it at Newera Ellia, Galle and Kandy.

ATHENE SCUTELLATA, *Raffles*. The Hairy-legged Owl.

*Syn.* *Ninox Nepalensis*, *Hodgson*.

*Strix scutellata*, *Raffles*.

*Strix hirsuta*, *Temm.* -

*Strix lugubris*, *Tickell*.

*Athene Malayensis*, *Eyton*.

Upper part of head and neck ashy brown; chin white. Back, scapularies and upper tail coverts rufous brown; dorsal feathers have palish edges and white spots. Primaries have brown above, with pale rufous bars, under surface white barred. Under wing coverts fulvescent and streaked with brown. Under surface of neck and breast rufous brown, with fulvescent white edges to the feathers. Abdomen white with large rufous brown spots. Tail dark ashy brown, with broad blackish bars; tip whitish. Upper tail coverts rufous brown and spotted white; under tail coverts white. Thighs rufous. Bill bluish black, with a yellowish culmen. Irides greenish yellow. Toes yellow, curved, with yellow bristly hairs. Claws black. Length 11 inches. Wing 5½ inches.

Not uncommon in the Cinnamon gardens at Colombo. Feeds on insects and lizards.

SUB-FAM: BUBONINÆ.

EPHIALTES LEMPIJII, *Horsf.* The Lempiji Owl.

*Syn.* *Strix noctula*, *Reinw.*

*Scops Javanicus*, *Lesson*.

*Scops Lempiji*, *Horsf.*

Brown spotted with fulvous and black. Breast and abdomen fulvous with blackish mesial streaks and inconspicuous bars and specks. Vent whitish. Outer web of primaries barred with light fulvous, inner web clouded dusky. Tail

clouded with pale fulvous brown. Tarsi pale, freckled. Bill brown; irides reddish brown. Toes brown, claws brown.

Length  $7\frac{1}{2}$  inches. Wing  $5\frac{3}{4}$  inches.

Some of the specimens are less fulvescent than others, and the blackish spots more numerous, and with a more distinct black patch on the top of the head.

This is the most common of all Ceylon Owls; less common, however, in the higher parts of the Island than in the Maritime provinces. It feeds chiefly on Coleopterous insects.

#### EPHIALTES SCOPS, *Linn.* The Scops Eared Owl.

*Syn.* Scops pennata, *Hodgson.*

Scops Aldrovandi, *Ray.*

Scops Europeus, *Lesson.*

Rufous brown, minutely speckled and streaked with dusky brown and rufous. Lower parts paler; abdomen, vent and lower tail coverts more white spotted; small white spots on the outer web of primaries; inner web of secondaries white barred. Tail barred and speckled with white and rufous. Bill brown. Irides yellow. Toes brown; claws dark brown.

Length  $5\frac{1}{2}$  inches. Wing 4 inches.

This elegant little owl is rare in Ceylon. I met with only one specimen (alive) at Trincomalie which Mr. Blyth has seen and identified with Scops Pennata, *Hodg.* Mr. Layard has not been so fortunate as to meet with this species, nor has he seen the next.

#### EPHIALTES SUNIA, *Hodgson.* The Yellowish Red Eared Owl.

*Syn.* Ephialtes scops, apud *Blyth.*

General colour, a bright ferruginous red, with black shafts

to most of the plumage. It is less speckled and barred than *Scops pennata*. An albescent line on the scapularies, with black tips. Abdomen whitish yellow. Rather smaller than the last.

I have not seen this beautiful owl lower than Dimboola (4000 feet). It is not common. Mr. Layard has not met with it in Ceylon. The specimen I sent Mr. Blyth was identified by him with *Scops sunia* of Hodgson, which he still thinks is only a variety of *Ephialtes scops*, Linn.

**KETUPA CEYLONENSIS, Gmel.** The Large Eared Owl.

- Syn.* *Strix Ceylonensis, Gmel.*  
*Strix Leschenaultii, Temm.*  
*Strix Hardwickii, Gray.*  
*Strix dumeticola, Tickell.*  
*Cultrunguis nigripes, Hodgson.*

Above light ferruginous brown, with dark brown mesial streaks and pale spots on the dorsal feathers. Under part of neck whitish. Breast and abdomen light rufescent, minutely barred; each feather with a blackish longitudinal streak. Wing quills freckled and barred white and brown. Tail brown, with narrow ferruginous bars; tip rufescent. Bill blackish. Irides bright yellow. Length 1 foot 7 inches.

This large owl is very abundant in the Island, particularly in the Maritime provinces. It feeds on fish, rats, mice, &c.

*SUB-FAM: SYRNINÆ.*

**SYRNIUM INDRANI, Sykes?** The Devil Bird.

I have not seen this bird alive, though it is common enough



in the forests. A specimen of this was many years ago in the Museum at Colombo. Above dark brown, barred. Abdomen whitish, barred. Toes densely covered with plumage. Irides yellow. Claws black. Length about 1 foot.

*SUB-FAM: STRIGINÆ.*

*STRIX JAVANICA.* *De Wormb?* The Yellow Barn Owl.

*Syn.* *Strix flammeus, var.*  
*Strix candida, Tickell.*

Upper parts ochry yellow, speckled with grey, white and brown spots. Face white, margined with a rufous circle. Under parts yellowish white and spotted with brown. Inner web of primaries indistinctly barred. Tail speckled with dark grey, and slightly streaked. Thighs white. Bill horn colour. Irides pale yellow. Tarsi and toes yellowish brown; claws pale yellow. Length 1 foot 2½ inches. Wing 11 inches.

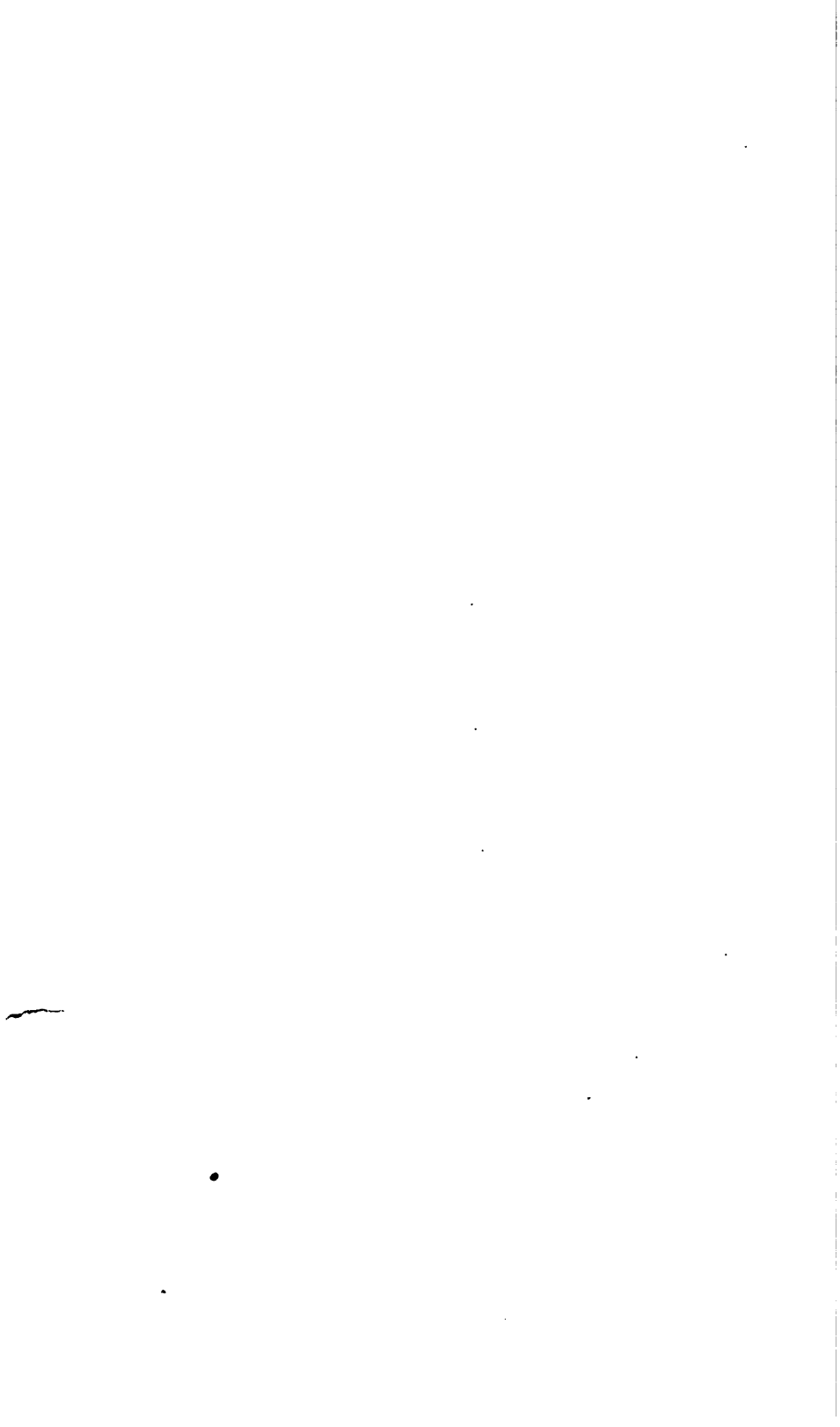
Found by Mr. Layard in the old Fort at Jaffna. The above description is taken from the only specimen he procured.

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**APPENDIX.**



• IN order to keep the Ceylon student of Natural History up to other departments of Zoology, in addition to those which the Author is more particularly engaged in, it is his intention to republish in each part of the Prodrumus now in progress of publication, the labours of Naturalists in Europe as they appear in periodical publications of the day. With this object in view, he has much pleasure in adding to this Part characters of new species of Land Shells (collected in Ceylon by Mr. Edgar Layard) from the pen of the celebrated Malacologist W. H. Benson, Esq., and also descriptions of a new species of Mungous by Dr. Gray.



*From the Proceedings of the Zoological Society of London.  
Annals and Magazine of Natural History, No. 67, July 1853.*

Notice of two VIVERRIDÆ from Ceylon, lately living in the Gardens. By J. E. GRAY, Esq., F.R.S., &c.

The specimens here noticed were brought from Ceylon by Alexander Grace, Esq., (*late Deputy Queen's Advocate, Southern Province*).

The first is the species which I described some years ago under the name of *Herpestes Smithii* (Mag. Nat. Hist. 1837, II.) from a specimen which was living in the Surrey Zoological Gardens, now preserved in the collection of the British Museum: that specimen was said to have been sent from the Cape of Good Hope, but this must have been a mistake, as it is quite unknown to Dr. Burchell, Dr. A. Smith, Mr. Sweet, Dr. Wahlberg, or other Zoologists who have written on the animals of South Africa. Mr. Grace informs me that it is an inhabitant of the interior part of Ceylon. It is by far the most beautiful species of the genus.\*

The second is a new species of CYNICTES, which I propose to call CYNICTIS MACCARTHLE.

Teeth normal. Red brown; hair elongate, flaccid, pale brown, with a broad, black subterminal band, and a long whitish brown tip; of hands and feet shorter. Feet blackish brown, hair white tipped. Claws elongate, slender, compressed, especially of the two middle toes of the fore feet. Tail redder; hair elongate, one coloured red. Ears rounded, hairy.

*Habitat.* Ceylon; Jaffna, North of Ceylon, (*A. Grace, Esq.*)

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\* This Mungous I have named in the Prodrômus Faunæ Zeylanicæ, *Herpestes Rubiginosa*, and doubtfully cited *H. Smithii* of Gray as a Synonym. It is now clear that *H. Smithii* is a native of Ceylon, and not of Africa. I have found it common in the Northern and Southern Provinces of the Island.—E. F. K.

This species somewhat resembles *Cynictis Melanura* in general colour, but the hairs are much longer, not so adpressed, and when the individual colour of the hair is examined, most distinct.

I have proposed to name this interesting animal after Mrs. MacCarthy, the wife of the Secretary of the Colony, and the daughter of Mr. Hawes, the Assistant Secretary to the Colonies, who is much interested in the study of Natural History, and has kindly sent me several very interesting natural productions of Ceylon.

The skull differs from all the other *Herpestes* that I have examined, in the back of the nape being deeply and sharply notched instead of transversely truncated, the notch in the living animal being filled up with a cartilaginous septum.\*

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\* *Sed non vidi*, E. F. K.

*Characters of new Land Shells, collected by EDGAR L. LAYYARD, Esq., in Ceylon.* By W. H. BENSON, Esq.

1. *Streptaxis Layardiana*, nobis.

Testa arcuato-rimata, depresso-ovata, abbreviata, lata, leviter striata, albido-cornea; spira subelevata, apice planulato, excentrico; sutura crenulata: anfractibus 5, convexiusculis, ultimo ad latus deviante, basi convexiuscula, lævi; apertura straminea, subtriangulari uniplicata, marginibus callo lamellam intrantem validam emittente junctis, dextro expanso reflexiusculo, antrorsum arcuato, superne profunde sinuato, columellari et basali reflexis, umbilico intus rugoso-striato.

Diam. major  $10\frac{1}{2}$ , minor 8, alt. 4 mill.

*Hab.* inter lapides ad verticem rupis Mehintali Insulæ Ceylon.

In one or two specimens the callus near the upper margin is inclined to form an obtuse tooth at the side of the sinus, which is much deeper than in *H. Perrotetiana*, Petit, from the Nilgherries.

A graphic account of the discovery is contained in Mr. Layard's Journal in page 235, vol. xi. of the 'Annals.' This and the following curious species, of a singular genus, capriciously distributed through the tropical regions of the globe, are the first which have been found in Ceylon. The headquarters of the genus are in South America and Western Africa. The remaining species, of which the locality is known, are solitary in the Nilgherry Hills of South India, at Tavoy on the Tenasserim coast of the Bay of Bengal, in Cochin China, and in the Seychelles and Rodriguez, islands of the Southern Indian Ocean.

M. Petit de la Saussaye objects (Journ. de Conchyl. 1851, p. 369) to the reception of *Streptaxis* as a genus, considering it to be inadmissible in a zoological point of view; and he adduces as an argument for rejection the circumstance of its gradual change into *Helix*, through species which belong to the group, although deficient in the principal character of distortion. The same argument might be used against the reception of most other genera. *Bulinus* and *Achatina* have as little title to separation as this genus and *Helix*; and *Streptaxis* has equal claims to acceptance with Lamarck's genus *Anostoma*, like which the mollusk, to use M. Petit's words, "arriving at a certain stage of growth, abandons in the formation of the shell the regular course followed by the animals of the genus *Helix*."

The separation of such a singular group is, at all events, a great convenience in conchological research.



2. *Streptaxis Cingalensis*, nobis.

Testa arcuatim rimato-perforata, depresso-ovata, solida, abbreviata, lata, obsolete costulato-striata, albido-cornea, subtus polita; spira elevatiuscula, sutura crenulata, apice convexiusculo; anfractibus 6 convexis, ultimo ad latus deviante, basi convexa; apertura subtriangulari, 3-dentata, marginibus callo lamellam intrantem validam emittente junctis, dextro reflexo, antrorsum arcuato, unidentato, superne profunde sinuato, columellari reflexo, ad basin unidentato; umbilico intus striato, linea impressa circumscripto.

Diam. major 11, minor 8, alt. 5 mill.

*Hab.* in pago Hewagam Corle Insulæ Ceylon, inter rimas saxorum.

Nearly allied to the last, but differing in the dentition of the aperture, in the umbilicus, and in the less flattened form. The replication of the sinus at the top of the aperture simulates another tooth at right angles with the laminar plait on the parietes, a character observable also in *S. Perroteti*, and to which *S. Layardiana* also shews a tendency. It is intermediate between those two species in the dentition of the aperture, but wants the additional tooth which occurs at the base, within the aperture, in the first-named species, from which it is moreover much further removed in form than from *S. Layardiana*.

Mr. Layard has communicated the following note on the animal:—"Epiphragm glassy, animal yellow, with a red line on the back, extending up the two superior tentacles, at the tip of which the eyes are situated: all four tentacles clubbed; when crawling the shell is carried nearly level with the back."

The colouring of the animal reminds me of the hues observable in the *Pupæ* of the Isle of France, as well as in the Indian and Galle species, *P. bicolor* of Hutton. It has already been remarked by others that *Streptaxis* has an obvious affinity with the Mauritian *Pupa Pagoda* in the formation of the shell.

3. *Helix ceraria*, nobis.

Testa obtecte perforata, depressa, nitidula, cerea, radiatim rugoso-striata, striis spiralibus remotiusculis decussata, luteo-fulvida, versus apicem rubescente, spira convexiuscula, apice obtusato; anfractibus 4, superne planulatis, ultimo lato, carinato, subtus convexo; apertura magna, late lunata, peristomate simplici, acuto, marginibus callo tenuissimo junctis, columellari arcuato, superne breviter reflexo, perforationem inconspicuam fere tegente.

Diam. major 20, minor 16, alt. 10 mill.

*Hab.* in agris altis Insulæ Ceylon "Horton Plains" dictis.

4. *Helix Puteolus*, nobis.

Testa perspective umbilicata, orbiculato-depressa, lenticulari, supra spurca, albida, subremote radiato-lirata, subtus cornea, radiatim striata; spira planiuscula apice vix prominulo, sutura impressa; an-

fractibus  $5\frac{1}{2}$ , angustissimis, convexiusculis, arete convolutis, omnibus filoso-carinatis, superne sulco carinaque secunda parallelibus munitis, ultimo subtus planiusculo, ad marginem umbilici medioeris profunde excavati, cyathiformis, valde compresso; apertura angusta, securiformi, peristomate recto, acuto.

Diam. major  $5\frac{1}{2}$ , minor 5, axis  $2\frac{1}{2}$  mill.

*Hab.* in saxis ad portas "Balcadua" dictas, Insulæ Ceylon.

This little shell is singular on account of its sculpture, the narrowness of the whorls, and the sudden and deep excavation of the well-like umbilicus. Vide 'Annals,' vol. vii. p. 305.

### 5. *Helix Mononema*, nobis.

Testa angustissime perforata, trochiformi, radiato-striata, corneo-albida, glabra, non nitida, translucente, spira conoidea, apice obtuso, sutura distincta; anfractibus  $6\frac{1}{2}$ -7, superne convexiusculis, filo unico, elevato, tenui, mediano cinctis, ultimo acute filoso-carinato, subtus subplanulato; apertura verticali, securiformi, peristomate recto, acuto, margine, columellari brevi, verticali, reflexo, perforationem subtegente.

Diam. major 5, minor  $4\frac{1}{2}$ , axis 4 mill.

*Hab.* ad Heneratgodde.

Allied to the Himalayan *H. fastigata*, Hutton, and to the Bengal *H. Barrackporensis*, Pfr., but well-distinguished by its more depressed form and by the filiform line, which in addition to the keel on the last whorl, runs along the central part of each of the upper whorls. Mr. Layard had not been able to procure a second specimen.

### 6. *Helix marcida*, nobis.

Testa subobtecte perforata, depressa, solida, superne oblique regulariter costulata, subtus læviori, sub epidermide fulvido-cornea albida; spira vix elevata, sutura impressa, apice obtusiusculo; anfractibus 6, lente accrescentibus, ultimo rotundato, subtus planulato, apertura sublate lunata, obliqua, peristomate recto, tenui, margine columellari oblique descendente, crassiusculo, superne breviter reflexo, perforationem subtegente.

Diam. major 14, minor 12, axis 8 mill.

*Hab.* in Insula Ceylon.

### 7. *Helix vilipensa*, nobis.

Testa aperte perforata, pervia, depressa, solidiuscula, pellucida, cornea, polita; spira convexiuscula, sutura vix marginata, apice obtuso; anfractibus 5, subplanatis, lente accrescentibus, ultimo rotundato, subtus convexiusculo; apertura late lunata, subobliqua, peristomate recto, acuto, margine columellari oblique descendente, expansiusculo, superne breviter reflexo; umbilico pervio.

Diam. major 8, minor 7, axis 4 mill.

*Hab.* ad rupem Mehintali.

A little Naninæform *Helix* with no very prominent character, differing from Pfeiffer's *H. Perroteti*, and other small *Helices* of the same group, with the exception of a small un-

named Nilgherry shell which is slightly larger, but otherwise not easily to be distinguished from it. From *H. Perroteti* it differs by its more convex spire, rounder periphery, and more open perforation.

8. *Helix perfucata*, nobis.

Testa vix perforata, depressa, translucente, purpureo-fusca, politissima, spira elevatiuscula, sutura submarginata, apice obtuso; anfractibus 4, convexusculis, arcte convolutis, ultimo rotundato, subtus convexo; apertura lunata, vix obliqua; peristomate recto, acuto, margine columellari verticali, leviter reflexo, umbilico non pervio.

Diam. major 5; minor 4, axis 3 mill.

*Hab.* in pago Gallensi, inter saxa.

Remarkable for its deep clear purple-brown colour.

9. *Vitrina Edgariana*, nobis.

Testa valde depressa, tenuissima, subtus membranacea, politissima, pellucida, superne obsolete oblique striatula, lineis nonnullis spiralibus impressis ornata, lutescente-cornea; spira planiuscula, apice prominulo, sutura impressa; anfractibus 3 celeriter accrescentibus, planiusculis, ultimo ad peripheriam valde convexo; apertura obliqua, ovato-lunata.

Diam. major 10, minor 8, alt. 4 mill.

*Hab.* ad Columbo, Hangwelle, et Ratnapoora, insuper folia arbustorum.

Mr. E. Layard remarks, that "the mollusk is very long and attenuated, yellow and white. On touching it, it throws itself off the spot where it crawls, and twists and springs about in a most singular manner, often propelling itself several inches from its starting point." I have recorded elsewhere a similar habit in a little freshwater shell, *Planorbis rotula*, nobis.

10. *Vitrina membranacea*, nobis.

Testa valde depressa, submembranacea, obsolete oblique striatula, striis versus apicem confertissimis pellucida, virente-cornea, polita, superne convexuscula, apice planato, sutura vix marginata; anfractibus 3½, rapide accrescentibus, ultimo antice lato, subtus planulato, ad peripheriam angustam rotundato; apertura obliqua, ovata, margine superiori prorsus arcuato.

Diam. major 11, minor 8, alt. 4 mill.

*Hab.* ad portas montanas Balcadua dictas, lapidibus adhærens.

11. *Achatina Veruina*, nobis.

Testa cylindraceo-turrata, valde elongata, sordide albida, inæqualiter striata, spira superne sensim attenuata, sutura impressa, crenulata, apice obtuso; anfractibus 12½-13 angustis cylindricis, ultimo  $\frac{2}{11}$  longitudinis vix æquante; apertura verticali, truncato-ovali, peristomate recto, acuto, margine columellari leviter arcuato.

Long. 25, diam. 5 mill.

*Hab.* ad Nalande.

12. *Achatina pachycheila*, nobis.

Testa ovato-oblonga, striatula, striis exilissimis confertis, obsolete, spiraliter sub lente decussata, nitida fusciscente-cornea, translucida, spira elongata, subconica, apice obtuso, sutura leviter impressa; anfractibus 6, vix convexiusculis, ultimo  $\frac{2}{5}$  longitudinis vix æquante; apertura verticali, oblongo-ovata, peristomate intus albido-marginata, columella præarcuata, margine basali incrassato.

Axis 11, diam. 5 mill.

Hab. ad Heneratgodde.

This little species of a group, which has so many representatives in Ceylon, the Nilgherries, and the damp woody mountains of North-eastern India, with a more slender form than *A. Oreas*, nobis, is well distinguished from the allied forms by its peculiar sculpture under the lens, and by the internal incrassation of the peristome, a feature which is also observable in the species *A. crassilabris*, nobis, from North-eastern India.

13. *Bulimus Panos*, nobis.

Testa rimata, ovato-oblonga, subrugose striata, cornea, spira elongato-conica, sutura mediocri, apice obtuso; anfractibus  $6\frac{1}{2}$  convexiusculis, ultimo  $\frac{2}{5}$  longitudinis vix æquante, antice subascendente, apertura ovata, edentula; peristomate expansiusculo, acuto, marginibus conniventibus, columellari breviter dilatato, albido.

Long. 11, diam. 5 mill.

Hab. ad Nalande.

This shell has a Pupiform aspect.

14. *Pupa Muscerda*, nobis.

Testa rimata, ovato-oblonga, striatula, cornea, spira elongata, apice obtuso; anfractibus  $5\frac{1}{2}$ -6, convexiusculis, ultimo tertiam partem testæ æquante, vix ascendente; apertura ovata, tridentata, peristomate expanso, acuto, marginibus conniventibus, columellari dilatato, albido, plica parietali 1, columellari 1, profundiusculis, dente palatali 1, depresso, obtuso.

Long. 4, diam.  $1\frac{1}{2}$  mill.

Hab. ad promontorium "Pedro" dictum.

Found by Mr. E. Layard in old posts, and on Palmyra trees (*Borassus flabelliformis*).

15. *Pupa Mimula*, nobis.

Testa rimata, ovato-oblonga, subcylindracea, oblique tenuiter plicatula, pallide cornea, apice obtuso, sutura profundiuscula; anfractibus 5, convexis, ultimo vix ascendente; apertura ovata, verticali, 5-plicata, peristomate tenui, expanso, marginibus callo tenui expanso junctis, plica 1 intrante, majuscula, parietali, 1 columellari, 1 basali profunda, 2 palatalibus profunda.

Long. 2, diam. 1 mill.

Hab. in vitibus ad Promontorium Pedronis.

A minute species nearly allied to, and somewhat larger than the Himalayan *P. Huttoniana*, nobis. It was taken in abundance by Mr. Layard.

16. *Cataulus Austenianus*, nobis.

Testa subperforata, ovato-pyramidata, solidiuscula, eleganter oblique costulato-striata, sericea, diaphana, saturate rubro-castanea, spira turrita, sutura impressa, apice acutiusculo; anfractibus 8, convexiusculis, ultimo antice subascendente, carina basali, compressa, prominente, subfuniculata, antice non dilatata; apertura subcirculari, obliqua, sursum spectante, peristomate duplici, incrassato, saturate fusco-aurantiaco, interno continuo, breviter adnato, externo fornicatim patente reflexo, superne et ad columellam subauriculato-dilatato, canali basali aperto, intus vix strictiore, ad sinistram perforato; operculo spiraliter laminato, anfractus multos appressos reconditos exhibente, facie exteriori anfractos plures angustos mentiente.

Diam.  $13\frac{1}{2}$ , alt. 25 mill.

*Hab.* ad Ileneratgodde in rimis saxorum.

Allied in form and size to *Cataulus pyramidatus*, Pfeiffer, but differs in sculpture, position of the canal, colour of aperture, &c. It was taken by Mr. Edgar L. Layard in the deep fissure of a limestone rock, among the vegetable mould, where it lay concealed under the surface, with the mouth downwards, among the roots of an ancient *Ficus Indica*. In some specimens the last whorl is more swollen than in others.

Mr. Layard has communicated the following description of the animal in a letter written on the spot:—

“The animal is dark brown, mottled, about 9 lines long, 5 broad; tentacles two, brilliant scarlet tipped with brown, 3 lines long, sharp pointed; eyes two, black, situated at the outside of the tentacles. The mollusk is very slow in its motions, crawling with the shell plane over its back, resting on the operculum; this is round and fits into the mouth; it is retractile when the animal is much irritated, but does not close the siphon and canal; when crawling, the flesh of the mollusk does not touch the canal. After placing them in boiling water to clean, I thrust a needle into one and pierced the operculum accidentally; judge of my astonishment, when in attempting to withdraw the instrument, the operculum unfolded revolution after revolution till I counted nine!” Subsequently Mr. Layard counted nineteen whorls in one operculum; and he has aptly likened it to the horn toy, made to resemble a snake by slicing it spirally from end to end, so as form a laminar centreless screw.

At the request of the discoverer, I have much pleasure in dedicating the species to his brother, the enterprising Oriental archaeologist and traveller Dr. Austen Layard.

17. *Cataulus decorus*, nobis.

Testa subperforata, elongato-turrita, solida, confertim costulato-striata, nitidiuscula, rufo-castanea, apice acutiusculo; anfractibus 8, convexiusculis, ultimo ad basin compresso-carinato, carina valde prominente versus marginem funiculata, incrassata, antice vix dilatata; apertura verticali, circulari, peristomate incrassato, reflexo, breviter adnato, læte aurantiaco, ad basin subproducto, deorsum recedente; canali extus lato perforato; periomphalo magno: operculo ut in præcedente.

Diam. vix 10, axis 21 mill.

Hab. ad Ratnapoora.

Mr. Layard wrote regarding this species—"This was found under a rock with two others; animal brownish gray, foot livid. Tentacles pale orange, two; eyes sessile, two, black."

Mr. Layard has, since his return to England, detected in the operculum of *Megalomastoma altum* a structure similar to that which obtains in these *Catauli*, and I have, since the communication of that circumstance, also observed it in the operculum of the Himalayan *Meg. funiculatum*, nobis.

18. *Cyclophorus Parapsis*, nobis.

Testa late et perspective umbilicata orbiculato-depressa, tenui, confertim striatula, olivacea, sub epidermide tenui albida; spira planiuscula, apice vix prominulo, sutura profunda; anfractibus 4 convexiusculis, ultimo cylindrico, leviter descendente, non dilatato; apertura subverticali, subcirculari, intus glaucescente; peristomate continuo, breviter adnato, recto, simplice, acuto: operculo tenui, corneo, arcte spirato, medio concaviusculo, intus obtuse umbonali.

Diam. major 13, minor 10, alt. 5 mill.

Hab. ad Damboul, ad verticem rupis, in rimis saxorum.

It differs from *C. loxostoma*, Pfeiffer (a large and handsomely marked variety of which was found on the same rock), in colouring, epidermis, depth of suture, narrower and deeper umbilicus, and the more circular and vertical aperture, which exhibits nothing of the diagonal departure from the axis observable in Pfeiffer's shell. The peristome also is acute and single, instead of being double, slightly expanded and thickened, as in that species, of which Mr. Layard's specimen is variegated with radiate and undulated chestnut stripes, and with a single band on a fulvous ground.

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